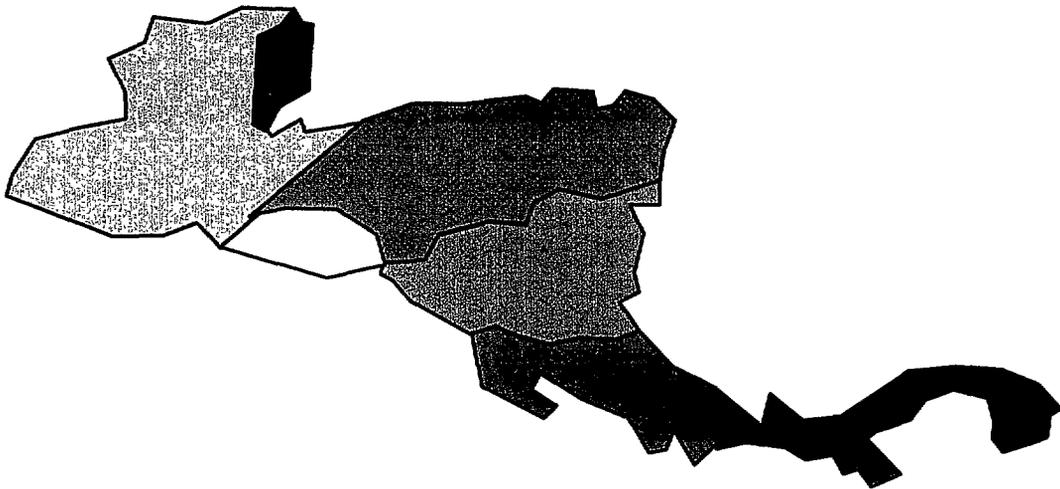


**Environmental Opportunities  
in  
Central America**



**Environmental Export Council  
U.S. Agency for International Development  
U.S. Export-Import Bank**

2 April 1998  
Washington, D.C.

# ENVIRONMENTAL EXPORT COUNCIL (EEC)

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The Environmental Export Council (EEC) is the preeminent trade association in the United States promoting the exports of U.S. environmental goods and services. Its members include both large and small corporations from all sectors of the environmental industry, as well as national laboratories, universities, and trade associations. EEC was formed in 1994 as the result of a consolidation of the U.S. Environmental Technology Export Council and the Environmental Business Council. EEC's objective is to promote partnerships between the private sector and government, working to enhance international markets for U.S. environmental technologies and expertise. This objective is based on two principles. First, that technology developed in the U.S. throughout the last two decades to implement our own environmental restoration has created one of the United States' most internationally competitive industries with the greatest potential for growth. Second, that as other nations seek to enhance their environmental quality and upgrade their environmental technology, opportunities will emerge for U.S. firms to supply the rest of the world with state-of-the-art environmental technologies, products, and services at competitive prices.

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*The mission of EEC is to be the leading business and trade organization representing the U.S. environmental industry. EEC represents the business interests of the environmental industry by providing a collective voice for environmental companies, by promoting environmental trade worldwide, and by supporting government and private sector initiatives for international environmental business development.*

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According to EEC member Environmental Business International, the global market for environmental products, services, and technologies is expected to reach \$543 billion by the year 2000. As U.S.-based companies improve their position in these markets, they must meet numerous challenges. These include learning the needs and capabilities of customers spanning an incredible diversity of cultures, understanding what makes many non-U.S. competitors successful, focusing on the right markets and niches, and shrewdly forging winning teams with both U.S. and non-U.S. partners.

EEC is dedicated to bringing its members together not only with each other but also with foreign partners to conduct business. As part of this effort, EEC has signed Memoranda of Understanding (MOUs) with environmental business associations in Brazil, Costa Rica, Ecuador, Guatemala, India, Mexico, Panama, and Singapore, and is considering future arrangements with similar groups in China, Colombia, El Salvador, Greece, Honduras, and Israel. Through these efforts, EEC is able to match our extensive U.S. network of companies with business opportunities globally. In addition, the Council's conferences and meetings provide members an opportunity to meet with other senior executives from the U.S. environmental industry and the federal government. All EEC members receive our monthly *Member Bulletin*, providing members with up-to-date information on all EEC programs as well as trade leads and other relevant industry news.

## FOR MORE INFORMATION

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## MEMBERSHIP SERVICES

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The U.S. environmental industry has evolved as a response to domestic U.S. demand and regulatory policy, but, now that the domestic market is maturing, the industry needs assistance in meeting the demands of the global marketplace. As the only trade association serving the special needs of the environmental export community, EEC's membership services are designed to maximize networking opportunities, address the "bottom-line" objectives of its members, and produce results and add value which can be measured in terms of increased business for its members. EEC's prominent services include:

◆ **MONTHLY MEMBER BULLETIN:** Disseminated monthly to EEC members, the Member Bulletin serves as a point of reference for EEC's member service programs and contains hot trade leads and lists of upcoming industry events.

◆ **CUSTOMIZED "DAY IN DC" MEETINGS SERVICE:** A customized day of meetings in the Washington, DC, area designed to provide members with information about sources of export assistance and finance within the federal government and multilateral development banks. Each program of meetings is individually tailored to meet the specific needs of the member.

◆ **EECNET:** An electronic information service used to distribute trade leads and industry news on a daily basis to EEC members.

◆ **ANNUAL MEETING:** Features networking opportunities for EEC members and presentations by top-level environmental industry executives on strategic issues for exporting to global markets.

◆ **ACCESS TO FUNDING SOURCES:** Qualified small-to-medium sized members can apply for matching grants of up to \$20,000 from the National Association of State Development Agencies (NASDA) through sponsorship by EEC. The grant funds, which are provided through the U.S. Agency for International Development, can be used to conduct business development and technology or product demonstrations in Asian or Latin American environmental markets.

◆ **INTERNATIONAL NETWORKING:** EEC members regularly engage in networking with potential foreign partners or clients through trade missions, reverse trade mission, study tours, and other programs sponsored through the Council's Memoranda of Understanding with trade organizations in Singapore, Brazil, India, and Ecuador.

◆ **REGIONAL SEMINARS:** Members and non-members are invited to attend these small, focused seminars designed to provide executives from small-to-medium sized companies with the tools they need to create an effective regional exporting strategy.

◆ **TRADE AND REVERSE TRADE MISSIONS:** Targeted, sector-specific meetings with regulators, financiers, and buyers of environmental products and services.

◆ **INFORMATIONAL BRIEFINGS:** These lunch meetings provide members with practical information on such topics as exporting to Japan, intellectual property rights protection, and the Foreign Corrupt Practices Act.

◆ **PROMOTION ON THE INTERNET THROUGH EEC'S WEBSITE:** EEC members are automatically listed on EEC's website, where U.S. and foreign companies go to find information on environmental and clean energy technologies and vendors.

◆ **MARKET RESEARCH:** EEC staff will assist members in obtaining customized market research on foreign markets, industry sectors, and sources of finance.

◆ **SPEAKERS BUREAU:** The EEC Speakers Bureau affords members with the opportunity to gain visibility within the environmental industry by speaking at prominent industry conferences and federal government events.

◆ **LIBRARY AND RESOURCE CENTER:** Open to members only, EEC's library and resource center contains market studies, reference materials, industry journals, and annual reports and promotional materials for numerous U.S. environmental industry firms.

# Latin America Initiative for Environmental Technology

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In order to maximize the benefits from increasing globalization and heightened environmental awareness, the Environmental Export Council (EEC) is collaborating with the United States Agency for International Development (USAID) on a program called the Latin America Initiative for Environmental Technology (LA-IET). The LA-IET acts as an umbrella program for activities in Mexico, Central America, Brazil, and the Andean Region. The primary objective of all programs under the LA-IET is to expand the role of the private sector in environmentally sustainable development. EEC's programs strive to increase private sector awareness about cleaner technologies and processes, as well as encourage investment in environmental technology solutions. To achieve these goals, EEC seeks to forge synergistic partnerships between government, the private sector, industry associations, and non-governmental organizations to address international environmental priorities.

## Central American Committee for the Environment

With the end of the civil wars in Central America, years of environmental neglect has obviated the substantial environmental technology needs in this region. Governments are recognizing the importance of developing sustainably in order to pursue economic growth while assuring and enhancing the quality of life of their citizens. Not only are Central America's democratic governments creating a favorable investment climate, they are beginning to pass new framework environmental legislation which will further increase demands for environmental goods and services across many industries. Given the needs in this region, its proximity to the U.S., and the expertise of the U.S. environmental technology industry, U.S. firms are uniquely well-positioned to pursue opportunities serving multinationals and domestic companies as they seek cleaner processes.

Recognizing these conditions, EEC established the Central American Regional Committee for the Environment (CORAMA) in November 1997. CORAMA is composed of the EEC, USAID, the Sindicato de Industriales de Panamá (SIP), the Cámara de Industria de Guatemala (CIG), and, in Costa Rica, the Fundación Centro de Gestión Tecnológica e Informática Industrial (CEGESTI). CORAMA members identified four environmental priorities and will conduct individual activities addressing the environmental aspects of these sectors:

- Regional Food Processing Conference
- Textiles Environmental Business Exchange
- Tourism Regional Network
- Fertilizers and Pesticides Regional Network

EEC invites U.S. firms interested in conducting business in Central America to provide input as these activities are developed. Likewise, EEC will seek private-sector participation in each of the above activities as they unfold.

### For More Information

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<b>Regional Political &amp; Economic Overview</b>							
	<b>Panama</b>	<b>Costa Rica</b>	<b>Nicaragua</b>	<b>El Salvador</b>	<b>Honduras</b>	<b>Guatemala</b>	<b>Belize</b>

<b>Land Area (sq./km):</b>	<b>78,000</b>	<b>51,100</b>	<b>129,494</b>	<b>21,040</b>	<b>112,090</b>	<b>108,890</b>	<b>22,960</b>
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<b>Population (million/95):</b>	<b>2.6</b>	<b>3.4</b>	<b>4.4</b>	<b>5.7</b>	<b>5.6</b>	<b>10.6</b>	<b>215,000</b>
<b>Growth</b>	<b>1.4%</b>	<b>1.8%</b>	<b>2.8%</b>	<b>2.0%</b>	<b>2.5%</b>	<b>2.7%</b>	<b>2.3%</b>

<b>GDP(Billions USD):</b>	<b>8.2</b>	<b>9.2</b>	<b>1.9</b>	<b>9.5</b>	<b>3.9</b>	<b>14.6</b>	<b>592m</b>
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<b>GDP Per-capita:</b>	<b>\$2,720</b>	<b>\$2,590</b>	<b>\$390</b>	<b>\$1,580</b>	<b>\$600</b>	<b>\$1,340</b>	<b>\$2,630</b>
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<b>Political System:</b>	<b>Democratic</b>						
<b>Elections:</b>	<b>1999</b>	<b>2002</b>	<b>2001</b>	<b>1999</b>	<b>2002</b>	<b>1999</b>	<b>1998</b>

## **Belize - Political & Economic Structure:**

**Elected Government:** Parliamentary democracy.

Queen Elizabeth head of state, represented in country by Governor General.

House of representatives & senate elected 5 year term.

**Governor General:** Sir Colville N. Young Sr. **Next Election:** 1998

**Key initiatives:** drug and illegal immigrant trafficking.

\* **Government Agencies:**

**Department of Environment - 1989:** Authority to control environmental pollution

**Department of Ministry of Tourism & Environment**

-monitors environmental pollution

-responsible for conservation management and natural resources

-inspects environmental impact assessments

**Water and Sewage Authority (WASA):** Responsible for water delivery and wastewater treatment

**Legislation:**

EPA: Environmental Impact Assessments (EIAs) 1995

DOE: Effluent Limitation Regulations 1995: industrial pollution controls

\* **Political Commitment to Environmental Projects:** Very pro-environment.

\* **Government's Ability to Fund Environmental Projects:**

Limited Capital Generation

\* **International Aid:**

Belize is USAID graduate.

European Union - funds various projects & studies

IDB - solid waste disposal

## Costa Rica - Political & Economic Structure:

\* **Elected Government:** Election February '98. Current president, Jose Maria Figueres, lost to Miguel Angel Rodriguez (PUSC), to assume presidency May 8, 1998.

New Government has few economic programs - Business community worried.

Next Election: 2002

**Key Initiatives:** Eco-tourism, Electronics manufacturing

\* **Government Agencies:**

**Ministry of Environment & Industry (MINAE) 1995**

-Replaced Ministry of natural Resources, Energy and Mines

-Enforce all environmental controls/ regulations

-Seriously understaffed currently focuses on water

**Costa Rican Institute of Water & Sewage Systems (AYA)**

-Water and sewerage services to 80% of country

\* **Legislation:** Enacting standards - water quality & affluent discharges.

-Organic Environmental Law 1995

-Wildlife Law 1992

\* **Political Commitment to Environmental Projects:**

Proactive - private sector participation in environmental conservation.

Enforcement of standards is weak, corrupt.

\* **Government's Ability to fund Environmental Projects:** Strongest in the region

\* **International Aid:** Graduated from the USAID program.

IDB & WB still active.

\* **Private Investment Funding:** Strongest market for private investment in region.

## El Salvador - Political & Economic Structure:

**Elected Government:** Republic -elected President & Legislature.  
Government is stable.

**President:** Dr. Armando Calderón **Next Election:** 1999

**Key initiatives:** trade, privatization, improved exports.

\* **Legislative & Regulatory Framework:** Responsibility consolidated: 25/Laws & 12 Agencies to:

**Ministry for the Environment and Natural Resources..**

**Other Governmental Agencies of note:**

Bureau of Economic Protection (SEMA) Founded 1991

Secretariat of National Environmental Council (CONAMA)

Water Quality (ANDA)                      Air Quality (SANAM)

\* **Legislation:** National Environmental Strategy & Action Plan 1994 (IDB support)  
Environmental Protection Act (pending)  
Environmental General Law 1998, required impact assessments

**Political Commitment to Environmental Projects:**

\* Environmental losses \$300 to 500 million/yr. (3% to 5% GDP)

\* Private sector interests stop government actions.

\* Public pressure is high to clean up environment.

\* **Government's Ability to Fund Environmental Projects:** Severely Limited

\* **Outside Project Funding & International Aid:**

Japan, USAID, IDB, & WB

\* **Private Investment Funding:** Privatization of water sector & solid waste.

## Guatemala - Political & Economic Structure:

**Elected Government:** Guatemala's 1985 Constitution calls for elections of a one term President, a unicameral Congress and Municipal officers.

**President:** Alvaro Arzú **Next Election:** 1999

**Key Initiatives:** Maquilla Plant, diversification of economy.

\* **Legislative & Regulatory Framework:** Laws do not spell out the environmental standard, no enforcement

**Legislation:** Environmental Protection & Improvement Law enacted in 1986. New construction projects required to file impact studies for CONAMA review.

**Regulatory:** Government involved with environmental regulations and enforcement:

**National Environmental Commission (CONAMA) 1986:** Coordinate environmental policy, limited support & small budget. Must work with Ministry of Health, affiliated with the office of the President. Headed by Ing. Juan Francisco Asturias.

**Lake Amatitlán Authority:** Developing wastewater standards for discharges into lake, - implementation will be slow.

**Guatemala City Municipal Water Company (EMPAGUA):** Water delivery and wastewater services.

\* **Political Commitment to Environmental Projects:** Ability to manage environmental problems suffers because areas of responsibility are still being defined. Government incentives for:

**Forestry:** Owners engaged in reforestation can qualify for real estate exemption, and deduct costs from income taxes.

**Tourism:** Tourism projects are eligible for real estate tax exemptions. Can import goods not manufactured in Central America duty free.

\* **Government's Ability to Fund Environmental Projects:** Severely limited.

\* **Outside Project Funding & International Aid:** USAID, & IDB (waste water plants).

\* **Private Investment Funding:** Japanese government and private firms are financing the rehabilitation of existing wastewater treatment plants, and the construction of new facilities.

## **Honduras - Political & Economic Structure:**

- \* **Elected Government:** A Republic with an elected president. The LIBERAL PARTY took office in January after the November 1997 election. Economy is growing now as still recovers.

**President:** Carlos Roberto Flores

**Next election:** 2002

**Key Initiatives:** Eco tourism and diversification of the economy.

- \* **Legislative & Regulatory Framework:**

**The General Environmental Law of 1993** created the Ministry of Environment (SEDA). Their responsibilities include: coordinating studies, develops plans and projects related to the environment, provides technical assistance, coordinates land use (with Planning, Budget and Natural Resource Office), and carries out education. By law it's staff can not exceed 35 people.

**Other Governmental Agencies of note:**

**National Committee for Water Quality** -Regulations for wastewater discharges

**CSCCOE** - Studies on environmental pollution and recommends solutions

**National Autonomous Water & Sewage Service (SANAA)** - Water and sewage services, effort underway to transfer this authority to municipalities

**Political Commitment to Environmental Projects:** Government is committed to modernizing the public sector & improving its ability to deliver key environmental services.

- \* **Government's ability to Fund Environmental Projects:** Small economy, therefore dependent on donor assistance to fund its environmental projects and reforms.

- \* **Outside Project Funding & International Aid:**

WB, International Development Agency (IDA), IFC & IDB.

## Nicaragua - Political & Economic Structure:

\* **Elected Government:** Republic with an elected president. The elected president is member of the Liberal Alliance, a coalition of several parties, and the largest group of the National Assembly followed by the Sandinista Party (FSLN)

**President:** Arnoldo Alemán      **Next Elections:** 2001

**Key Initiatives:** Diversification of the economy

\* **Legislative and Regulatory Framework:** Political awareness on environmental issues, The Ministry for Natural Resources and the Environment (**MARENA**) is responsible for all environmental legislation. The General Law for Environmental and Natural Resources' purpose is to strengthen the role of MARENA.

National Law & proposal for institutional structure for resource management (pending)

\* **Political Commitment to Environmental Projects:** There is political awareness of the environmental needs. Government is committed through MARENA.

\* **Government Ability to fund Environmental Projects:** Very limited.

\* **International Aid:** Projects funded by international multilateral agencies such as World Bank, IDB, USAID, German funding going toward clean up.

\* **Private Investment Funding:** The International Finance Corporation (IFC) is also supporting the efforts of the World Bank in order to support private investment to speed up economic growth in the nation.

## **Panama - Political & Economic Structure:**

**Elected Government:** Elected President. Judicial branch is separate from Executive, and appointed by President.

**Key initiatives:** Trade liberalization, acceleration of privatization, improved export competitiveness.

**President:** Ernesto "Toro" Perez Belladares      **Next Election:** 1999

### \* **Legislative & Regulatory Framework:**

#### **Governmental Agencies:**

**National Institute for Renewable Natural Resources (INRENARE) 1986:** Designs & implements policies for conservation and development of natural resources.

**National Environmental Commission** -Responsible for pollution control

**Ministry of Health:** Policy formation & monitoring water supply and sanitation

**National Water and Sewage Authority (INDAAN):** Provides water and wastewater services

**Legislation:** Pending.

\* **Political Commitment to Environmental Projects:** Not high priority, other economic growth sectors have higher priority (ex. Canal Zone development and tourism development).

\* **Government's Ability to Fund Environmental Projects:** Severely Limited

\* **International Aid:** IDB & WB - Water supply, sanitation and environmental protection. USAID: Established an Environmental Trust Fund to protect the Panama Canal Watershed, with support of the Government and the Nature Conservancy. The trust's objective is to protect the resource, and promote reforestation.

\* **Private Investment Funding:** Government is structuring privatization program for potable water, sanitation and solid waste.

- **Dynamic Sectorial Opportunities**

- 1- Tourism**

- 2- Textile**

- 3- Agriculture**

- 4- Infrastructure Development**

# Environmental Tourism Sector Analysis

## Infrastructure:

## Key Markets:

**Belize, Costa Rica,  
Guatemala, Honduras,  
Panama**

**Background:** The future of the region depends heavily on the growth of eco-tourism. It provides employment and a much needed source of foreign exchange. The sector is growing and expected to surpass agriculture in terms of economic importance to each country. Because of the nature of eco-tourism, many of the facilities that will be developed have to be designed to be self sufficient and thus environmentally friendly.

As the economies of scale are small, growth will depend mostly on foreign investment. Local governments strive to create systems friendly to direct foreign investment, for the purchase or lease of lands and development of hotels and resorts.

## Existing Facilities:

Belize	362 hotels 3708 rooms	Costa Rica	352 hotels 12,000 rooms
Guatemala	70 hotels 12,000 rooms	Honduras	446 hotels 10,772 rooms
Panama	248 hotels		

**Attractions:** Rain forests, Mayan ruins, fishing, SCUBA diving, beaches, volcanoes, architecture, forts.

**Funding Sources:** World bank, Interamerica Development Bank, USAID, European and American hotel operators

## Market Needs:

- |                         |                        |
|-------------------------|------------------------|
| * Water Distribution    | * Potable water        |
| * Wastewater Treatment  | * Solid Waste Disposal |
| * Electrical Generation | * Transportation       |

## Opportunities:

- \* Small scale water pumping and storage capacities
- \* Filtration systems to treat water source coming into facility.
- \* Wastewater treatment and discharge monitoring systems
- \* Land fill planning, design and implementation
- \* Renewable energy or small scale independent electrical production capacities.
- \* Airports and ground transportation systems will have to be modernized to meet the demands of increased traffic.

## **TEXTILE ENVIRONMENTAL SECTOR ANALYSIS:**

<b>Area</b>	<b>Key Markets</b>
<b>I –Water Pollution</b>	<b>Guatemala, El Salvador, Nicaragua, and Honduras</b>
<b>II- Waste Management</b>	<b>Guatemala, El Salvador, and Honduras</b>
<b>III- Air Pollution</b>	<b>Guatemala and El Salvador</b>

<b>Textile Plants</b>		<b>No. of workers</b>
<b>Guatemala</b>	<b>220</b>	<b>100,000</b>
<b>El Salvador</b>	<b>150</b>	<b>55,000</b>
<b>Honduras</b>	<b>15</b>	<b>under 2,000</b>
<b>Nicaragua</b>	<b>12</b>	<b>under 2,000</b>

**\* R&A estimates**

## **Textile Environmental Sector Analysis**

**Water Pollution: Key Markets: Guatemala, El Salvador, Nicaragua, And Honduras.**

### **Background:**

The textile industry contributes to one of Central America's most serious environmental problems; water pollution. Central America is home to the "Maquila" manufacturers, especially in Guatemala, and El Salvador. The many Maquilas can usually be found grouped together in free trade zones. The industrial sites generate volumes of industrial wastewater, much of which is disposed of improperly. As a result, virtually every river passing through a major urban area and is severely polluted and most major lakes are on the verge of dying

### **Market Needs:**

- Site specific water treatment plants to control and prevent this waste from contaminating lakes and rivers
- Enforcement

### **Opportunities:**

- building industrial wastewater treatment facilities
- extending sewerage systems for industrial wastewater
- monitoring equipment
- treatment technologies

## **Textile Environmental Sector Analysis:**

**Waste Management:**

**Key Markets: Guatemala, El Salvador,  
Nicaragua, and Honduras.**

### **Background:**

Hazardous industrial waste from the Maquilas contribute to only a small percentage of the total volume of waste generated in Central America. However, as this industry grows, so will the levels of industrial waste. Industries are often located in or near urban areas; as a result, industrial solid waste is often part of the municipal waste stream. There are currently, no special requirements in the collection of hazardous waste and most of the total waste discharged receives no special treatment prior to disposal.

### **Market needs:**

- expanding waste collection systems
- creating source reduction and alternative waste management
- specialized handling for hazardous waste systems

### **Opportunities:**

- consulting services
- siting & design
- transfer stations
- alternative waste processing techniques
- waste management equipment

## **Textile Environmental Sector Analysis:**

### **Air Pollution      Key Markets: Guatemala, El Salvador, and Honduras**

#### **Background:**

Industrial processes contribute to a small percentage of the overall air pollution in Central America. In some large cities, individual facilities can be important sources of localized air pollution problems. Because of the expected growth in the maquila manufacturers industry, there will be a need for pollution control equipment and air quality monitoring equipment in the near future. Poor air quality is just beginning to emerge as an environmental health concern in Central America.

However, in urban areas they add to already growing health concerns from poor air quality. As the industry grows, air pollution opportunities will emerge.

#### **Market needs:**

Multinational companies locating in the region may be subject to environmental policies established by their parent companies and will be required to install appropriate pollution control equipment.

#### **Opportunities:**

- ambient air quality monitoring
- select industrial facility monitoring and control equipment

## **Environmental Agricultural Sector Analysis**

	<b>Area</b>	<b>Key Markets</b>
<b>I-</b>	<b>Irrigation</b>	<b>All Countries</b>
<b>II-</b>	<b>Soil Erosion</b>	<b>same</b>
<b>III-</b>	<b>Groundwater Contamination</b>	<b>same</b>
<b>IV-</b>	<b>Nontraditional Agriculture</b>	<b>same</b>

The successful transition from traditional subsistence agriculture to nontraditional fruits and vegetables, aquaculture and modern food processing plants depends on the sustainable use of natural resources. In the past, the agricultural sector has provided the main source of foreign exchange and employment. However, due to a deterioration of natural resources yields have begun to decline.

Amidst a decline in employment, production and foreign capital, local governments have begun to take action in monitoring the practices within this sector that effect these numbers. The common cure is environmentally friendly technologies.

# Environmental Agricultural Sector Analysis

## Irrigation:

**Background:** Throughout the sugar cane, coffee and banana industries irrigation is a life line. Traditional practices have been flood irrigation which is both time consuming and an inefficient use of a very limited resource. In many parts of the region the limited water supply gets allocated to the agricultural sector which has a strong negative impact on the level of health in the surrounding communities.

Technologies to tap additional resources are an option in the short term, but the sustainability lies in better management of the existing supply.

## Market Needs:

- \* Water Delivery
- \* Water Distribution
- \* Water Storage Technologies
- \* Water Resource Management
- \* Drought Resistant Crops

## Opportunities:

- \* Renewable Energy Powered Pumps
- \* Aqueduct Upgrade Technologies
- \* Drip Irrigation
- \* Low Flow Sprinkler Systems
- \* Small Scale Reservoir planning and Implementation
- \* Planning and Projecting Committees
- \* New Crop Strands that require less water

# Environmental Agricultural Sector Analysis

## Soil Erosion:

**Background:** In much of the region there is no practice of returning nutrients into the soil. When crop yields fall below a certain level, new land is cleared and brought into production. The old land lies idle, but unplanted and virtually infertile. The thin layer of exhausted top soil that remains is washed away in the rains. This sedimentation ends up in the rivers and blankets sun light penetration which kills the bio-diversity in the lakes and streams.

The initial clearing of land through slash and burn is also very counterproductive. The uncontrolled burning is devastating to the forests, and the heat kills the bacteria in the soil essential to crop production.

## Market Needs:

- \* Soil Rejuvenation Technologies
- \* Crop Rotation
- \* Erosion Control Systems
- \* Natural Resource Management
- \* Sustainable Agriculture

## Opportunities:

- \* Nitrogen Fixing Crop Technologies
- \* Alternative Crops to Traditional Planting Practices
- \* Terracing
- \* Water Diversion Culverts
- \* Land Use Planning
- \* Short Term Alternatives to Detrimental Agricultural Practices

# **Environmental Agricultural Sector Analysis**

## **Groundwater Contamination:**

**Background:** The extensive long-term use of pesticides and fertilizers has contaminated much of the groundwater supply that is not only used for agriculture, but also human consumption. This problem extends also to the food processing plants and the discharge of effluents in their wastewater.

The processing of traditional crops like sugar cane and coffee require a tremendous amount of water. The unregulated discharge of this water, contaminated with solids, metals and lubricants from the machinery, then goes directly into the surrounding water supply.

Much of the problem lies in the monitoring of those responsible for the pollution. New technologies do exist to better the way that they do business. It is a short term cost to them, but the long term economic gains of environmentally friendly practices are undeniable.

## **Market Needs:**

- \* Groundwater Remediation
- \* Wastewater Discharge Monitoring
- \* Training in the Use of Fertilizers & Pesticides
- \* Enforceable Legislation

## **Opportunities:**

- \* Aquifer Decontamination Technologies
- \* Filtration Systems
- \* Effluent Monitoring
- \* Clean -up and Rejuvenation of Lakes and Streams
- \* Organic Farming Technologies
- \* Natural Resource Planning
- \* Environmental Impact Assessment Studies

# Environmental Agricultural Sector Analysis

## Nontraditional Agriculture:

**Background:** Bananas, sugar and coffee have been the traditional exports from the region. New products are sought to reduce the dependence on these exports. This is beneficial in developing a market niche as the world market for products like sugar and coffee become more and more competitive. It is also a strategy essential to crop rotation and the sustainability of the agriculture sector as a whole.

Beyond bananas, sugar and coffee countries are increasing production in melons, nuts, pineapples and marine aquaculture such as shrimp and crabs. Training and profitable start-up technologies will enable these sectors to continue expanding. Local governments are actively seeking any competitive advantage that will distinguish them in a very competitive marketplace

## Market Needs:

- \* New Crops with Existing Marketplace
- \* New Production Technologies
- \* Distribution Upgrades
- \* Storage and Handling Technologies

## Opportunities:

- \* Marine Aquaculture
- \* Refrigeration
- \* Transportation / Delivery
- \* Environmentally Friendly Fruit and Vegetable Crops
- \* Training Programs for Ministries of Agriculture
- \* Resource Management

# **Environmental Infrastructure Sector Analysis:**

<b>Area</b>	<b>Key Markets</b>
<b>I: Water Delivery</b>	<b>All countries Rural &amp; Urban</b>
<b>II: Water Pollution</b>	<b>All countries (except Costa Rica)</b>
<b>III: Solid Waste Management</b>	<b>Guatemala, Nicaragua, El Salvador &amp; Panama</b>
<b>IV: Renewable Energy</b>	<b>Guatemala, Costa Rica, &amp; El Salvador</b>
<b>V: Air Pollution</b>	<b>Guatemala, El Salvador &amp; Costa Rica</b>
<b>VI: Deforestation</b>	<b>All Countries</b>
<b>VII: Competitive Note:</b>	
* Japanese & German Governments Directly Finance Environmental projects	
* Japanese & German Companies take equity positions in private CA companies.	



# **Environmental Infrastructure Sector Analysis:**

## **Water Delivery:**

**Key markets: Guatemala, El Salvador, Honduras & Nicaragua**

**Background:** Water delivery infrastructure development will total an estimated \$825 million over the next five years. About 10.4 million people lack water delivery access, and Central American governments have high priority on supplying potable water to their populations. Associated health issues from lack of safe drinking water are numerous and costly.

Existing systems have been unable to keep up with growing demand. Rural areas generally have poor access to water distribution systems. Furthermore, in many areas, surface water is polluted, and the underground water supplies are being used at unsustainable rates, creating additional environmental problems.

## **Market Needs:**

- extending water distribution networks in urban and rural areas
- improving water quality, reducing system losses
- increasing water storage capacity and developing new sources
- enhancing water supply management
- preventive maintenance technology

## **Opportunities:**

- feasibility studies, system design
- privatized upgrade & management of existing systems
- “turn-key” fee-based small-and-medium-scale water treatment facility engineering, construction, management & maintenance
- rural water system construction
- water treatment systems, equipment, controls
- technical training
- small scale projects are generally encouraged for private companies.

# **Environmental Infrastructure Sector Analysis:**

## **Water Pollution:**

**Key markets: All countries in C.A. except Costa Rica**

**Background:** Water Pollution is a serious problem affecting all of Central America. Virtually all rivers passing through a major urban area are severely polluted, many of the major lakes - which serve as fishing areas, potential sources for drinking water, and recreational centers - are on the verge of biological death.

Much of this contamination comes from the discharge of untreated municipal and industrial waste in to the region's waterways, although soil erosion accompanied by agricultural run-off (laden with solid waste & pesticides) are also major contributing factors.

Short-term market opportunities include; expansion of existing sewerage systems, redesign & renovation of wastewater systems, and construction of new wastewater treatment plants. Other near term opportunities include; industrial water pollution prevention and control technologies to larger -sized industrial facilities and those facilities located in very polluted areas.

## **Market Needs:**

- extending sewerage systems for municipal and industrial wastewater
- building or upgrading municipal wastewater treatment facilities
- installing industrial wastewater treatment facilities.

## **Opportunities:**

- Site selection, design, and construction of large, donor-funded sewerage and municipal wastewater treatment projects.
- Pumps, pipes, filters, and other equipment
- Small -scale industrial wastewater treatment facilities
- Monitoring equipment
- Low-cost modular & alternative treatment technologies

# **Environmental Infrastructure Sector Analysis:**

## **Waste Management:**

**Key markets: Guatemala, Nicaragua, El Salvador, and Panama**

**Background:** Less than half of all solid waste is collected in Central America and less than 50% of what is collected is sorted and properly disposed. The region generates an estimated 17,600 metric tons of solid waste per day, a figure which is expected to double in the next two decades as urban population continues to soar. There is a clear need for waste management services and technology in this area.

The region needs increased waste collection mechanisms, new and rehabilitated landfills, incineration facilities and alternative waste management programs, including recycling and composting. The lack of enforcement will limit the short term opportunities for US companies.

## **Market Needs:**

- expanding waste collection systems
- upgrading existing landfills or building new ones
- creating source reduction and alternative waste management
- recycling systems
- specialized handling systems for hazardous waste streams

## **Opportunities:**

- consulting services (Est. \$100 Million over 5 years)
- siting & design
- waste management vehicles and equipment
- transfer stations & incineration (waste to energy) projects
- municipal privatization efforts to develop & manage fee-based - state of the art environmentally sound waste systems & landfills
- alternative waste processing techniques (Ex. composting)
- recycling systems for commercially viable plastic materials  
Ex: plastic bags used by banana producers

# **Environmental Infrastructure Sector Analysis:**

## **Renewable Energy**

**Key markets: Guatemala, Costa Rica, and El Salvador**

Renewable energy is a large viable market in Central America. The region has significant needs. About 15 million people do not have access to electricity. Central American companies will need about 2.6 GW of additional electricity capacity over the next ten years.

Renewable energy is a cost –effective alternative to fossil fuel plants in a region that lacks indigenous fossil fuel resources and gas pipeline infrastructure.

### **Opportunities**

- private ownership/operation of small hydro, geothermal, and sugar mill cogeneration projects
- rural photovoltaic projects
- engineering, design, procurement, construction, and rehabilitation of public hydroelectric projects.

## **Energy Efficiency**

**Key markets: Guatemala, El Salvador, and Costa Rica.**

The energy efficiency will should expand as countries in the region continue their reform of energy prices and give greater priority to energy efficiency. Historically, Energy Efficiency Technology has had low priority because of low per-capita levels of energy consumption, and because of readily available wood supplies. Now that forests are severely depleted, other forms of energy have to be brought into use to substitute residential cooking of food, and treatment of safe drinking water.

Note: Fuel wood comprises of  $\frac{3}{4}$  of the regions residential energy consumption and 40% of its total energy consumption.

### **Opportunities:**

- sales & installation of energy –efficient industrial motors
- commercial lightning
- energy audits
- other energy saving services

# **Environmental Infrastructure Sector Analysis:**

## **Air Pollution:**

**Key markets: Guatemala, El Salvador, and Costa Rica**

Poor Air Quality is just beginning to emerge as an environmental problem in certain Central American Countries. Needed infrastructure includes: ambient air quality monitoring, vehicle emission testing, and select industrial facility monitoring and control equipment.

Major Development Projects are underway in Central America funded by the World Bank and the Interamerican Development Bank.

# **Environmental Infrastructure Sector Analysis:**

## **Deforestation:**

**Key Markets:** All countries

**Background:** Much of the attraction to the region are the rain-forests and the rich diversity of flora and fauna found in this environment. As the population grows through the birth rate and immigration, there is increased pressure on this resource. More and more land is cleared for agriculture each year. Some of the forests are protected by natural parks, but illegal logging is common.

Deforestation is at the source of many environmental problems in the region: there are less trees to control air-pollution; there is no water shed to control soil erosion or maintain an aquifer; the soil erosion decreases agricultural productivity and causes sedimentation in the rivers which then flows downstream out into the ocean where it damages marine life by blanketing out the sunlight.

Some deforestation is induced by the charcoal industry. Some of it comes from logging. Another form comes in the clearing of new lands for agriculture or housing. All of it is for short term gains over long term sacrifices to develop a sustainable tourist trade.

## **Market Needs:**

- \* Natural Resource Managment
- \* Reforestation
- \* Sustainable Agriculture
- \* Erosion Control Technologies

## **Opportunities:**

- \* Feasibility studies, training, conservation programs
- \* Resources and technology for reforestation
  - tropical pines are sustainable and faster growing in areas not pressured by agricultural demands
  - hardwoods are very problematic as they take longer to grow and require the best agricultural lands
- \* Non traditional crops and proper rotation to maximize yields in existing hectares under agricultural production
- \* Civil engineering services

# Belize

## Environmental Country Overview - Belize

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### Political & Economic Structure:

- \* **Elected Government:** Parliamentary democracy like England. Queen Elizabeth is head of state, represented in country by Governor General. There is a cabinet led by a prime minister who serves as Head of Government. There is a house of representatives and senate with 29 members each elected to a 5 year term. Key initiatives: drug and illegal immigrant trafficking.

**Governor General:** Sir Colville N. Young Sr.      **Next Election:** 1998

- \* **Government Agencies of note:**

Department of Environment Founded 1989

- legally established in 1992 when Environmental Protection Act was created
- gives government authority to control environmental pollution

Department of Ministry of Tourism & Environment

- monitors environmental pollution
- responsible for conservation management and natural resources
- inspects environmental impact assessments
- coordinates Natural Environmental Appraisal Committee

-Ministry of Health, Commission for Water Management, Coastal Management Agency, Department of Fisheries and Land Use Authority

Water and Sewage Authority (WASA)

- responsible for water delivery and wastewater treatment

- \* **Legislation:** EPA: Environmental Impact Assessments (EIAs) 1995  
DOE: Effluent Limitation Regulations 1995

- industrial pollution controls
- industry must: pay for license to discharge effluents, monitor discharge, meet yearly goals established by DOE

- \* **Political Commitment to Environmental Projects:** Very pro-environment. In 1996-97 passed Protected Areas Conservation Trust (PACT) \$BZ 7.50 taxation upon visitors departure. NGOs get grants from this trust to invest in environmental education.

Note: Belize is the lone English speaking country in Central America. They have traditionally enjoyed one of the most stable political environments in the region. Their economy is small and bears more similarities with the Caribbean nations. Thus the commitment of their government is towards sustainable eco-tourism.

- \* **Government's Ability to Fund Environmental Projects:** Limited Capital Generation

- \* **International Aid:** Belize has graduated from the USAID program. Other international sources continue to offer funds for educational and infrastructure development. The European Union may fund a study on the effects of agricultural run-off on the barrier reef. IDB is funding a project for waste disposal in municipalities.

### Environmental Issues:

- \* **Soil Erosion & Deforestation:** The government is careful to preserve the rainforest and focus development on environmental friendly infrastructure. The expanding agriculture sector has lead to increased deforestation.
- \* **Wastewater Treatment** Agriculture development is posing the biggest problem: i.e. 2 major Sugar Cane refineries produce more than 2500 gallons of liquid waste per hour: high organic load and spent lubricants.

### Environmental Opportunities:

**Monitoring Effluents:** In 96 DOE passed law requiring license to discharge effluents and monitoring the amount; 33 industries have purchased this.

**Sewage Infrastructure** Over the next 10 years the Water and Sewage Authority (WASA) will invest 27.3M in infrastructure, rural systems and treatment plants.

**Wastewater Treatment:** Pumps and small scale facility packages are in demand

**Renewable Energy:** There is a program to recycle batteries, but there is no market for them, so all recycled product must be exported.

Note: Relative to other countries in Central America, Belize's environmental situation is not as critical. They have shown foresight in infrastructure investment and kept much of their natural resources intact.

## Environmental Country Overview - Belize

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### Economic Structure & Background:

	1994	1995	1996	1997
Inflation	2.3	3.2	6.4	
GDP(\$USM)	473	491	503	
Growth(% prev. yr.)	2.2	3.7	2.5	
Population(Thnds)				223
Growth(% Prev. Yr.)				2.7

- \* Second smallest and least populated country in Central America.
- \* Gained independence from Britain in 1981
- \* English speaking, but developing increasing ties with Central America.
- \* Established diplomatic relations with Cuba in 1995.
- \* Economy averaged higher than 10% growth through mid 80s to early 90s
- \* Government structural adjustment should keep growth at 3-5% in medium term.

Currency: 2.0 BZ\$ = 1 US\$

### Education:

- \* Education is compulsory between ages of 6 and 14.
- \* Primary education is controlled by the government
- \* 269 Primary Schools; 30 Secondary Schools; 4 Technical Colleges; 4 Vocational Schools and 1 Teaching College. The University of Belize (UCB) offers Associates Degrees.
- \* The US military planned to construct 6 schools in 1997
- \* Adult literacy rate: 90.1%

### Infrastructure:

- \* International finance projects typically geared for improving Public Health, education and roads.
- \* Private Company operates desalination plant in San Pedro and sells water to WASA for 10 years
- \* Only 18% of pop served by sewers

### Other:

- \* Highest per capita in CA US\$ 2,359.

## Environmental Country Overview - Belize

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- \* In 1995: 33% of Belize exports went to US and 54% (\$140M) of what they imported came from the US.
- \* Principle growth sectors: Agriculture, Forestry, Fishing, mining is 20% of GDP and accounted for 25% of total employment in '95.
- \* Import duties remain highest in the region. In '96 government abolished 145 Stamp Duty, gross receipt tax and export duties. To offset this a 15% Value Added Tax was introduced.
- \* Belize offers incentives to attract private investment
  - The Fiscal Incentives Act
  - International Business and Public Investment Companies Act
  - Export Processing Zone Act
  - Commercial Free Zone Act
- \* Belize Bank is the largest commercial bank in the region w/ 40% of the country's commercial bank deposits and loans.

**Tourism Industry**

**Belize**

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**Existing Facilities :**

- \* The number of registered hotel rooms grew by 75% between 90 and '95
  - led to flat occupancy rates
  - fewer tourists paying more for their vacations in Belize.
- \* 362 hotel/resorts with 3708 rooms.
- \* 3 of Top Ten US investors are in tourism sector
  - Ramada Royal Reef Hotel and Marina (\$US 17M)
  - Ramon's Village (Reef Resorts) (\$US5M)
  - Journey's End Hotel (\$US3.5M)

**Attractions:**

- \* fishing
- \* SCUBA diving- reefs are pristine and world class

**Labor Pool:**

- \* 95 estimates: population 216,000, 40% below working age.
- \* About 7650 public sector workers are unionised.
- \* Highest wage scale in region

**Source:**

- \* Tourism second only to Agriculture as source of foreign capital
- \* 60% of tourists come from US

**Environmental Issues and Opportunities:**

- \* **Deforestation:** A growing agricultural sector is putting pressure on much of the country's rain forests.
  - Opportunity:** Natural resource management training
- \* **Soil Run-off:** Sediment and agricultural products harm the barrier reef
  - Opportunity:** Alternative agricultural training
- \* **Water Resources:** Hotel consumption of potable water and wastewater disposal.
  - Opportunity:** Small scale self sufficient water treatment facilities

## Food Processing & Agriculture: Belize

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### Existing Agriculture:

- \* Sugar
- \* Bananas
- \* Citrus Concentrates
- \* Marine Products (Shrimp Aquaculture)

### Labor Pool:

- \* 71,000 farmers

### Infrastructure:

- \* In 1995 when economy grew by 6.7% the agriculture sector increased by 7.4%
- \* Citrus production will double between '95- '98.
- \* Sugar cane earnings grew due to higher can quality, improved factory efficiency and new access to preferential markets in US.
- \* Improved shrimp aquaculture techniques will also be a factor.

### Pipeline Projects:

- \* Top government priority for economic development.
- \* US 2.5M grant to improve Banana industry.

### Other:

- \* The national move toward free trade will hurt bananas and sugar industries
- \* There is also a gradual reduction of import restrictions on corn and rice

### Environmental Issues and Opportunities:

- \* **Land Erosion:** Traditional slash and burn techniques exhaust soil nutrients as the agriculture sector expands.

**Opportunities:** Sustainable agriculture training, land conservation technology

- \* **Deforestation:** A key factor in land erosion.

**Opportunities:** Natural Resource management

- \* **Water Pollution:** Agricultural run-off is a primary contributor.

**Opportunities:** Alternative agricultural practices and non-traditional crops

## Infrastructure: Belize

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### Port Development:

- \* Dangriga and Big Creek are 10-15" draft ports which handle shipping for Belize City.

### Communications:

- \* Privatized telecommunications co. in '92

### Education:

- \* Taiwan established a \$US 10M fund for creation of new bus in Belize: skills training included

**Opportunity:** The local government is very receptive to educating the people about new technologies. Technical and vocational training is a priority

### Power generation:

- \* Partially privatized BEL in '93 by selling stock, no plan to further privatize any of the electrical capacity run by Belize Electricity Limited (BEL)
- \* Largest single US investment = \$60M hydroelectric project

### Other:

- \* Lack of funding for roads continues to be a problem in economic development.

## Environmental Country Overview - Belize

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### Contacts:

#### **US Embassy, Belize**

Corner Gabourel Lane and Hutson St.  
PO Box 286 Belize City, Belize  
tel: (501) 2-77161 fax: (501) 2-35321

#### **US Dept of Commerce**

Country Desk Officer  
Washington, D.C.  
tel:(202) 482-1658

### Information:

- \* Belize Investment Guide for sale at Ministry of Economic Development in Belmopan.  
tel: 501-8-22526/22527 and fax: 501-8-23111.

#### **Minister of Finance & Economic Development**

Rt. Hon. Manuel Esquivel  
Office of the Prime Minister, Belmopan  
tel: (501) 8-22346 fax: (501) 8-20071

#### **Ministry of Foreign Affairs**

PO Box 174 Belmopan  
tel: (501) 8-22322 fax: (501) 8-22854

#### **Ministry of Agriculture**

Hon Russell Garcia  
Belmopan  
tel: (501) 8-22241 fax: (501) 8-22409

#### **Ministry of Education and Labor and Public Service**

Hon. Elodio Aragon  
Belmopan  
tel: (501) 8-22380 fax: (501) 8-23389

#### **Minister of Housing and Urban Development**

Hon. Hubert Elrington  
Belmopan  
tel: (501) 8-23336 fax: (501) 8-71202

#### **Ministry of Tourism and Environment**

tel: (501) 8-23393

## Environmental Country Overview - Belize

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### **The Belize Bank**

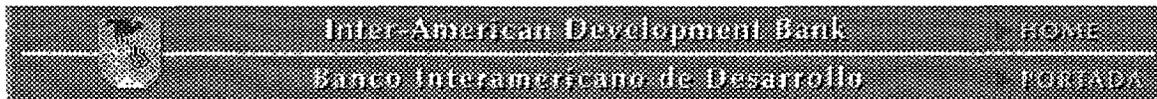
Market Square Belize City  
contact: Louis Swazey, Senior VP  
tel: (501) 2-77132 fax: (501) 2-72712

### **Bank of Nova Scotia**

Albert Street Belize City  
contact: Claude Marcel, manager  
tel; (501) 2-77027 fax: (501) 2-77416

### **Barkleys Bank PLC**

Albert Street Belize City  
contact: Tilvan King, Country manager  
tel: (501) 2-77211 fax: (501) 2-78572



## Approved Project Documents--Belize

Sum. = summary only

Loan/TC Number	Project Name	Document Price
999/OC-BL	Environmental and Social Technical Assistance Project	\$ 5
1017/OC-BL	Land Administration Project	\$ 5
1081/SF-BL	Southern Highway Project	\$ 5
ATN/SF-4686-BL	<u>Design and Implementation of Health Policy Reform</u>	Sum.
ATN/ME-5430-BL	Solid Waste Management Project	\$ 5
ATN/ME-5443-BL	Trade promotion and Business Development Project	\$ 5
ATN/MH-5590-BL	Youth Training Program	\$ 5

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# Costa Rica

## Environmental Country Overview - Costa Rica

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### Political & Economic Structure:

- \* **Elected Government:** Presidential elections were in February '98. The current president, Jose Maria Figueres, lost to front runner Miguel Angel Rodriguez (PUSC) who will assume the presidency on May 8, 1998. Rodriguez has been accused of corruption and his lack of economic programs has the business community worried. The next elections are scheduled in four years.
- \* **Legislative & Regulatory Framework:** The government is very proactive in their work to establish incentives for private sector participation in environmental conservation.
- \* **Government Agencies of note:**
  - Ministry of Environment & Industry (MINAE) 1995
    - replaced Ministry of natural Resources, Energy and Mines
    - charged with enforcing all environmental controls/ regulations
    - due to understaffing currently focuses on water
  - Costa Rican Institute of Water & Sewage Systems (AYA)
    - provides water and sewerage services to 80% of country
- \* **Legislation:** Organic Environmental Law 1995  
Wildlife Law 1992
- \* **Political Commitment to Environmental Projects:** Costa Rica is trying to enact standards for water quality and affluent discharges into sewer systems and bodies of water. There are fines and criminal penalties, but often times it is cheaper to pay the fines. There are auto emission regulations, but much of the industry is wrought with fraud. It is politically risky to take on the major polluters: buses and public transport owners. Deforestation is a major concern. 25% of country is protected, but outside of that the deforestation is taking place at a faster rate than the Amazon.  
  
Note: Costa Rica has long been known as a leader worldwide in eco-tourism. There are pressures as this industry expands, but the government has long been a pioneer in natural resource management. 60% of the budget goes to education; this society has a long history of environmental preservation.
- \* **Government's Ability to fund Environmental Projects:** Strongest in the region
- \* **International Aid:** Costa Rica has graduated from the USAID program. Other bilateral institutional financing is still active in this market.
- \* **Private Investment Funding:** This is the strongest market for private investment in the region. Coporacion Financiero Ambiental (tel: 506-257-4717) is a private company with venture capital funding for regional environmental projects in renewable energy, recycling, water quality issues. Leonardo Ramirez is the General Manager.

## Environmental Country Overview - Costa Rica

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### Environmental Issues:

- \* **Potable Water:** As the population explodes through immigration it is estimated that an investment of \$39M will be needed in potable water. This is a key issue in the tourism sector. The Costa Rican Institute of Water and Sewage Systems (AYA) is the governing authority. IDB & World Bank are spending \$30M to target water system losses, by installing water meters. AYA is planning to increase current distribution and storage capacities.
- \* **Wastewater:** Hotel development is going virtually unchecked along the vulnerable coastline. Wastewater discharges into the ocean needs monitoring.
- \* **Deforestation:** Outside of the protected natural forests, deforestation is occurring at a rate faster than that in the Amazon. This will lead to erosion and serious run-off problems which will negatively impact both agricultural yields and eco-tourism.

### Environmental Opportunities:

**Wastewater:** Instrumentation, pumps, filters, integrated packages, clean technology  
Seeking waste disposal alternatives: recycling, composting

**Solid Waste Management:** Consulting, citing and design, recycling/composting equip

**Air Quality:** Scrubbers, catalytic and thermal oxidation(Petroleum), electrostatic precipitators, bathhouses, monitoring equip, desulfurization (power generation), afterburners, air filters (sugar), emissions control and monitoring (chemicals and plastics), fume analyzers (pulp and paper)

**Green Markets:** eco-tourism, organic farming, sustainable plantations, selective logging tools,  
Joint Implementation

**Renewable Energy:** Small hydro, wind, geothermal, solar

**Energy Efficiency:** Energy efficient motors, commercial lighting, demand side management

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## Country Overview Costa Rica

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### Economic Structure & Background:

	1993	1994	1995	1996	1997
<b>Inflation:</b>	9.0	19.8	22.6	15.0	12.0
<b>GDP:</b>	7.6	8.3	9.2	9.4	9.7
<b>Growth:</b>	6.4%	4.5%	2.5%	1.5%	3.0%
<b>Population:</b>				3.1mil.	3.5mil
<b>Unemployment:</b>	4.1%	4.2%	5.2%	5.5%	5.2%

- \* Inflation dropping to 13.2% in '97  
-fall in sales tax, interest rates and fuel prices
- \* Interest rates fell from 26.3 to 235  
-stimulated invest, but reduced real deposits to zero
- \* Trade deficit worsens to \$446M w/ economic recovery  
-higher coffee prices and non-tad exports will boost revenue expending
- \* Currency: daily devaluation is lower reflecting lower inflation
- \* Real wages went up in '97
- \* Pursuing Free Trade agreement with Chile and Canada which would hurt US products

**Currency:** 249 Colon = 1\$US

### Education:

- \* The education standards in Costa Rica are the highest in the region.

### Infrastructure:

- \* Juan Santamaria International Airport serves San Jose
- \* Puntarenas is the major Pacific coast port. Caldera, also on the Pacific coast is the newest port in the country. The ports of Limon and Moin handle the Caribbean coast.
- \* The Pan-American highway connects the main highland cities.  
-there is also a coast to coast highway
- \* Most of the electrical production is hydra powered. there also exist tremendous opportunities for geothermal.

**Textile Industry**

**Costa Rica**

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**Existing Base:**

Industrial sector meets about 78% of national demand and represents 20% of GDP

**Infrastructure:**

Construction by Intel and Microsoft leading investment, economic expansion  
Output to grow 8% in '98 w/ Intel

**Labor Pool:**

Planned 9% increase in minimum wage for '97  
Shift into more skilled positions: high tech; Microsoft and Intel

**Environmental Concerns and Opportunities:**

- \* **Water Treatment:** Large new facilities by Intel and Microsoft will strain existing treatment infrastructure as well as water supply.  
  
**Opportunity:** Self sufficient waste water treatment facilities. Brown water recycling technologies.
- \* **Air Pollution:** This scheduled increase in production will add to existing levels of air pollution created by industry.  
  
**Opportunity:** Air pollution control and monitoring equipment.
- \* **Deforestation & Soil Erosion:** Much of the development will require new roads as well as cutting of existing forests.  
  
**Opportunity:** All of this development will require by law environmental assessment studies.
- \* **Solid Waste:** These facilities will generate considerable quantities of solid waste.  
  
**Opportunity:** Land fill design and implementation.

**Tourism Industry**

**Costa Rica**

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**Existing Facilities :**

352 Hotels in '94, 68% growth from '93  
11.912 rooms in '94 a 39% increase  
Project 1.2M visitors in '98

- \* Tourism Infrastructure Law 6990- exoneration of tax and surcharges on imports and local purchases through tax exemption or accelerated depreciation.

**Attractions:**

- \* Tropical Rainforests
- \* Diverse wildlife
- \* 25% of Territory is National Forest

**Environmental Issues and Opportunities:**

- \* **Potable Water:** Unable to provide enough supply of potable water to meet demand of hotel development.

**Opportunity:** Small scale potable water treatment plants. Low flow water systems for restaurants and hotels.

- \* **Wastewater:** Unmonitored discharges

**Opportunity:** Enacting standards for water quality and discharges. Helping to establish regulations.

- \* **Electricity:** Increased demand in tourism sector. As common practice any new hotel will budget a power plant. These investors have to allocate the money as a cost of doing business.

**Opportunity:** Small plant generation. Low usage or renewable energy technology.

- \* **Deforestation:** Increased pressure to clear new lands for agriculture, infringes on tourist attractions.

**Opportunity:** Training in natural resource management.

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## Food Processing & Agriculture: Costa Rica

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### Existing Agriculture:

19% of GDP in '96

60% of exports

\* Coffee

\* Bananas

\* Nontraditional: flowers, ornamental plants, strawberries, melons, pineapples

### Labor Pool:

6-8 companies have opened in food service selling dry goods and canned goods, some frozen to the hotels. They buy mostly from US brokers

Importers and distributors are knowledgeable on how to handle product

### Infrastructure:

Government incentives: banking credits

Local producers supply 50% of demand for fertilizers: Fertica 75%, Cafesa 15% and Quimicos Holanda 10%

One local oil seed crusher, Inolasa, near Pacific Port of Caldera, where all bulk grains arrive

Two wheat mills: Molinas, the largest and FAHACASA

Excellent promotion opportunities in ALIMENTARIA, agribusiness magazine

### Other:

- \* There is a very big push to increase production in nontraditional agriculture to relieve the dependence of coffee and bananas.

### Environmental issues and Opportunities:

- \* **Deforestation:** As this sector grows, so does deforestation.

**Opportunity:** Training in new agriculture techniques for higher yields

- \* **Soil Erosion:** Over farming exhausts soil nutrients

**Opportunity:** Teaching crop rotation and nontraditional agriculture

- \* **Water Consumption:** There is increasing demand on all sides for limited water resources.

**Opportunity:** Implementation of new irrigation technologies.

## Infrastructure: Costa Rica

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### **Power generation:**

Moin, 1973, Deisel, 4 units, 32 MW

San Antonio, 1964, Combustion turbine, 4 units, 48MW

Barranca, 1969, Combustion turbine, 2 units, 42MW

### **Transportation:**

The World Bank is putting \$46M to improve the efficiency and quality of the country's transportation sector as well as encourage private enterprise participation.

### **Education:**

\$23M is designed to improve basic education for grades 1-9, in a program designed by the World Bank to improve curriculum and better train teachers, as well as furnishing new materials.

### **Water and Sewage Treatment:**

The World bank is providing \$16M to Instituto Costarricense de Acueductos y Alcantarillados to strengthen the institutional framework for the provision of water and sewage and services.

### **Other:**

Through the International Finance Corporation (IFC), a member of the World Bank Group, there are projects to build a bulk blending fertilizer plant and another in the production of frozen fruit juice concentrate.

## Environmental Country Overview - Costa Rica

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### Contacts

#### Costa Rica Desk

Office of Latin America/Room 3033  
14th & Constitution Ave., NW Washington, DC 20230  
Phone: (202) 482-0704 Fax: (202) 482-0464

#### US & Foreign Commercial Service

American Embassy- San Jose  
Unit 2508 APO AA 34020  
Phone: (506) 220-3939/2454 Fax: (506) 231-4783

#### Embassy of Costa Rica

1825 Connecticut Ave., NW, Suite 211  
Washington, DC 20009  
Phone: (202) 234-2945 Fax: (202) 265-4795

#### CINDE- Costa Rica Investment and Development

90 West Street, Suite 614 New York, NY 10006  
Phone: (212) 964-1774 Fax: (212) 964-1969

#### Costa Rican Chamber of Commerce (AMCHAM)

Aptd 4946-1000 San Jose, Costa Rica  
US mailing address: Dept 1576, PO Box 025216 Miami, FL 33102-5216  
Phone: (506) 220-2200 Fax: (506) 220-2300

#### US Embassy

APO AA 34020  
San Jose, Costa Rica  
Phone: (506) 220-3939 Fax: (506) 220-2305

#### US Dept of Commerce

Country Desk  
Phone: (202) 482-0704

#### AYA (Public Water Works)

Avenida Central, Calle 5 Aptdo 5.120, 1000 San Jose  
Phone: (506) 233-2155

#### MINAE (Natural Resources)

Avenida 8 y 10, Calle 25 Aptdo San Jose, Costa Rica 10104  
Phone: (506) 334-533 Fax: (506) 257-0697

## Approved Project Documents--Costa Rica

Sum. = summary only

Loan/TC Number	Project Name	Document Price
711 and 712/OC-CR	Health Services Improvement	\$10
739/OC-CR	Public Sector Reform	Sum.
742 and 743/OC-CR	Investment Sector and Multisector Credit Programs	Sum.
796/OC-CR	Electric Power Development Program, Stage III	Sum.
859/OC-CR	Modernization of the Administration of Justice	\$ 5
1010/OC-CR	Preschool and Lower-Secondary Education	\$ 5
1030/OC-CR	Deepening State Reform and Opening up the Finance and Infrastructure Sectors to Private Enterprise	Sum.
ATN/MT-4688-CR	Enabling Private Investment in Infrastructure	\$ 5
ATN/SF-4717-CR	National System for Sustainable Development (SINADES)	Sum.
ATN/ME-4850-CR	Program on Small-business Competitiveness	\$ 5
ATN/ME-4962-CR	Support for Tourism-related Microenterprises	\$ 5
ATN/MT-5062-CR	Commodity Market Exchange Support Program	\$ 5
ATN/MT-5644-CR	Program to Strengthen the Capital Market	\$ 5

# El Salvador

# Environmental Country Overview - El Salvador

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## Political & Economic Structure:

- \* **Elected Government:** A Republic with an elected President and 84 member Legislature. El Salvador has nine political parties. The ruling coalition is comprised the ARENA and FMLN parties, and considered conservative. The government is stable. March elections left ruling Right Wing ARENA party w/ reduced power in legislature: Key initiatives: trade liberalization, acceleration of privatization, improved export competitiveness.

**President:** Dr. Armando Calderón      **Next Election:** 1999

- \* **Legislative & Regulatory Framework:** Responsibility of environmental issues is being consolidated from 25 separate pieces of legislation, and 12 governmental agencies to the recently created **Ministry for the Environment and Natural Resources**. Historically, Environmental issues have not been seriously addressed, as private sector interests were able to keep the government from taking serious initiatives to police environmental clean-up and pollution issues. This is rapidly changing, as the problems have grown.

### Other Governmental Agencies of note:

Bureau of Economic Protection (SEMA) Founded 1991

Secretariat of National Environmental Council (CONAMA)

- Responsible for defining and implementing National Environmental Strategy, regulations and coordinating initiatives with municipalities.

Water Quality (ANDA)

Air Quality (SANAM)

- \* **Legislation:** National Environmental Strategy & Action Plan 1994
  - SEMA implementation with IDB support
  - Environmental Protection Act (pending)
  - Environmental General Law 1998, required impact assessments, public hearings
- \* **Political Commitment to Environmental Projects:** The extent of the environmental problems faced by El Salvador is such that Private Sector estimates place environmental related losses to general economy of between \$300 to 500 million per year, or approximately 3% to 5% GDP.

Note: There is a large amount of public pressure to clean up the environment. President did not veto the General Law which he could have. New business will have to conduct assessments, existing ones will be offered incentives to comply.

- \* **Government's Ability to Fund Environmental Projects:** Severely Limited
- \* **Outside Project Funding & International Aid:** Given the scope of the problems outlined below, international agencies and firms are offering economic support for remediation efforts and for development of sustainable environmentally friendly projects.
- \* **Private Investment Funding:** Encouraged by the Government, via privatization of services in water sector (both supply and waste treatment), and initiatives to spur investing in recycling of solid waste.

# Environmental Country Overview - El Salvador

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## Environmental Issues:

- \* **Soil Erosion & Deforestation:** Affecting all regions of the country, forests have been reduced to 12% of the land (from 60% in 1944). Resulting soil erosion is estimated to affect 75%+ of the land. Over 90% of rural inhabitants use wood fuel to cook, and prepare their drinking water. This deforestation has led to a number of related environmental problems; soil deterioration, reduced agricultural output, and lack of potable water.
- \* **Solid Waste Treatment & Disposal:** Urban areas only collect 60% of the garbage generated daily, and much of this is placed in landfills that are not environmentally designed to protect the aquifer. This leads to further groundwater pollution, and the ensuing loss of valuable water supplies for the future.
- \* **Potable Water:** Existing systems experience high losses in transit due to lack of maintenance, old design, theft, and other factors. Estimated required investment of \$342.6M for potable water by National Water Supply and Sewage Administration (ANDA). IDB is sponsoring projects to meet this problem.

**Water Treatment:** Over 90% of all rivers and lakes suffer from contamination. Practically all sewerage from residential and industrial sources is dumped raw into the streams, rivers and lakes. This results in serious health problems in gastrointestinal diseases. In fact, over 12,000 children die from these causes each year. IDB is funding projects in this area.

## Environmental Opportunities:

**Wastewater:** Siting & design, clean technologies, monitoring equip,  
Alternative treatment systems

**Solid Waste Management:** Consulting, Technical Training  
Vehicles and equipment, Transfer stations, Recycling equip,  
Landfill siting and design

### Air Pollution:

Emissions control & monitoring equipment (chemicals and plastics),  
Environmental Control Equipment, scrubbers, precipitators, afterburners, bag filters (sugar),  
Flue and gas desulfurization (power generation), Catalytic/thermal oxidation equip (petroleum)

### Green Opportunities:

Organic farming, Technical assistance & Technology Transfer  
Resource conservation

**Renewable Energy:** Geothermal, Wind Hydroelectric

**Energy Efficiency:** Consulting & Technology Transfer  
Energy Efficient Equipment, motors, commercial lighting,  
air conditioning, ESCO energy management

# Environmental Country Overview - El Salvador

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## Economic Structure: Economic Background:

	1994	1995	1996	1997
Inflation	10.6	10.0	9.8	
GDP(\$USM)	6,779	7,203	7,416	
Growth(% Prev. Yr.)	6.0	6.3	3.0	
Population(M)	5.6			5.9
Growth(% Prev Yr.)				2.06

- \* Industrial production expected to fall from 3 to 2.5% in '98  
-high interest rates and disparity between savings and lending rates
- \* Inflation expected to increase to 9.9% in '98 due to grain shorts, and demand for electronics, public transport
- \* Interest rates will fall to 17.8 % to promote growth
- \* 2 out of 5 credit card holders are in payment arrears
- \* Trade deficit expected to widen slightly to 1.4B then 1.6B when domestic demand recovers
- \* Foreign reserves expected to increase w/ privatization efforts currently underway, thus stabilizing the exchange rate.

**Currency:** 1996: 8.8 Colon = 1\$US

## Education:

- \* Education is free and compulsory through elementary school
- \* There are several private and one national university as well as technical and vocational schools.
- \* Adult literacy: 80.2%

## Infrastructure:

- \* International airport is 25 miles from San Salvador
- \* Pan Am highway crosses E-W from the Guatemala to Honduran border connecting main cities
- \* Major port: Acajutla, also served by Puerto Barrios and Puerto Quetzal in Guatemala and Puerto Cortes in Honduras.
- \* Most use cell phones; new phone lines are difficult to obtain
- \* 51% of urban pop served by sewers
- \* Good taxi service from major hotels
- \* Growing use of credit Cards by consumers

# Environmental Country Overview - El Salvador

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## Textile Industry

## El Salvador

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### Existing Base:

- \* Over 150 textile assembly plants, employing 55,000
- \* Virtually all existing production goes to US
- \* Growing faster than any other country in region
- \* Two new foreign textile mills started in the 80s despite civil war
- \* 90% apparel: laundries, embroidered labels, elastics, zippers, boxes, hangers & bags
- \* Mid '95 267,000 sq. meters of private and 66,000 government owned in Bartolo  
-339,000 additional by '98.

### Environmental Concerns & Opportunities:

- \* **Water Treatment:** Existing water waste effluent is dumped directly into rivers, streams or on ground, which feeds into the ground water supplies.

**Opportunity:** Sell modular waster water treatment systems, and systems to recover dye and fiber from the waste stream. Develop secondary recycling market for recovered products.

- \* **Air Pollution:** Plants require electrical power. Many have installed their own small generating plants, adding to the air pollution.

**Opportunity:** Sell air pollution control and monitoring equipment.

- \* **Deforestation & Soil Erosion:** Plants require considerable land to operate. This in-directly adds to the deforestation and soil erosion issues.

**Opportunity:** Sell reforestation technology and expertise to enable plants to re-forest their own land, and sponsor additional reforestation efforts in their area.

- \* **Solid Waste:** Plants generate considerable quantities of solid waste.

**Opportunity:** Potential exists to pool solid waste form plants and consolidate at small regional waste to power facilities to burn solid waste and generate electrical power and steam.



# Environmental Country Overview - El Salvador

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## Infrastructure: El Salvador

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### Environmental Infrastructure: Discussed before in opening

- \* **Water Treatment (Both sanitary and potable):**
- \* **Solid Waste Treatment:**
- \* **Air Quality:**
- \* **Soil Erosion & Deforestation:**

### Education:

- \* Only 12 % of labor force has 10 + years of schooling
- \* About two third of the labor force is unskilled
- \* Government spending in social sector is expected to be 50% of budget

**Opportunity:** Develop Technical Environmental training programs to train certified technologists to operate and maintain the new Environmental technologies.

### Power generation:

**HYDRO-Electric and Power Generation:** World Bank is providing \$65M to rehabilitating existing hydro-electric plants and develop additional sites under the Energy Sector Modernization Project.

#### Issues

- \* There will be short-term opportunities for SO<sub>2</sub> particulate, and NO<sub>x</sub> control technologies and emissions monitoring equipment in the construction and rehabilitation of power plants.
- \* El Salvador produces about 60% of its electricity from Hydropower
- \* El Salvador has 14 of the 20 power plants located in Central America and most of them were built in the 60's, 70's, and 80's and need modernized.

#### Opportunities

- \* Electrostatic precipitators
- \* Baghouses
- \* Air Quality monitoring equipment
- \* Flue gas desulfurization equipment

# Environmental Country Overview - El Salvador

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## **Fossil Fuel (Oil Fired) Thermoelectric plants: Existing Facilities**

Acajulta Thermal, 1967 steam, 2 units, 63MW

Acajulta Turbine, 1965,1994, Combustion Turbine, 3 units, 157MW

Soyopango, 1972, Combustion Turbine, 3 units, 54MW

San Miguel, 1984-1992, combustion Turbine, 6 units, 32MW

- \* These plants produce SO<sub>2</sub> and other gas emissions, opportunities exist in control technologies and emissions monitoring equipment.

## **Environmental Opportunities:**

- \* Scrubbers
- \* Low-NO<sub>x</sub> burners
- \* Catalytic and thermal oxidation and monitoring equipment
- \* Complete privatization by end of '97 for four CEL distribution companies
- \* CEL continues upgrades in Geothermal and Hydroelectric plants
- \* Electricity law passed in '96 says a private firm may establish a thermal power plant and sell their electricity
- \* Power generating equip, transformers, wire related computer hardware/services, and consulting

# Environmental Country Overview - El Salvador

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## Contacts:

### US Embassy, El Salvador

Final Blvd. Station Antiguo, Cuscatlan  
Unit 3116 APO AA 34023 San Salvador  
Phone: (503) 78-4444 Fax: (503) 78-6011

### USAID / El Salvador

Urbanacion y Boulevard Santa Elena  
Antiguo Cuscatlan La Libertad San Salvador, El Salvador  
Phone: (503) 298-1666 Fax: (503) 298-0885

### US Department of Commerce Country Desk Officers

Phone: (202) 482-1658

### American Chamber of Commerce

Phone: (503) 263-3292

### Embassy of El Salvador

2308 California St, WN Washington, DC 20008  
Phone: (202) 265-9671

### Minister of Environment

Miguel Enrique Araujo  
7a Calle Poniente #4527, Col. Escalón San Salvador  
Phone: (503) 226-3000 Fax: (503) 263-9701

### Minister of Agriculture

Ing Ricardo Quiñónez Avila  
83 Ave. Norte y 11 Calle Poniente No. 704 Colonia Escalón San Salvador  
Phone: (503) 279-1579 Fax: (503) 224-2944

### Minister of Public Works

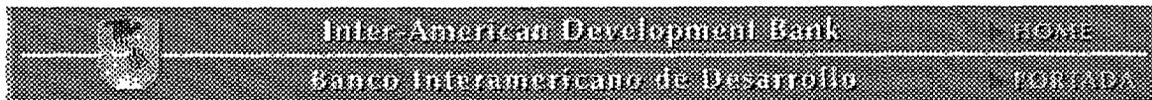
Roberto Bara Osegueda  
Ave Sur #630 Edif. MOP 5to Nivel San Salvador  
Phone: (503) 293-1466/222-2466 Fax: (503) 271-0163

### ISDEM (Waste Management)

49 Avenida Sur #725 San Salvador, El Salvador  
Phone: (503) 230-920 Fax: (503) 23-6787

### ANDA (Water and Sewer Program)

Calle Ruben Dario No. 930 San Salvador, El Salvador  
Phone: (503) 224-469



## Approved Project Documents--El Salvador

Sum. = summary only

Loan/TC Number	Project Name	Document Price
765/OC-ES; 905/SF-OC	<u>Social Investment Fund</u>	Sum.
780/OC-ES; 915/SF-OC	<u>Global Credit Program for Microenterprises</u>	Sum.
829-OC-ES	<u>Social Investment Fund</u>	Sum.
838/OC-ES	<u>Electric Power Sector Program, Stage II</u>	\$10
839 and 840/OC-ES	<u>Road Rehabilitation</u>	\$ 5
879/OC-ES	<u>Basic Education Modernization</u>	\$10
885/OC-ES	<u>Multisector Global Credit Program II</u>	\$ 5
886/OC-ES	<u>Environmental Protection Program</u>	\$10
919 and 920/OC-ES	<u>Program to Support the Reform of the Justice System</u>	\$10
941/OC-ES; 980/SF-ES	<u>TC Loan for the Fiscal Administration Modernization Program</u>	\$5
1041/OC-ES	<u>Public Sector Modernization Program</u>	Sum.
1067/OC-ES	<u>Local Development Program</u>	\$ 5
1084/OC-ES	<u>Support Program for Education Technologies</u>	\$ 5
1092/OC-ES	<u>Modernization of the Ministry of Public Health</u>	\$ 5
EQ-MSF/0001-ES	<u>Financing for Financiera Calpia S.A.</u>	\$ 5
ATN/SF-4336-ES	<u>Support for the Environmental Protection Program</u>	Sum.
ATN/MT-4471-ES	<u>Strengthening of the Financial Sector Superintendency</u>	\$ 5
ATN/ME-4708-ES	<u>Program to Support the Development of Productivity and Competitiveness of Small Enterprises</u>	\$ 5
ATN/MT-4758-ES	<u>Restructuring and Privatization of the Energy and Telecommunications Sectors</u>	\$ 5
ATN/MH-5167-ES	<u>Program to Support the Development of a Private Job Training Consortium</u>	\$ 5
ATN/MT-5391-ES	<u>Modernization of Commercial Law</u>	\$ 5

# Guatemala

# Environmental Country Overview - Guatemala

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## Political & Economic Structure:

- \* **Elected Government:** Guatemala's 1985 Constitution calls for elections of a one term President, a unicameral Congress and Municipal officers. The Judiciary is independent of the Administration. A human rights Ombudsman is elected, and reports to Congress. The Government is stable. Relations with USA are good.
- \* **Legislative & Regulatory Framework:** In general the existing Guatemalan laws do not spell out the environmental standards that have to be met, not do they have the teeth to enable enforcement.

**Legislation:** Environmental Protection & Improvement Law was enacted in 1986. The Law does not have applicable standards for enforcement. New construction projects are required to file impact studies for CONAMA review.

**Regulatory:** Various gubernamental entities are directly involved with environmental regulations and enforcement:

**National Environmental Commission (CONAMA) 1986:** coordinates national environmental policy, limited political support and small budget, can not monitor pollution, does not have authority to sanction polluters, must work with Ministry of Health which has authority to fine.. Affiliated with the office of the President responsible for drafting environmental legislation. Headed by Ing. Juan Francisco Asturias, this quasi governmental group is spearheading Guatemala's efforts to introduce remediation efforts and planned development to ensure a better environment for future generations. They have cabinet level status with the President.

**Lake Amatitlán Authority:** developing wastewater standards for discharges into lake, has little to no Industry backing, - implementation will be slow.

**Guatemala City Municipal Water Company (EMPAGUA):** Manages water delivery and wastewater services in Guatemala City

- \* **Political Commitment to Environmental Projects:** Overall, Guatemala's ability to manage it's environmental problems suffers because lines of authority and areas of responsibility are still being defined. Government provides incentives for:
  - Forestry:** Owners engaged in reforestation can qualify for real estate exemption and can deduct these costs from their income taxes.
  - Tourism:** Firms developing projects for tourism are eligible for real estate tax exemptions. Can import goods not manufactured in Central America duty free.
- \* **Government's Ability to Fund Environmental Projects:** Severely limited.
- \* **Outside Project Funding & International Aid:** USAID, & IDB (waste water plants).
- \* **Private Investment Funding:** Japanese government and private firms are financing the rehabilitation of existing wastewater treatment plants, and the construction of new facilities.

# Environmental Country Overview - Guatemala

## Environmental Issues:

Faced with severe urban contamination, notably in Guatemala City. Population growth is creating additional strain on overburdened water supply & water treatment systems, sanitary waste removal system, and air pollution levels. Guatemala faces some of the regions most serious environmental problems. Only half of the people in the capital have access to sewage systems and only half of the solid waste is collected. Most of this urban growth is taking place in the marginal areas of the city, out of reach to services. The lake is under severe pressure from the industrial sector, with unmonitored discharges. This is the strongest economy in the region with the largest population and under severe environmental pressures that are not getting the Government's full attention.

- \* **Soil Erosion & Deforestation:** While 39% of the land remains forested, 90,000 hectares are being deforested per year. Guatemala has one of the worst soil erosion problems in the world. Land use planning and natural resource planning are sorely needed.
- \* **Solid waste Treatment & Disposal:** Only 50% of the urban solid wastes are collected, and most of what is collected is disposed without sorting in landfills that are not lined. This creates another environmental problem by polluting the aquifer.
- \* **Potable water:** EMPAGUA's system losses are 48%. Metering equipment is needed. 70% of supply comes from surface water. Privatization is occurring, the billing system has been spun off to the private sector, and the water metering system is under consideration. Labor opposition is strong.

**Water Treatment:** Rural water treatment systems are practically non-existent. Guatemala City discharges 50% of its sanitary water without treatment into surface water systems. Agricultural run-off, including soil erosion, pesticides, and fertilizer are main contributors to water pollution problems.

**Lake Amatitlan** is a major area of concern. Most of the nation's heavy industry is located near the lake and it receives most of the wastewater and discharges from both municipal and industrial and is currently on the verge of eutrophication.

# Environmental Country Overview - Guatemala

## Environmental Opportunities:

**Wastewater:** Sitting & design, clean technologies, monitoring equipment, alternative treatment systems

Maquiladora Plants: Require small modular water treatment systems.

EMPAGUA recently completed a Master Sewerage Plan with Japanese support. Two large plants (cost \$50 million each) are to be built. IDB is funding regional and rural plants.

<b>Solid Waste Management:</b>	Consulting,	Technical Training
Vehicles and equipment,	Transfer stations,	Recycling equip,
Landfill sitting and design		

## Air Pollution:

Emissions control & monitoring equipment (chemicals and plastics),  
Environmental Control Equipment, scrubbers, precipitators, afterburners,  
Flue and gas desulfurization (power generation)

## Water Supply:

Growing market for private small water supply systems in rural areas. Government is positively pre-disposed to approving outside investment in these projects. Japanese principals are working with EMPAQUA (\$36 million investment) to drill new water wells in Guatemala City. More Japanese involvement in Antigua to supply 90% coverage.

## Green Opportunities:

Organic farming,	Technical assistance & Technology Transfer
Resource conservation	

**Renewable Energy:** Geothermal, Wind, Hydroelectric, Bio-mass

**Energy Efficiency:** Consulting & Technology Transfer Energy Efficient Equipment, motors, commercial lighting, air conditioning, ESCO energy management

# Environmental Country Overview - Guatemala

## Economic Background:

	1994	1995	1996	1997
Inflation:		8.6%	9%	
GDP(\$USM):	12	12.9	14.67	17.1*
Growth(% prev. yr.):	4.0	4.9	3.1	4.1
Population(M):		10.6	10.9	11
Growth(% prev. yr.):			2.9	
Unemployment:	4.6	3.6	4.1	4.3***

\*\* GDP for 97 reflects strengthening of Quetzal to U.S. dollar

\*\*\* Unemployment and underemployment is 45% according to US Embassy

- \* Guatemala's economy is the largest in Central America
- \* The GDP is expected to increase by 5% and inflation rates are to stay in the single digits.
- \* Guatemala has the third highest degree of income inequality -exceeded only by Brazil and Pakistan among low to middle income countries.
- \* The Guatemalan society is largely segmented, with highly skewed income and land distribution.
- \* Two thirds of the population are of Mayan origin.
- \* The poorest 1/3 receive 1.9 % of the total income.
- \* The public sector accounts for 10% of the GDP and the private sector 90% GDP.

## Political:

President:	Alvaro Arzú	Next Election:	1999
Currency:	Quetzal	6.23 Quetzal = 1 Dollar ( September 1996)	

- \* After 35 years of civil war, The Guatemalan Government & rebel forces signed a peace agreement in December 1996 ending one of the longest civil wars in Central America.
- \* Guatemala's economic growth and poverty alleviation efforts depend critically on the Administration's ability to continue implementing crucial macroeconomic reforms and putting in place various projects that improve basic infrastructure.

## Education:

- \* 1/3 of the labor force has no formal education.
- \* 1/5 of the labor force has only primary school education.
- Literacy Rate: 50% of general population
- High School Education: 12%
- University Graduates: 3%
- \* Guatemala has the lowest schooling coverage in Latin America, except for Haiti.
- \* Education spending is lowest in the region, 1.8% GDP compared to 4% in the region.
- \* Large unskilled and inexpensive labor force
- \* There are shortages of skilled manual workers
- \* 1/3 of the labor force is engaged in farming, forestry, and fishing ( agriculture)

# Environmental Country Overview - Guatemala

## Telephones:

GUATEL continues to allow huge contracts for installation of phone lines and other telecommunication equipment. 85% of the telephone lines are in capitol city.

## Transportation:

### Airports:

- \* La Aurora International Airport - Guatemala City
- \* Santa Elena International Airport - El Petunia, in the north
- \* There is a number of smaller airports for domestic tourist purposes.

The government seeks to service contract: communications, facility maintenance, air traffic control, and crash, fire and rescue services at both international airports.

### Ground Transportation:

- \* **Rail system:** inoperable, privatization project is being prepared.
- \* **Roads:** Adequate road connects the capitol with major shipping points
- \* **Rural Roads:** In poor condition and inadequate.

### Ocean Transportation

Increase in 70% in 1995 due to number of cruises stopping in Santo Tomas de Castilla on the Atlantic Caribbean and Puerto Quetzal on the Pacific.

## Health:

- \* **Hospitals:** 36 Private w/ 6582 beds 36 Public, 20 Public clinics

# Environmental Country Overview - Guatemala

## Textile Industry

## Guatemala

### Existing Base:

Guatemala's textile industry is the strongest in Central America, they produce for local consumption and exports. There are 220 maquila operations in Guatemala: 85 are Guatemalan, 4 Chinese, 20 American, 96 Korean, 5 other. All imports are subject to custom duties.

Imports	1993	1994	1997-1999
US	37%	38%	Growth 0-3%
Mexico	27%	19%	
El Salvador	15%	19%	
32 other countries	21%	24%	

### Textile Infrastructure:

#### Machinery

	1992	1993	1994
	19.7 mill.	10.4 mill.	9.4 mill.

#### Machinery Imports:

US	18%	22%
Italy	13%	37%
Germany	23%	19%
25 Other Countries	45%	22%

\* Machinery from Taiwan is making inroads in the market by offering lower prices, quality does not compare with US, European & Japanese machinery, but due to their low prices, small factories are purchasing this machinery.

### Labor Pool:

\* Possesses a large labor pool, enjoys preferential access to US markets through the Caribbean Basin Initiative (CBI) Generalized System of Preferences (GSA).

# Environmental Country Overview - Guatemala

## Tourism Industry

## Guatemala

### Political/Economic Programs:

- \* Tourism is considered to be the second largest foreign exchange earner after coffee.
- \* Eco-Tourism: Three major hotel projects are cleared from Environmental Impact Studies, and to be constructed in Rio Dulce, on the Caribbean Ocean.
- \* Inauguration of the new government in January 1996, brought great expectations for the tourism sector, mainly because new government officials held important positions in tourism before this elections.

### Existing Facilities :

**Hotels:** considerable hotel renovation, and new construction. Also new construction of tourism infrastructure including: restaurants, convention centers, golf courses, sports clubs, amusement facilities and parks.

\* # of Hotels: 70      \* Hotel Rooms: 11,925  
3,930 Guatemala City      7,995 Rest of country

\* Cruise Ship sailing's: 21,887 people/1995      70% growth from 94

### Attractions:

- \* Volcanoes
- \* Cultural heritage
- \* Colonial Architecture
- \* Forests & scenery
- \* Historical sites & Mayan Ruins

### Tourism Number of Visits:

Visitor Totals	1994	1995	1996	1997
	537,400	563,500	608,000	
Business Related:		36.0%		
Tourists:		38.9%		
Other:		25.1%		

### Where do tourists come from? (Most recent year):

USA:	27.2%	Europe:	18.0%
	Central America: 35.5%	Other:	19.0%

# Environmental Country Overview - Guatemala

## Food Processing & Agriculture: Guatemala

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### Existing Agriculture:

#### Products Exported:

Coffee

Bananas

Grapes

Apples

### Environmental Opportunities:

\* **Hydro-electric Cogeneration:** Small sugar producers, lumber, and coffee producers have unmet power requirements and have feasible small hydro-electric projects.

# Environmental Country Overview - Guatemala

## ENVIRONMENTAL PIPELINE PROJECTS:

- \* Significant Current funding is from Japanese donors.
- \* EMPAGUA received assistance from Japan to develop new wells, additional funding will support water source development to achieve goal of 90% coverage.
- \* Privatization of billing process of the water sector.

## Electricity:

**Coal Fired Power Plant:** INDE plans to build a new coal fired power plant, and continues to purchase electricity from private sources to meet growing demand of near 7% a year. ENRON is the JV partner in the coal fired plant, and performed the Environmental Impact Assessments with US based Engineering firms. To date, no carbon emission offsets have been established for the plant, although consideration is being given to creating a forest reserve to offset emissions from the new plant.

**Cogeneration:** Large sugar mills are installing Cogeneration plants with attractive supply contracts to INDE to provide power to grid.

## Pipeline Projects:

Agricultural Production ( GU0070) IADB  
Agricultural Sector Studies ( TC9610428) IADB  
Land Administration (GTPA49616) IADB  
Land Fund (WB)  
Private Sector Development(WB)  
Public Sector Management(WB)  
Social Sector Transport(WB)  
Support for Educational Reforms (IADB)  
Housing Program (IADB)  
Reform of the Infrastructure and Investment Sectors (IADB)  
Central American Electric Interconnection System (IADB)

# Environmental Country Overview - Guatemala

## Contacts in Guatemala:

### CONAMA

National Environmental Commission

Ing. Juan Francisco Asturias - Chairman

Phone: (502) 334-1708

(502) 331-2723

Fax: (502) 332-7174

FOGAMA (Fondo Guatemanteco  
de Medio Ambiente)

### American Embassy in Guatemala, US&FCS

Brian Brisson, Senior Commercial Officer

Uniot 3306 APO AA 34024

Phone: 502-331-1541

Fax:

502-331-7373

### Embassy of Guatemala

2220 "R" Street, NW Washington, DC 20008

Phone: 202-745-4952

Fax:

202-332-7393

### USAID / Guatemala

Mr. Keith Kleine - (Green Side)

Mr. Roberto Morales - (Brown Side)

1 Calle 7-44, Zona 9 01009 Guatemala, Guatemala

Phone: 502-331-2474

Fax:

502-331-2106

### Cámara de Comercio de Guatemala - Guatemala Chamber of Commerce

10 Calle 3-80, Zona 1 01001 Guatemala, C.A.

Phone: (502) 382-6815

Fax:

(505) 351-4197

Contact: Mr. Jorge Britz, President

Mr. Federico Pol, Manager

### Cámara de Industria de Guatemala - Guatemala Chamber of Industry

Ruta 6, 9-21, Zona 4 Nivel 6 01004 Guatemala, CA

Phone: (502) 334-0849

Fax:

(505) 334-1090

Contact: Mr. Juan José Gutierrez, President

### American Chamber of Commerce (AMCHAM)

6a Avenida 14-77, Zona 10 01010 Guatemala, C.A.

Phone: (502) 337-4489

Fax:

(502) 368-3106

Contact: Mr. Emilio Wong, President

Mr. Charles Chambers, Executive Director

## Environmental Country Overview - Guatemala

### **Gremial de Vestuarios y Textiles (VESTEX)**

(Association of the Textile and Apparel Industry)

Ruta 6, 9-21, Zona 4 Nivel 6 01004 Guatemala, CA

Phone: (502) 334-0849 Fax: (505) 334-1090

Contact: Ms. Luisa Fernanda Migoya, Representant

### **Gremial del Textiles** (Association of Textiles)

Ruta 6, 9-21, Zona 4 Nivel 6 01004 Guatemala, CA

Phone: (502) 334-0849 Fax: (505) 334-1090

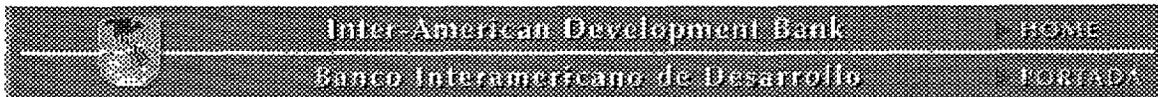
Contact: Ms. Reny Mariane Bake, Manager

### **Machinery Importers Association** (Gremial de Importadores de Maquinaria - GIDMECA)

10 Calle 3-80, Zona 1 01001 Guatemala, C.A.

Phone: (502) 376-0615 Fax: (505) 377-0071

Contact: Mr. César Estrada, President



## Approved Project Documents--Guatemala

Sum. = summary only

Loan/TC Number	Project Name	Document Price
783 and 784/OC-GU; 917/SF-GU	<u>Financial Sector Modernization Program</u>	Sum.
828/OC-GU	<u>Strengthening of the Customs System</u>	Sum.
883 and 834/OC-GU	<u>Road Rehabilitation and Modernization Program</u>	\$ 5
890 and 891/OC-GU	<u>Program to Upgrade Health Care Services</u>	\$10
943/OC-GU	<u>Social Investment Fund</u>	\$5
967/OC-GU	<u>Guatemala City Metropolitan Area Environmental Program</u>	\$10
968/OC & 984/SF-GU	<u>Community Development for Peace Program</u>	\$10
973/OC-GU 974/OC-GU	<u>Sustainable Development in Petén</u>	\$ 5
1014-15/OC-GU	<u>Reforma en Infraestructura e Inversión (Spanish only)</u>	Sum.
1048/OC-GU	<u>Housing Program</u>	\$ 5
1054/OC-GU	<u>Project to Support Education Reforms</u>	\$ 5
ATN/JF-4480-GU	<u>Strengthening of Tax Administration</u>	Sum.
ATN/IF-4695-GU	<u>Road Administration and Modernization Program</u>	Sum.
ATN/MT-5594-GU	<u>Civil Aviation Sector Reform</u>	\$ 5
ATN/MH-5736-GU	<u>Technical Training in Rural Areas</u>	\$ 5
ATN/MT-5783-GU	<u>Development of Securities for Guatemala Capital markets</u>	\$ 5

# Honduras



# Environmental Country Overview - Honduras

## Environmental Issues:

### Potable Water:

The National Autonomous Water and Sewage Service (SANAA) has developed service of potable water to 81% of its urban population, and 53% service to its rural population (although only 17% is treated). This service is currently being decentralized to the individual municipalities. Potable water is produced primarily groundwater. Water quality standards are not enforced. System losses are estimated at 50%, partially due to unregistered usage, illegal taps, and lack of maintenance. Few conservation actions have been taken.

Inter-American Development bank has funded \$25 million to modernize the water supply. USAID is identifying water needs in 32 distribution areas for future private investment.

### Pollution Control:

Motor Vehicle emission is the primary source of air pollution in Honduras. Poor air quality poses a hazard to human health and the environment in Honduras. The problem is particularly serious in urban areas where there are large numbers of vehicles and industrial facilities.

### Solid Waste Treatment & Disposal:

Only 25% of residences are connected to a sewage system. The lack of adequate sewage treatment facilities has contaminated the major rivers in Honduras. Inadequate handling of solid wastes and the failure to treat industrial and hospital wastes have also increased water and soil contamination. Unplanned urban settlements have also added to waste problem.

### Water Treatment:

The lack of adequate sewage & water treatment facilities has contaminated the major rivers in Honduras. Inadequate handling of wastewater and the failure to treat industrial and hospital discharges have also increased water & soil contamination.

The use of chemical fertilizers and pesticides particularly in coffee and Banana production have contaminated both water and soils. Lake Yodoa, a primary source of drinking water for Honduras has been heavily polluted due to the above activities.

### Deforestation:

Urban population expanding, deforestation from logging & agricultural clearing, land degradation & soil erosion from uncontrolled development, farming marginal lands, mining activities polluting Lake Yodoa, and heavy metals in streams & rivers.

**Power generation:** Installed Capacity: 290,000 kW Demand is growing: In recent years, diminished water flows have reduced the power generated from existing hydro-electric plants.

Honduras faces energy shortages due to unreliable thermal electric generating plants. In the past two years Honduras has experienced Energy rationing and 14-hour blackouts in the past two years.

# Environmental Country Overview - Honduras

## Environmental Opportunities:

**Wastewater:** Siting & Design, clean technologies, monitoring equipment  
Alternative treatment systems

**Solid Waste Management:** Consulting, Technical Training,  
Vehicles and equipment, Transfer Stations, Recycling Equipment  
Landfill siting and design

**Air Pollution:** Emissions control & monitoring equipment (chemical and plastics),  
Environmental Control Equipment

**Green Opportunities:** Technical assistance & Technology Transfer  
Resource Conservation

## Renewable Energy:

Hydro rehabilitation needed for the existing large plants and the construction of small renewable power plants. The electricity demand in Honduras will continue to rise as new hotels and tourist facilities continue to be built.

**Opportunity: Hydroelectric      Technology Transfer**

# Environmental Country Overview - Honduras

## Economic:

	1995	1996	1997
Inflation:			
GDP(\$USM):	3906	4118	4283
Growth(% change):	3.6	4.0	4.0
Population:		5.9	
Growth(% change):			2.9
Unemployment(%):			40

## Political:

President:	Carlos Roberto Flores
Next Election:	2002
Currency:	\$12.48 Lempira = \$1.00 USD (10/96)

The new Honduras government which took office in January -1998 is committed to modernizing the public sector, and improving it's ability to deliver key environmental services for the development of Honduras.

## Environmental:

Urban population expanding, deforestation from logging & agricultural clearing, land degradation & soil erosion from uncontrolled development, farming marginal lands, mining activities polluting Lake Yodoa, and heavy metals in streams & rivers.

## Education:

<b>Literacy Rate:</b>	70% of general population
<b>High School Education:</b>	30%
<b>University Graduates:</b>	7-8%

## Business Infrastructure:

<b>Major Banks:</b>	Banco de Honduras, Banco central De Honduras Lloyd's of London, Citicorp, Barkley's of London
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# Environmental Country Overview - Honduras

## Textile Industry

## Honduras

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**Existing Base:** N/A

**Textile Infrastructure:**

The textile industry in Honduras is relatively small compared to the agricultural sector. Several Honduran factories called "MAQUILAS" work with the US based textile firms assembling raw materials.

# Environmental Country Overview - Honduras

## Tourism Industry

## Honduras

### Existing Facilities :

Tourism is growing and currently ranks #5 in revenue generation in the total economy. Over 55% of \$118,800,000 new investment comes from the USA.

**In 1994:** # of Hotels: 310

**Hotel Rooms:** 8,000

**In 1996:** # of Hotels: 446

**Hotel Rooms:** 10,772 **Political/Economic**

### Programs:

New laws permit foreign ownership of land in coastal areas, and tariff free imports of equipment/machinery to equip tourist projects, including boat, diving equipment, and other assets required to serve the needs of tourists.

SEDA (Honduran Tourism Institute & Ministry of Environment): Seeks to attract foreign investment to develop ecotourism projects, with assistance of IDB.

### Attractions:

- \* Mayan Ruins
- \* Coral Reefs
- \* Forests of Tela & Trujillo
- \* 800 kilometers Caribbean Coastline
- \* Bay - Islands
- \* Snorkeling/Diving
- \* Protected Areas
- \* Beaches
- \* Rain Forests

**Total Contribution to Economy:** \$241 million US in 1996

<b>Total Tourists:</b>	1994	1995	1996	Future Growth
	314,000	351,000	393,000	12%

### Distribution of Tourists (1994):

Central America:	152,000	USA:	104,000	Europe:	27,000
South America:	27,000	Asia:	5,000	Other:	13,000

### Environmental Issues and Opportunities:

- **Deforestation:** Agricultural clearing, land development, and land degradation are contributing to the deforestation and destruction of the countries rain forests.  
**Opportunity:** Natural Resource Management Training
- **Water Resources:** Hotel Consumption of potable water and wastewater disposal.  
**Opportunity:** sell small modular units
- **Water Treatment:** The industrial and hospital waste that is being dumped into the countries lakes and streams is also effecting the coastal areas that could potential beaches developed for tourism purposes.  
**Opportunity:** Small and large self sufficient water treatment facilities.

# Environmental Country Overview - Honduras

## Food Processing & Agriculture: Honduras

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### Existing Agriculture:

**Products Produced:** Melons Bananas Coffee Mangos  
Cashews Plantains  
Orange and Grapefruit concentrates

**Melons:** 19,000 acres = 5 million boxes exported in 1996

**Corn:** Honduras market demand is 700,000 mt/yr of which 650 is produced in country. Honduras is not self sufficient because of poor agricultural infrastructure, lack of commercial credit to the farmers, poor quality seed, and bad weather recently.

**Rice:** Market demand of 68,000 mt/yr of which 40,000 mt/yr is produced locally.

**Products Imported:** Fruit and Vegetable processing equipment

**Existing Food Processing:** Over 23,000 hectares of banana plantations  
Melon packaging

### Food Processing Equipment:

Honduran agriculture is developing non-traditional agriculture, including melons (19,000 acres = 5 million boxes), mangoes, vegetables and others which have to be further processed for export (to USA & Europe). This represents an opportunity for US providers of food processing technology.

### Other:

Chestnut Hill Co., a US firm established in the Comayagua Valley is currently investing in the production and processing of vegetables for US: cucumbers, pickles, pumpkins and jalepenos.

Choluteca is the agricultural capital of the area and is growing annually by 2.3%

# Environmental Country Overview - Honduras

## Major Infrastructure: Honduras

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### Port Development:

There are seven major ports that serve Honduras:

La Ceiba	Puerto Castilla	Puerto Cortes
San Lorenzo	Tela	Puerto Lempira

### Container Loading Facilities:

- \* **Airports:** Four International Airports: Capital Tegucigalpa, Commercial Center San Pedro Sula, Coastal city of La Ceiba, and Bay Island of Roatán.

### Roads & Transportation :

The world Bank is funding a US\$65 million Transport Sector Rehabilitation Project to improve, rehabilitate, and maintain roads in the country's main trade corridors.

- \* Existing Roads are adequate leading into the major cities but new roads new developed in the urban areas.
- \* Toll Roads are being developed

### Communications:

Telephone service is adequate and radio reception is satisfactory.

### Education:

The US\$ 30 million Basic Education Project is improving school quality by upgrading teacher skills, providing educational materials, and improving overcrowded rural schools.

### Pipeline Projects approved:

Social Sector (WB),  
Population, Health, and Nutrition (WB)  
Additional projects listed on supplement page titled IADB Approved Projects.  
Education Sector Reform Program (IADB),  
Reorganization of the Health System (IADB),  
National Evaluation System(IADB),  
Investment in Water and Sanitation(IADB),  
Prevention Program For Children and Youth(IADB),  
Municipal Development in San Pedro Sula and other cities(IADB).

# Environmental Country Overview - Honduras

## Contacts:

### US Embassy

Avenida La Paz # 3453 Tegucigulpa, Honduras  
Phone: 504-36-9320 Fax: 504-36-9037

### Honduran Embassy

3007 Tilden St., NW, Washington, DC 20008  
Phone: 202- 966-7702/2604/5008 Fax: 202-966-9751

### Honduran American Chamber of Commerce

Mr. Hector Carcamo, General Manager  
PO Box 1838, Tegucigalpa, Honduras  
Phone: 504-32-7043 Fax: 504-32-2031

### Ministry of Economy - Investment Division

Mr. Diego Turcios, Minister  
Edificio Salame 4-th Fl. Tegucigalpa, Honduras  
Phone: 504-22-1850 Fax: 504-37-3025

## Environment:

### Ministry of the Environment

Mr. Carlos Medina, Minister  
Barrio La Fuente, Cuesta Lempira Tegucigalpa, Honduras  
Phone: 504-37-5725 Fax: 525-37-5726

## Tourism

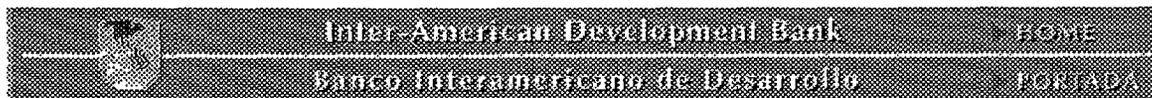
### Honduran Tourism Institute

Mr. Ricardo Martinez, Director  
Apartado Postal 3261 Tegucigalpa, Honduras  
Phone: 504-38-3974 Fax: 504-38-2102

### Tourism Development Commission

Mr. Carlos Cordero, Director  
Bay Islands: Barrio La Punta Roatan, Honduras  
Phone: 504-45-1559 Fax: 504-45-1635

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## Approved Project Documents--Honduras

Sum. = summary only

Loan/TC Number	Project Name	Document Price
787/SF-HO	<u>Watershed of the El Cajón Reservoir</u>	Sum.
906/SF-HO	<u>Multisector Preinvestment Program</u>	Sum.
936 and 937/SF-HO ATN/SF-4737-HO	<u>Energy Sector Hybrid Loan</u>	Sum.
938/SF-HO	<u>Bay Islands Environmental Management Project</u>	\$10
948 and 949/SF-HO ATN/SF-4944-HO	<u>Social Compensation Program</u>	\$10
967 and 968/SF-HO	<u>Public Sector Reform Program</u>	Sum.
974/SF-HO ATN/SF-5170-HO	<u>Program to Modernize the Administration of Justice</u>	\$10
981/SF-HO	Modernization of Agricultural Technology Services	\$10
997/SF-HO	Puerto Cortes Sewerage Program	\$ 5
1000/SF-HO	Basic & Middle Education Programs	\$ 5
ATN/SF-4687-HO	<u>AIDS Prevention and Control Program</u>	Sum.
ATN/SF-4848-HO	Apoyo al programa de reforma del sector agua y saneamiento	\$ 5
ATN/CI-4886-HO	<u>Modernization of Tax Administration</u>	\$ 5
ATN/SF-4944-HO	Honduran Social Compensation Program	\$10
ATN/MH-5128-HO	Rural Entrepreneurship Development Program	\$ 5
ATN/MT-5234-HO	Restructuring and Promotion of Sector in Telecommunications	\$ 5
ATN/MT-5235-HO	Strengthening of the Banking and Insurance Commission	\$ 5
ATN/NC-5487-HO	Estudios de prefactibilidad Hidroeléctrica en los Llanitos (Spanish only)	\$ 5
ATN/MH-5591-HO	Incentives for Private Sector Investment in Training	\$ 5

## PROYECTOS ZOLT EN CONSTRUCCION

NOMBRE DEL PROYECTO	Nº DE HABITAC.	LUGAR DE PROYECTO	DUÑO DEL PROYECTO	TEL.
1.- HOTEL FLORENCIA	140	TEGUCIGALPA	JAIME LACAYO	237-3947
2.- HOTEL VILLA FIRENZE	45	TEGUCIGALPA	JAIME LACAYO	237-3947
3.- HOTEL PLAZA LIBERTADOR	78	TEGUCIGALPA	SOCRATES CASTILLO B.	232-8268
4.- HOTEL PLAZA GENERAL	110	TEGUCIGALPA	SOCRATES CASTILLO B.	232-8268
5.- HOTEL SUEÑOS DEL MAR	20	ROATAN	JIM CRONICK	445-1718
6.- HOTEL MORGAN'S BEACH	300	ROATAN	PIETRO DIBATTISTA	552-7040
7.- HOTEL PARROT TREE	269	ROATAN	JHON EDWARDS	445-1726
8.- HOTEL MAYAN PRINCESS	66	ROATAN	DAVID SALOMON	455-5726
9.- HOTEL LIGHTHOUSE	45	ROATAN	BILL EVANS	445-1011
10.- HOTEL BIG BIGHT	49	ROATAN	OSMOND MADURO	236-6482
11.- HOTEL SANDY BAY	22	GUANAJA	THIERRY DE PIERREFEU	237-5025
12.- HOTEL CLUB MARBELLA	250	TELA	LUIS FERNANDO REBERA	557-3958
13.- PARADISE BEACH VILLAS	14	ROATAN	CHARLE LIVIGSTONE	445-1872
14.- LA FLORIDA CASA CLUB	10	VALLE, ANGELES	ALDO ASFURA	766-2122
15.- AIRPORT SUITE HOTEL	34	ROATAN	EMILIO SILVESTRI	455-5846
16.- BOSQUES ATLANTIDA	22	LA CEIBA	JEFFREY KENT FORTE	441-0584
17.- HOTEL PRINCESS	97	SAN PEDRO SULA	EDUARDO JOSE FRECH	551-3545
18.- HOTEL HOLIDAY INN	120	SANPEDRO SULA	ANTONIO S HANDAL	551-8218
19.- GUANAJA REEF CLUB	24	GUANAJA	ANTONIO YOUNG	236-7988
20.- HOTEL IGUANA BAY	40	GUANAJA	THIERRY DE PIERREFEU	237-5026
21.- PASEO COLONIAL	23	TEGUCIGALPA	BRENY MATUTE	232-9345
22.- HOTEL PRINCESS TEGUS.	173	TEGUCIGALPA	Contacto: Mariangeles Morales	232-0234
23.- TURTLE CROISING RES.	45	ROATAN	Contacto: Hal Sorrenti	445-1357
24 - PALM BEACH RESORT	24	ROATAN	MARCEL HAUSER	455-5407
25.- PALM COURT	71	ROATAN	Contacto: Hal Sorrenti	445-1357
26 - ROCK WEST	90	ROATAN	Contacto: Hal Sorrenti	445-1357
27.- PARKT HYATT	150	ROATAN	Contacto: José Meza Rubí	233-1472

# Nicaragua

## Environmental Country Overview - Nicaragua

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### Political & Economic Structure:

- \* **Elected Government:** Republic with an elected president. The elected president is member of the Liberal Alliance, a coalition of several parties, and the largest group of the National Assembly followed by the Sandinista Party (FSLN)  
**President:** Arnoldo Alemán      **Next Elections:** 2001
- \* **Legislative and Regulatory Framework:** There is political awareness regarding environmental issues, there exist environmental legislation which has not been enforced due to the lack of funds and knowledge of environmental issues. The World Bank is supporting Nicaragua's efforts in implementing legislative reforms to protect the environment. The Ministry for Natural Resources and the Environment (MARENA) is responsible for all environmental legislation. The purpose for the General Law for Environmental and Natural Resources is to strengthen the role of MARENA.
- \* **Legislation:**  
National Law and proposal for an institutional structure for resource management (pending).  
General Law for the Environment and Natural Resources (pending)
- \* **Political Commitment to Environmental Projects:** During the 80s some agricultural lands benefited from the civil war as they were allowed to rest. There was also an effort to protect the rain forest and watersheds as the predecessor to MARENA established one of the region's largest protected areas. Today these forests are under extreme pressure as the government looks for economic growth. Migration to the cities is putting existing infrastructure to task. Lake Managua, the largest lake in CA is under severe pressure from industry and municipal discharges. There is IDB, WB and German Funding going towards it's clean up.
- \* **Government Ability to fund Environmental Projects:** Very limited.
- \* **International Aid:** Most projects are being funded by international multilateral agencies such as World Bank, IDB, USAID, etc.
- \* **Private Investment Funding:** The International Finance Corporation (IFC) is also supporting the efforts of the World Bank in order to support private investment to speed up economic growth in the nation.

### Environmental Issues:

Nicaragua currently has several programs in place to support it's effort to protect their fragile environments, improve natural resource management, and provide sustainable improvements in infrastructure. Initial Nicaraguan environmental market opportunities will be in the water delivery, water pollution control, and environmental energy markets. Short-term opportunities are constrained by Nicaragua's extremely high level of external debt, which is currently five times it's GDP. Therefore, development of environmental markets in Nicaragua will occur in the medium- to long-term.

## Environmental Country Overview - Nicaragua

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**Water Treatment:** Currently Managua's wastewater is discharged directly into the Xolotan, which is the city's main water supply. Therefore, the lack of water treatment plants affect directly lakes and all water bodies in the country.

Lake Managua is beginning to show signs of eutrophication resulting from deforestation and water contamination caused by discharges of municipal and industrial wastewater into the lake. The Master Sewage plan for Managua, funded by the IDB, and through direct investments (Japanese and German) will be needed for the reconstruction of 45 km of collection systems.

**Solid Waste:** They estimate that 922 tons of solid waste is generated daily in Managua, approximately 1/4 of this waste is a result of the industrial activity. This amounts to 61% of all the garbage in the country. Of these figures 85% is organic waste. The Japanese Government financed the preparation of a master plan for solid waste management in Managua. They will also provide the financing for the investments needed to implement the first stage of the plan.

**Potable Water:** Currently INAA provides services nationwide for water and sewerage, there are considerations for the creation of regional water companies. In the urban areas they rely in surface and ground water, while in the rural areas 80% of the water consumption is groundwater, which is contaminated due to the agricultural runoff, and seepage from industrial waste. Nicaragua has established a National Plan for water resources management; the goal is supply portable water to 100% of the population by the year 2000. Nicaragua also plans to develop the necessary infrastructure to supply water to areas with few water resources and to rehabilitate existing water systems in several cities. The IDB is proving funding to increase the coverage of water delivery services and to improve the quality of the water throughout Nicaragua, especially in rural areas.

**Air Pollution:** Very little emphasis on air problems

**Infrastructure:** Several Projects being funded for rehabilitation and maintenance of roads.

**Land Management:** Property cadastre and land titling and registration of small farms. Project being funded by the World Bank (US\$ 44 million)

**Energy:** The country's highly inefficient use of energy should create a market for energy efficiency investments.

### Environmental Opportunities:

**Wastewater:** Siting and design, pumps, filters, alternative treatment systems, clean technology

**Solid Waste Management:** Landfill siting and design and equipment

## Environmental Country Overview - Nicaragua

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**Air Pollution:** Limited monitoring opportunities

**Green Opportunities:** Monitoring and evaluation on biodiversity, technical assistance for resources conservation

**Renewable Energy:** Geothermal

**Energy Efficiency:** Line loss reduction (there is inefficient use of energy)

### Economic Structure:

	1994	1995	1996	1997
Inflation: (% change)	12.4	11.1	12.0	
GDP:	1,852 mill.	1,919	2,029	
Growth:	3.3%	4.5%	5.5%	6.8%
Population:				4.26 million
Growth:				2.9%
Unemployment:	20.7%	18.2%	16.0%	
Minimum Wage:				Wages are not controlled

\* GDP per capita is the lowest in Central America and second lowest in the hemisphere.

\* Nicaragua is an agricultural country with small manufacturing.

Currency: Cordoba  
9.3 Cordobas = 1 US dollar (6/97)

### Education:

**Literacy Rate:** 75%  
**High School Education:** 39% of women, 44% of men  
School is mandatory in grades 6-13.

### Business Infrastructure:

#### Banking System:

Private banking system is growing with private investment from domestic and foreign sources, 3 of the 13 banks are state owned.

#### Other Growth Sectors:

Agriculture, fisheries, manufacturing, mining, telecommunications, tourism, and construction are all considered principle growth sectors.

## Environmental Country Overview - Nicaragua

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**Short Term:** **Agriculture** - 15.4% growth in 1996

**Manufacturing** - Export oriented, expected growth for 1997 was  
60% to \$160 million

**Mining** - Active foreign investment (gold & silver)

**Telecommunications** - Expected partial privatization for 1998.

**Tourism** - Expected to increase

**Construction** - Business & Residential Construction

## Textile Industry

## Nicaragua

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### Existing Base:

In the early 1990's, the manufacturing sector shifted production from textiles and metals made for the domestic market to goods such as soft drinks, processed foods, alcoholic beverages, and cigarettes.

The manufacturing sector has suffered from a lack of investment and the emigration of skilled workers as a result of the war in the 1980's.

However, due to heavy US investment Nicaragua's textile industry has been resurrected starting rise and is now one of the fastest growing major exports are maquila goods (eg. apparel ).

Export-oriented manufacturing at Nicaragua's free trade zone doubled in 1995 and 1996 and 1997 saw major increases.

Six US firms were in the zone in mid-1996 and several more have been established since the private free trade zone that opened in January 1996.

### Environmental Concerns & Opportunities:

- \* **Water Treatment:** Existing problem nationwide. Waste effluent is being dump into the lakes and ground, this feed to the underground water supply.

#### **Opportunity:**

Water treatment systems

- \* **Solid Waste:** Waste generated from plants being dump on open rubishes, no landfill capabilities

#### **Opportunity:**

Potential to consolidate solid waste from plants in a small region to burn and perhaps generate power and steam.

**Tourism Industry**

**Nicaragua**

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**Political/Economic Programs:**

- \* Third most important source for foreign exchange in 1996
- \* Impediments for growth; poor infrastructure and political instability.

**Attractions:**

- |                        |                 |
|------------------------|-----------------|
| Lakes                  | Beaches         |
| Volcanoes              | Colonial Cities |
| Tropical Flora & Fauna |                 |

**Environmental:**

**Opportunities:** Development of the pacific beach resorts and eco-tourism in the lake basin. The industry offers good opportunities for foreign investment (especially in the eco-tourism and beach related projects.)

**Tourism Number of Visits:**

Visitors	1996	1997
	305,450	500,000 expected
<b>Business Related:</b>	48%	
<b>Tourists:</b>	36%	
<b>Other:</b>	13%	

**Where do the tourists come from? (Most recent year) in thousands:**

<b>USA:</b>	64.7	<b>Europe:</b>	30.2
<b>Central America:</b>	193.3	<b>Other:</b>	14.5

**Pipeline Projects:**

Hotel construction was due to start in 1997 of 3 new first class hotels in Managua, as well as the expansion their first-class beach resort (Montelimar). Also some first class hotels will be conducting multi million dollar renovations.

**Food Processing & Agriculture: Nicaragua**

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**Existing Agriculture:**

Accounts for 26% of total GDP  
Sector growth of 15.4% in 1996

**Products Exported:**

Coffee, Non traditional agricultural products, Seafood, Apparel, Meat, Sugar, Bananas

**Products Imported:**

Wheat:	9.5 million for 1996	80,000 MT for 1997
Rice:	18.1 million for 1996	45,000 MT / year
Tallow:	6.9 million for 1996	13,143 MT
Vegetable Oil:	3.2 million	35,000 MT estimated for 1997
Yellow Corn:	2.9 million	14,500 MT for 1996

**Best US Prospects for sale:**

Agricultural Commodities, Fertilizers, Farm Equipment, Food Processing / Packaging Equipment, Medical Supplies, Electrical Equipment, Construction Equipment, Motor Vehicles & spare parts

**Environmental Issues & Opportunities:**

**Water Pollution:** Agricultural waste the primary source and direct contamination to water streams.

**Opportunities:** Waste water treatment plants and technology transfer.

## Infrastructure: Nicaragua

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### Port Development:

Due to high operating expenses and poor infrastructure, most containerized cargo is shipped by highway to ports in Costa Rica and Honduras. Port infrastructure is substandard.

Six seaports:

- ♦ Port Corinto: 110 miles northwest of Managua. Capacity of 1,516,900 tons/year.
- ♦ Puerto Sandino: located in the Pacific Coast used for imports of petroleum.
- ♦ San Juan del Sur: on the Pacific Coast, used to load and unload barges.
- ♦ El Bluff: Atlantic Coast, piers handle limited cargo.
- ♦ El Rama: Atlantic Coast, roll on, roll off port.
- ♦ Puerto Cabezas: Atlantic Coast, piers handle limited cargo.

### Airports:

Managua International Airport, with separate facilities for cargo.

### Roads & Transportation:

#### \* Existing Roads:

There are approximately 2,750 miles of paved highways and roads in Nicaragua, the majority located in the western part of the country. The Pan-American Highway runs north-south through Nicaragua on the Pacific side and carries the majority of overland cargo. There is no all-weather east-west road. Plans to upgrade a secondary highway from Managua to the interior port town of El Rama, from where there is river transport to Bluefields. The World Bank Group is supporting the Roads Rehabilitation and Maintenance Project where several microenterprises have been contracted to maintain 500 km of rural roads.

#### \* Toll Roads:

A \$200 million road improvement project was funded partially by IDB.

### Housing & Real Estate:

Business and residential construction is expected to continue to rebound in the coming years after two decades of relative stagnation.

### Communications:

There are 120,000 telephone lines and 2.2 lines per 100 people. The State Telecommunications Entity (ENITEL) was privatized in 1997. Cellular telephone service, private leased-line services, paging and trunked radio service are all presently offered in Nicaragua by private companies under license from (ENITEL.)

### Environmental:

## Environmental Country Overview - Nicaragua

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Nicaragua has the lowest levels of coverage for water and sanitation services in the region.

### **Power generation:**

Need to install 200 Megawatts of electricity capacity by 2000.

### **Investment Opportunities:**

- Tourism
- Mining
- Agriculture
- Electricity Generation

### **Procurement Opportunities for U.S. Companies:**

- Electricity Generation and Distribution
- Water and Sewage System Development
- Road Construction
- Information Technology

## Environmental Country Overview - Nicaragua

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### Contacts :

#### **Nicaragua Desk**

US Department of Commerce  
Washington, DC 20230  
Phone: 202-482-0704  
Fax: 202-482-0464

#### **Nicaraguan / American Chamber of Commerce**

Transfer UNAN 50 mts. al sur  
Managua, Nicaragua  
Phone: 505-2-673-099  
Fax: 505-2-673-098

#### **Economic Commercial Section**

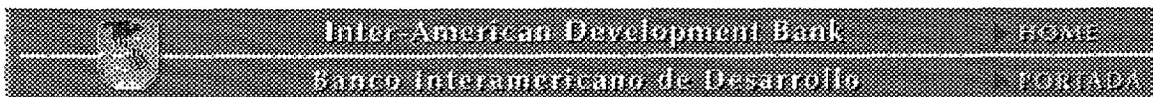
U.S. Embassy - Managua  
Unit 2703 Box 2  
APO AA 34021  
Phone: 505-2-662-291  
Fax: 505-2-669-056

#### **Nicaraguan Embassy**

1627 New Hampshire Ave. N.W.  
Washington, DC 20009  
Phone: 202-939-6570  
Fax: 202-939-6542

#### **USAID/ Nicaragua**

Margaret Harrit, Environmental Office  
Phone: 505-2-267-0505



## Approved Project Documents--Nicaragua

Sum. = summary only

Loan/TC Number	Project Name	Document Price
756/OC; 902/SF-NI	<u>Rural Road Rehabilitation and Upgrading</u>	Sum.
789/OC	<u>Strengthening for Non-conventional Intermediaries</u>	Sum.
801/OC-NI; 921/SF-NI	<u>Strengthening of Agricultural Services</u>	Sum.
927/SF-NI	<u>National Rural Development</u>	Sum./
933/SF-NI; ATN/SF-4724-NI	<u>Public Utilities Reform Program</u>	Sum.
935/SF-NI; ATN/SF-4735 and 4736-NI	<u>Emergency Social Investment Fund</u>	Sum.
943/SF-NI	<u>Multisector Preinvestment Program</u>	Sum.
951/SF-NI	<u>Debt Reduction Program</u>	Sum.
955/SF-NI	Facilidad para preparar proyectos: Programa de apoyo a la reforma del sector salud (only in Spanish)	Sum.
957/SF-NI	<u>Road Rehabilitation and Improvement Program</u>	\$10
960/SF-NI	<u>Technical Cooperation Loan for Institutional Strengthening of the Banco Central de Nicaragua</u>	\$ 5
969/SF-NI	<u>Program for Modernization of the Revenue Department</u>	\$ 5
970/SF-NI	<u>Socioenvironmental and Forestry Development Program</u>	\$10
973/SF-NI	<u>Program of Integrated Early Childhood Development and Day-Care Services for Children</u>	\$ 5
978/SF-NI	<u>Lake Managua and City of Managua Environmental Improvement Program - Stage I</u>	\$ 5
1001/SF-NI	<u>Food and Agricultural Revitalization Program</u>	\$ 5
1003/SF-NI	<u>Social Infrastructure Investment Program</u>	\$ 5
ATN/SF-4316-NI	<u>National Public Investment System</u>	Sum.
ATN/SZ-4335-NI	<u>Small Business and Microenterprise</u>	Sum.
ATN/II-4619-NI	<u>Momotombo Geothermal Project Technical Cooperation</u>	Sum.

ATN/SF-4666-NI	<u>Strengthening Government Financial Administration</u>	Sum.
ATN/SF-4667-NI	<u>Strengthening of the Customs System</u>	Sum.
ATN/MT-4904-NI	<u>Support for the Resolution of Property Conflicts</u>	\$ 5
ATN/MT-4961-NI	Legal Framework for expansion of Private Investment of Infrastructure	\$ 5
ATN/SF-5307-NI	Program to support the National Assembly and the Justice System	\$ 5
ATN/MH-5611-NI	Training for Agricultural Business Development	\$ 5

# Panama

# Environmental Country Overview - Panama

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## Political & Economic Structure:

- \* **Elected Government:** Elected President and 72 member unicameral legislative assembly. Judicial branch is separate from Executive, and appointed by President. Key initiatives: trade liberalization, acceleration of privatization, improved export competitiveness.

**President:** Ernesto "Toro" Perez Belladares      **Next Election:** 1999

- \* **Legislative & Regulatory Framework:**

### **Governmental Agencies:**

**National Institute for Renewable Natural Resources (INRENARE) 1986:** Designs and implements policies for conservation and development of natural resources.

**National Environmental Commission** -Responsible for pollution control

**Ministry of Health:** Policy formation & monitoring water supply and sanitation

**National Water and Sewage Authority (INDAAN):**Provides water and wastewater services

**Legislation:** Pending.

- \* **Political Commitment to Environmental Projects:** Not high priority, other economic growth sectors have higher priority (ex. Canal Zone development and tourism development).

Government, however, is structuring privatization program for potable water, sanitation and solid waste, geared to maximize Private Sector Investments.

- \* **Government's Ability to Fund Environmental Projects:** Severely Limited

- \* **Outside Project Funding & International Aid:** IDB (Electrical expansion, potable water supply, sanitation & Environmental Protection) & WB, various projects.

USAID: Established an Environmental Trust Fund to protect the Panama Canal Watershed, with support of the Government and the Nature Conservancy. The trust's objective is to protect the resource, and promote reforestation.

# Environmental Country Overview - Panama

**Environmental Issues:** Panama's Environmental Infrastructure is fairly well developed, although it still needs sewage and water treatment systems.

- \* **Soil Erosion & Deforestation:** Affecting all regions of the country, forest cover has been reduced to 45% of the land. Cattle ranchers are displacing rural populations from flat lands, who are overexploiting the land and adding to the degradation of the soil. Rural poor use wood fuel to cook, and prepare their drinking water. The World Bank is funding a US \$22 million Rural Poverty Alleviation and Natural Resources Management Project to address part of this problem.
- \* **Solid Waste Treatment & Disposal:** Urban areas only collect 60% of the garbage generated daily, and much of this is placed in open rubbish dumps which are not environmentally designed to protect the aquifer. This leads to further groundwater pollution, and the ensuing loss of valuable water supplies for the future.
- \* **Potable Water Delivery:** Panama has virtually 100% service of potable water to its population. Water source is primarily groundwater. Estimated losses are 50%, mostly from theft. In rural areas only 25% of the population receives treated water. Water quality standards are not enforced. IDB has targeted \$60 million to rehabilitate the supply system.

**Air Pollution:** Cement, Pulp&paper, and Power Generation plants generate air emissions which have some air pollution control systems.

**Oil Refineries:** Approximately 40% of the region's Petroleum Refining capacity installed in Panama, producing air contaminants and hazardous solid wastes including heavy metals.

**Water Treatment:** Most rivers and lakes suffer from contamination. Coverage 67%, but few rural systems. Some large remediation problems exist as exemplified by the need to cleaning up Panama Bay (cost est. \$US 1B). This particular project impacts tourism development because the coast along the bay is ideal for hotel and other facilities which cater to tourism.

IDB has project to restructure National water & sewer system, will lead to US \$140+ million dollars worth of investment in these sectors.

Treatment plants are needed in rural areas. Raw sewerage is dumped into rivers, streams and lakes creating a health problem. Water borne diseases are the leading cause of death in rural areas. Practically all sewerage from industrial sources is dumped raw into the streams, rivers and lakes.

# Environmental Country Overview - Panama

## Environmental Opportunities:

**Wastewater:** Siting & design, clean technologies, monitoring equip,  
Alternative treatment systems

**Solid Waste Management:** Consulting, Technical Training  
Vehicles and equipment, Transfer stations, Recycling equip,  
Landfill siting and design

### Air Pollution:

Emissions control & monitoring equipment (chemicals and plastics),  
Environmental Control Equipment, scrubbers, precipitators, afterburners, bag filters (sugar),  
Flue and gas desulfurization (power generation), Catalytic/thermal oxidation equip (petroleum)

### Green Opportunities:

Organic farming, Technical assistance & Technology Transfer  
Resource conservation

**Renewable Energy:** Bio Mass, Hydroelectric, Geothermal (IDB)

**Energy Efficiency:** All relevant technologies

# Environmental Country Overview - Panama

## Economic Background:

	1994	1995	1996	1997
Inflation:	1.3%	1.5%	1.5%	1.8%
GDP:	\$7.0 B	\$7.2	\$7.4	
Growth:	4.7%	2.3%	1.9%	3.4%
Population:	2.5 MM	2.6		
Growth:		1.7%		
Unemployment:	13.8%	14.5%	14%	13.1%
Minimum Wage:			\$0.95/hr	

Panama's economy is the most stable and prosperous in the region, but it is divided between a modern services sector (International Banking, insurance and the Canal Zone) and the domestic sector which is similar to that of other countries in the region, with similar problems.

## Education:

**Literacy Rate:** 89% of general population

\* 1/3 of Panamanians live in poverty.

Although the high allocation of resources for the social sector, social programs are inefficient and historically have been strong bias in favor of the urban and higher income groups.

Education is poor due to the lack of materials and the limited preparations of pre-schools. The education system is not responsive to the demands for skilled labor.

## Business Infrastructure:

**Banking System:** Sophisticated and experienced with international transactions, large regional presence. 114 Major banks are located in Panama

## Best US Export Prospects:

- \* Electrical Power Systems
- \* Telecommunications
- \* Medical Equipment
- \* Agricultural Consumer Products
- \* Service Equipment
- \* Restaurant Equipment
- \* Computers&Peripherals

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# Environmental Country Overview - Panama

## Tourism Industry

## Panama

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### Political/Economic Programs:

- \* The President has made tourism development a priority during the past four years. He has stated that tourism only accounts for 4% GDP, and he has targeted growth in this sector to reach 11% which is average for developed countries.
- \* Law #8 of 1994 creates attractive incentives for investing in tourism projects within Panama.
- \* The government is currently leasing 20,000 acres in the Canal area to develop echo-tourism projects. Parcels are 250 acres and up, at an asking price of \$8 to \$16 per acre per year. Typical leases are for 20 years with 20 year extensions.

### Existing Facilities:

\* # of Hotels: 248

### Attractions:

- \* Spanish Forts
- \* The Panama Canal
- \* Deep Sea fishing
- \* Local forests (echo-tourism):

### Environmental Issue:

One of the most promising and picturesque areas, the Bay of Panama is not suitable for tourism development until it is cleaned up from years of sewage run-off. Estimated cost \$1.0 billion (USA).

# Environmental Country Overview - Panama

## Food Processing & Agriculture: Panama

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### Existing Agriculture:

#### Products Exported:

- \* **Bananas: (Dole & Chiquita) 34 Million boxes/yr**  
Irrigation systems are in place in approx. 100% of the land under cultivation. Exports to Europe have suffered as the EEC has placed quotas on imports from Central America, giving their former colonies preferential treatment.
  
- \* **Shrimp: Both caught and farmed: 16,000 MT/yr**  
**Caught:** A fleet of 200 + trawlers captured 8,000 + MT 96 using "turtle-Excluder Devices" signaling a willingness to comply with eco-protection diversity laws.  
**Farmed:** Almost 7,000 hectares are in production. A growing industry, these farms are technologically advanced & efficient looking for new ways to increase yield and reduce costs. Most of the harvest is exported to USA. El Niño effects have been minor, as sea water is used primarily.
  
- \* **Sugar: 162,000 MT/yr**  
**CALESA: Produced 50,000 MT 96 ANSA: 50,000**  
**CALV: Santiago Mill: 35,000 Chiriqui Mill: 26,750**
  
- \* **Coffee: 200,000 bags (60 kilos) /yr**
  
- \* **Rice:** 60,000 hectares are cultivated, mostly under mechanized technology.

### Environmental Infrastructure Needs:

- \* **Irrigation systems:** are sorely needed, the current El Niño is producing a severe drought, affecting the rice crop and other harvests in areas which have no irrigation systems.
- \* **Waste to Energy:** Sugar plants are good candidates to implement these systems, given their generation of organic waste and high power/steam generation requirements

# Environmental Country Overview - Panama

## Infrastructure: Panama

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### Port Development:

**Container Loading Facilities:** New facilities at Boca De Toro (Atlantic side) are connected by road to the Pacific side, and have improved container service to USA & EEC. These shipments are able to effectively by-pass the Canal and are more economical than before.

### Roads & Transportation:

- \* **Existing Roads:** In 1994 the government began a \$420 million dollar rehabilitation and construction program to reach rural areas, and rehabilitate major roads, bridges and access roads.
- \* **Toll Roads:** Mexican investment firms with Spanish backing, are construction major toll roads in Panama.

### Power generation:

**IRHE** - The Government owned power authority is being restructured into six different companies, to generate, transmit and distribute power throughout the country. Cogeneration laws exist which require IRHE to purchase power from private companies.

**Installed Capacity:** 3,670 Gh, 66% hydroelectric and 34% thermoelectric.

- \* **Demand:** Growing 40 megawatts per year.
- \* **Renewable Energy:**  
**Small Hydroelectric:** Excellent investment opportunity, many small to medium sized rural projects are viable.

# Environmental Country Overview - Panama

## Key Panama Contacts:

### US Embassy in Panama

Commercial Officer

Unit 0945 APO AA 34002

Phone: 507-227-1777 Fax: 507-227-1964

### USAID/Panama

Panama City, Panama

Phone: 507-263-6011 Fax: 507-264-0101

### Embassy of Panama

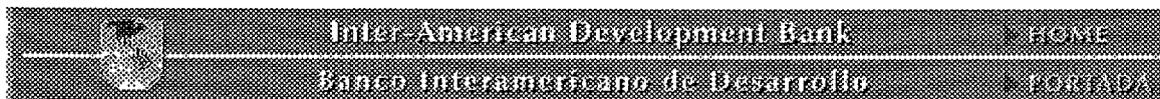
2862 McGill Terrace NW Washington DC 20008

Phone: 202-483-1407 Fax: 202-483-8413

### American Chamber of Commerce and Industry

P.O. Box 168 Panama City, Panama

Phone: 507-269-3881 Fax: 507-223-3508



## Approved Project Documents--Panama

Sum. = summary only

Loan/TC Number	Project Name	Document Price
769/OC-PN	<u>Road Rehabilitation and Administration</u>	Sum.
778/OC-PN	<u>Studies of the Interoceanic Region</u>	Sum.
803/OC-PN	<u>Health Care Reform Program</u>	Sum.
854 and 855/OC-PN	<u>Social Investment Program</u>	Sum.
908/OC-PN	<u>External Debt and Debt-Service Reduction Program</u>	\$ 5
923/OC-PN	Technical Cooperation Loan for a Project to Modernize the Legislature	\$ 5
924/OC-PN	Agricultural Services Modernization Program	\$10
949/OC-PN	Housing Programme	Sum.
969/OC-PN 970/OC-PN	<u>Programa Sectorial de Reforma de los Sectores de Infraestructura Básica (available in Spanish only)</u>	\$5
1004/OC-PN	Program to strengthen and modernize Economic and Fiscal Management	\$5
1013/OC-PN	Educational Development Project	\$5
1029/OC-PN	Restructuring the National Water and Sewer Supply	\$5
1073/OC-PN	<u>Financial Sector Program</u>	Sum.
ATN/JF-4892 and 4893-PN	CACPYMER & FUNDES	\$ 5
ATN/JF-5142-PN	<u>El Valle de Antón Geothermal Field Advanced Prefeseability Studies - Phase II</u>	\$ 5
ATN/JF-5354-PN	Development of Reverted Areas with Private Sector Participation	\$ 5
ATN/ME-5478-PN	Agribusiness Support Services	\$ 5
ATN/MH-5739-PN	Demand Based Employment and Training System	\$ 5
ATN/MT-5785-PN	Project to Strengthen the Securities Commission	\$ 5