

## LATIN AMERICA AND THE CARIBBEAN

Superlatives are often heard when one describes the natural endowments of Latin America and the Caribbean. This region hosts the largest block of tropical humid forest, the Amazon, and the largest river, also called the Amazon, which accounts for about 20 percent of the planet's freshwater. This region also encompasses the world's driest spot, the Atacama desert, and the wettest spots, the Cocó and Darien regions in Colombia and Panama. Moreover, it possesses the highest level of biodiversity in terms of numbers of species (Brazil) and species per area (Colombia and Peru).

Deforestation, overharvesting, rapid population growth, land-based pollution, and unsustainable development are all threatening the region's natural resources. Rapid urbanization has also created severe industrial and other pollution, diminishing the quality of life for many in this region.

Countries in this region have been responding to these critical environmental concerns by creating environmental units in governmental agencies, placing environmental and sustainable development considerations in national constitutions, and empowering the judiciary to a greater degree in defense of the environment.

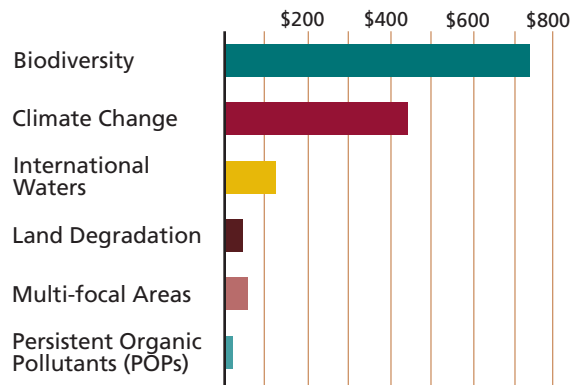
Since its inception, the Global Environment Facility (GEF) has worked with every country in this region on environmental concerns. The GEF has provided \$1.39 billion to 405 projects in Latin America and the Caribbean. It has attracted \$4.62 billion in cofinancing. These projects have helped the countries to

- prepare for the adverse effects of climate change
- further sustainable transportation
- promote renewable energy
- conserve large tracts of forests and wetland
- manage international waters
- promote sustainable land management
- support payments for environmental services
- explore alternatives to harmful persistent organic pollutants (POPs)

### GROWING COFFEE IN THE SHADE

Coffee is a popular crop in Central America. El Salvador is working to conserve critical biodiversity within shade coffee plantations. Through a GEF-supported project, El Salvador has increased the number of shade coffee plantations that serve as habitats for biodiversity, initiated biological corridors composed of shade coffee plantations, and promoted the development of a "biodiversity-friendly" coffee production system along with certifying and marketing it abroad.

### GEF INVESTMENTS BY FOCAL AREA (IN \$MILLIONS)



## **STRENGTHENING PROTECTED AREA SYSTEMS**

Stretching from Mexico to Panama, the Mesoamerican Biological Corridor (MBC) links protected areas, buffer zones, and biological corridors. The region encompasses 22 distinctive ecoregions and about 7 percent of the planet's biodiversity. As one of the world's largest conservation initiatives, MBC focuses on creating ecological corridors that provide freedom of movement for animals and facilitate genetic exchange of species. A number of GEF projects are supporting the MBC by emphasizing integrating biodiversity conservation with sustainable economic development priorities.

The Amazon is another area of Latin America rich in biodiversity. In 2002, the Brazilian government launched an ambitious program for the creation and implementation of protected areas in the Brazilian Amazon region: Amazon Region Protect Areas (ARPA). Currently, Brazil has 12 million hectares of tropical forests under strict protection. Through ARPA, an additional 25 million hectares of tropical forests would be protected. ARPA includes both areas of strict protection and management of productive landscape. The GEF is one of the partners supporting ARPA. The support is being used to establish an independent endowment, provide permanent trained staff, develop management and biodiversity monitoring systems, and invest in alternative revenue-generating activities for local people.

## **PAYING FOR ENVIRONMENTAL SERVICES**

Over the last decade, pasture land in Colombia, Nicaragua, and Costa Rica has expanded at a rate of between 4 to 9 percent, mostly at the expense of tropical forests, leading to the loss of unique plant and animal species. In 2002, these countries began working with the GEF and the World Bank on an innovative pilot project "Integrated Silvo-Pastoral Approaches to Ecosystem Management." The project demonstrates and measures the effects of introducing payment incentives for environmental services to farmers for adopting inte-

grated silvo-pastoral farming systems in degraded pasture lands. It also monitors ecosystem functioning, global environmental benefits, and local socioeconomic gains. Some preliminary results from the project:

- About 290 farmers have changed their land use to a more sustainable silvo-pastoral system and have received payments (\$580 per farm) for improved environmental services (habitat and water services, carbon sequestration).
- Almost 2,000 hectares in six watersheds in the three countries are now under a sustainable silvo-pastoral management system.
- About 15,600 tons of soil and biomass carbon have been stored from the atmosphere with a minimum objective of 25,000 tons by the end of the project.

Overall, the project has helped farmers become aware of the potential of their farms to provide environmental services through integrated management systems.

The silvo-pastoral project complements another project in Costa Rica, which is conserving forests through a payment for ecosystem services scheme. With assistance from the GEF and World Bank, Costa Rica is developing an Ecomarket, which is supporting the development of markets and private sector providers for environmental services supplied by privately owned forests. The results of project activities include (a) an additional 50,000 hectares of privately owned lands incorporated into Costa Rica's conservation easement program; (b) establishment of a financial instrument to support conservation easements; and (c) increased landowner participation in forest conservation-related activities within the MBC in Costa Rica.

## **PREPARING FOR CLIMATE CHANGE**

For the countries of the Caribbean, climate change could cause economic and environmental destruction with rising sea levels and increased frequency and intensity of hurricanes, tidal

waves, and coastal flooding. Beach erosion, destruction of coral reefs, and damage to infrastructure are just some of the lasting impacts. Because the majority of people live and work on coasts, these impacts are particularly devastating.

Twelve Caribbean Community countries—Antigua and Barbuda, the Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, Saint Lucia, St. Kitts and Nevis, St. Vincent and the Grenadines, and Trinidad and Tobago—have come together to build capacity in the Caribbean region for the adaptation to climate change impacts, particularly sea level rise. The GEF supported their first project, the Caribbean Planning for Adaptation Global Climate Change project (CPACC), which produced vulnerability assessments, adaptation plans, and enhanced capacity building activities. A few specific results of the project:

- some 18 sea level and climate monitoring systems, which were installed in 12 countries
- an integrated database for the monitoring of climate change effects
- pilot vulnerability studies which were carried out in Barbados, Grenada, and Guyana
- establishment of coral reef monitoring protocols
- articulation of national climate change adaptation policies and implementation plans
- creation of a network for regional harmonization

This project has been followed with the ongoing Mainstreaming Adaptation to Climate Change (MACC) project, which will adopt a learning-by-doing approach to capacity building, consolidating the achievements of previous projects. It aims to further institutional capacity, strengthen the knowledge base, and deepen awareness and participation.

## **INTEGRATING VARIOUS TYPES OF RENEWABLE ENERGY**

The Government of Mexico has made sustainable development a priority. Officials stated that they are committed to introducing policies aimed at protecting the environment and achieving a sustainable and harmonious development. They

strongly recommended the incorporation of renewable energy as a core policy element. The main focus of their work in renewable energy is wind, but they are also exploring other renewable energy options, including, solar photovoltaic (PV), hybrid solar thermal power, landfill gas, and PV water pumps for irrigation.

To lay the foundation for wind energy and other renewable sources, the Government of Mexico is working with the GEF and all three of its Implementing Agencies: World Bank, United Nations Development Programme, and United Nations Environment Programme. This integrated approach will help put Mexico in the forefront of renewable energy development worldwide.

Through support for UNEP's Solar and Wind Energy Resource Assessment Project, the GEF and Mexican authorities have collaborated to increase information about Mexico's wind energy resources.

By supporting UNDP's Action Plan for Removing Barriers to the Full-scale Implementation of Wind Power, the GEF is assisting the Mexican government's efforts to increase capacity to work with and adopt wind energy technology. The project will enable the Instituto de Investigaciones Electricas to establish a wind turbine research facility, which will increase the understanding of wind technology under Mexican conditions.

Working through the World Bank's Large-Scale Renewable Energy Development Project, the GEF is supporting the Mexican government's efforts to change their electricity regulatory policy environment to ensure that renewable electricity generations—from all sources—are given reasonable opportunities to sell electricity to the grid and private electricity consumers.

## **PROMOTING SUSTAINABLE TRANSPORTATION**

In Chile, transportation is a major source of greenhouse gas emissions. In 2000, the govern-

ment announced a plan to rectify Santiago's urban transportation. It is working with the GEF to shift Santiago to more efficient and less polluting forms of transport. The project, which includes a strategic environmental assessment, is focusing on the following:

- promoting bicycle use
- modernizing the bus system
- assessing land-use incentives and policies to reduce motorized travel
- improving traffic flows and harmonizing travel

The GEF has a number of other sustainable transportation projects throughout Latin America: Mexico City, Mexico; Lima, Peru; Bogotá, Colombia; Managua, Nicaragua; Calencia, Venezuela; and São Paulo, Brazil.

### **FOSTERING TRANSBOUNDARY WATER PARTNERSHIPS**

Latin America is rich in freshwater resources, home of the world's largest wetland, and surrounded by globally valuable marine fisheries. Freshwater is mostly found in a few great transboundary river basins, the Amazon, the Plata-Parana, and the Orinoco, and Guarani Aquifer. The challenge is managing these immense resources that cross borders, protecting them for future generations, and adapting to increasing climatic fluctuations and man-induced changes. The GEF is spearheading this continent-wide effort, strengthening partnerships among countries in both the Amazon and the Plata-Parana basins, testing international waters resource management approaches in major basins and coastal areas, supporting joint sustainable management and strategic uses of groundwater resources, and protecting key freshwater ecosystems. All Latin American and Caribbean countries have participated in GEF's international waters projects.

Focusing on the Sao Francisco Basin, the Government of Brazil is working with the GEF to

implement its new water law, which adopts the principles of integrated water resource management, establishes a system of water pricing, allocates water rights, and requires development of water charges and use regulations in the basin. The five basin states have formed a committee for governance purposes and adopted a strategic action program for balancing water uses and restoring the downstream coastal environment.

Of critical importance globally are transboundary groundwater systems, which are vital for survival in the drylands and for economic use in more water-rich regions. Argentina, Brazil, Paraguay, and Uruguay are collaborating in a GEF project to protect the quality and reduce water use conflicts on one of the world's largest groundwater systems: the Guarani Aquifer. Provincial and national inter-ministry committees are working to (a) better understand pollution and conflicts in the system, (b) promote public participation in decisionmaking toward a jointly approved strategic action program of policy, legal, and institutional reforms, (c) undertake local demonstrations of aquifer protection with communities and NGOs, and (4) jointly manage the aquifer system with a multi-country legal framework.

### **EXPLORING ALTERNATIVES TO DDT**

Malaria is a life-threatening disease that affects millions. People in Mexico and Central America, as in other parts of the tropics, are particularly vulnerable to this disease. DDT, which is a persistent organic pollutant, is often used to control malaria. Working with the GEF, Mexico and the countries of Central America are investigating and testing alternatives to DDT. The project aims to prevent reintroduction of DDT by promoting new mosquito control techniques. Nine demonstration projects are being created to show that DDT-free methods are replicable and cost-effective. In addition, the project is seeking to eliminate stockpiles of DDT, which pose a great risk of contaminating waters.

### **FOR MORE INFORMATION**

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