



***Biodiversity and Forests
at a Glance***



The World Bank

A Vanishing Global Heritage

The world's biodiversity is dwindling before our eyes at an alarming rate. Half of the world's wetlands have been lost in the past century; 80 percent of grasslands are suffering from soil degradation; 20 percent of drylands are in danger of becoming deserts. Every minute of the day, 28 hectares of forest are lost. Overfishing and degradation of marine ecosystems has led to drastic declines in marine fisheries; coastal wetlands and mangrove forests around the world are being cleared for urban development, aquaculture, and croplands; coral reefs are under assault and suffering from a variety of human-induced stresses, further threatening marine fish stocks and other biodiversity. Because of the irreversibility of species extinction and much habitat loss, this rampant depletion of our biodiversity exerts a terrible toll on both the natural and economic world, affecting both current and future generations.



Vietnam

The root causes of habitat and biodiversity loss are largely institutional and socio-economic

The World Bank is currently the largest single international funding source for biodiversity projects

Why Forests Matter

- Forests now cover only 6 percent of the planet, but they harbor up to 90 percent of the world's terrestrial biodiversity. This biodiversity is irreplaceable, and also has important economic uses. But forests continue to disappear at an alarming rate.
- More than 1.6 billion people worldwide depend on forests for fuel, medicinal plants, and subsistence income from forest products. Nearly 3 billion people—mostly poor—depend on wood as their main energy source for household heating and cooking.
- Forests hold as much as 46 percent of the world's terrestrial carbon stores. Forest loss in the tropics alone accounts for between 10-30 percent of global greenhouse gas emissions. In addition, forests recycle nutrients, regulate water quality, and prevent erosion of topsoil.
- Forests provide billions of dollars in raw materials for timber, as well as products such as pharmaceuticals, paper, and building supplies. But poorly regulated logging operations, often leading to destruction of biodiversity and livelihoods of local people, characterize the forest sectors of many World Bank client countries.
- Few countries can devote more than 10-20 percent of their forest estate to totally protected areas. How sustainably forests outside protected areas are managed will determine the fate of both forest biodiversity and forest-dependent people.

The root causes of habitat and biodiversity loss are largely institutional and socio-economic. A key challenge in addressing the threat to biodiversity for emerging economies is to balance conservation with the use of their natural resources for growth; and to find ways to protect vital natural resources, without causing suffering to vulnerable and poor citizens who depend on them for their daily subsistence needs.

The international community has attempted to find remedies to the threats to biodiversity. The Convention on Biological Diversity was one of the central agreements adopted at the 1992 Earth Summit. Since then, 183 countries have become parties to the Convention, which establishes three main goals: the conservation of biological diversity, the sustainable use of its components,¹ and the fair and equitable sharing of benefits from the use of genetic resources.¹

¹ See the Convention on Biological Diversity website at: <http://www.biodiv.org>

The Global Environment Facility (GEF) was established as the interim financing mechanism for the Convention, and the World Bank is one of the implementing agencies and host to the GEF secretariat. Biodiversity is increasingly mainstreamed in conventional Bank projects, but in addition, the Bank finances biodiversity conservation using loans and GEF grants.

The World Bank is currently the largest single international funding source for biodiversity projects. Since the 1992 Rio Earth Summit, the Bank has invested in biodiversity projects and related activities worldwide, from the former Soviet Republics to the poorest countries in Africa and Asia. Projects range from traditional support to establish and

strengthen protected areas, to the promotion of sustainable use and conservation in production landscapes. These efforts contribute in tangible ways to realizing the Millennium Development Goal of ensuring environmental sustainability by reversing the loss of environmental resources. Although much of the discussion that follows focuses on World Bank work in forests, the Bank's biodiversity efforts are broad-reaching, and include other terrestrial, freshwater, and marine ecosystems.

Consistent with the mission of poverty alleviation, the Bank recognizes that biodiversity underpins human welfare and economic development, and that many sectors of national and local economies depend

on biological diversity, natural ecosystems, productive landscapes, and the environmental services they provide. Moreover, the poorest of the poor, especially the rural poor, tend to be the most dependent on surrounding natural ecosystems.

Progress Since Rio

In partnership with client governments, international organizations, other donors, national and international NGOs, academic institutions, and local community organizations, the Bank continues to seek and implement creative ways to support biodiversity conservation. A recent analysis of the Bank's forest projects illustrates the richness and innovation of the biodiversity portfolio. Between 1992 and 2002, the Bank

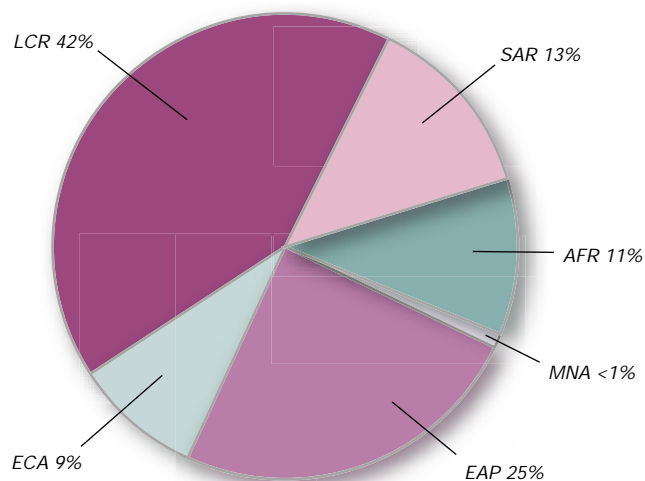
Why Marine Ecosystems Matter

- Estuaries, coastal wetlands and mangrove forests act to filter land-borne pollutants, provide shelter for finfish and shellfish to reproduce, reduce coastal erosion, and provide vital habitat for many bird species. However, these critical ecosystems are under threat worldwide, as they are cleared for cropland, urban development, mariculture ponds, and garbage dumps.
- The global catch of fish and shellfish supplies nearly 10 percent of the animal protein we consume. But fleet modernization, over-subsidization of the fishing industry, and poor management are threatening 3/4 of marine fisheries. Over-fishing, habitat destruction, and pollution are some of the factors that have led to many species being threatened or in danger of extinction.
- Coral reef ecosystems are among the most biologically productive and diverse in the world, and sustain numerous coastal communities worldwide through food production, tourism, recreation, aesthetics, and shoreline protection. But coral reef 'bleaching' worldwide may be occurring because of rising water temperatures due to climate change. Global warming from increased CO₂ emissions is expected to lead to substantial sea-level rise, and more frequent and severe storms, which could have a devastating impact on coastal environments and marine resources.

invested in 207 projects in 90 countries, which supported conservation and sustainable use of biodiversity in a range of forest habitats, including tropical evergreen and monsoon forests, forested savanna woodlands, dry forests, temperate and boreal forests, and mountain and cloud forests. During this period, World Bank lending for all forest biodiversity projects together totaled the equivalent of about \$1.6 billion, and leveraged another \$1.1 billion, resulting in a total forest investment portfolio exceeding \$2.7 billion. Funding levels vary from year to year, but as of June 2002, current Bank lending for biodiversity projects was \$370 million (see Figure 1).

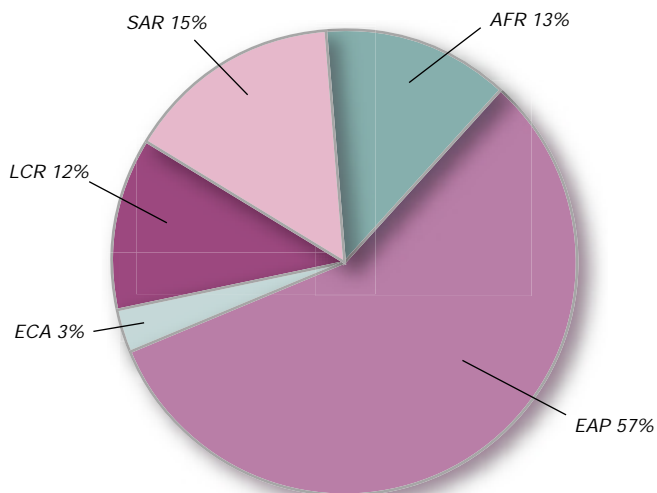
The World Bank has lent some \$4 billion since 1991 for forestry and forest-related projects. The current portfolio, as of June 2002, for active forestry projects is \$567 million (see Figure 2). The Bank is currently developing a new forest sector strategy, based heavily on partnerships with other donors, NGOs, the private sector and client countries, which focuses on: poverty alleviation; integration of forests into sustainable economic development; and protection of local and global forest values. The Bank's operational policy for the forest

FIGURE 1
World Bank Active Lending for Biodiversity by Region,²
June 2002 (\$370 million)*



* preliminary data

FIGURE 2
World Bank Active Lending for Forestry by Region,
June 2002 (\$567 million)*



* preliminary data

² Bank administrative regions: AFR, Sub-Saharan Africa region; EAP, East Asia Pacific region; ECA, Europe and Central Asia region; LCR, Latin America and Caribbean region; MNA, Middle East and North Africa region; SAR, South Asia region.

sector is being revised to facilitate implementation of a more proactive and broad-based approach.

Protected Area Management

Well-managed protected areas are the cornerstone of biodiversity protection, and many World Bank projects focus on their establishment and improved management.

In Brazil, the World Bank/WWF Alliance for forest conservation and sustainable use, with support from the GEF, is working with the Government to protect 41 million hectares of forest across the Brazilian Amazon. The Amazon Region Protected Areas Program (ARPA) is anchored in President Cardoso's 1998 commitment to set aside at least 10 percent of Brazil's forests in conservation areas, tripling the area under protection. A program is underway to strengthen 12.5 million hectares of existing parks and to establish new protected areas in another 28.5 million hectares, including representative examples of forest in each of the Amazon's 23 eco-regions. The ARPA program will establish a long-term financing mechanism to cover the recurrent costs, and ensure the sustainability of protected areas. Under the program, a biodiversity monitoring system will be established to track the threats posed by deforestation, road construction, logging, cattle raising, and

other development activities in and around parks.

In Russia, which contains about 25 percent of all old-growth forests, there is a pressing need to balance economic development in the forest sector with sustainable management and conservation of biodiversity. A six year, \$20 million GEF-financed project is supporting conservation of forests in the Russian Far East, and will be complemented by a new loan for forest management, including control of fire in these biodiversity-rich forests. Also in the Russian Far East, a medium-size grant is promoting conservation of Siberian tigers and their prey base in the forests of Khabarovsk Krai.

In Central America, The Meso-american Biological Corridor (MBC) encompasses nearly 30 percent of territory, linking ecosystems, indigenous communities, and private lands in the longest continuous multinational sustainable development initiative in the world. As one of the Earth's most biologically diverse areas, the region offers investment opportunities ranging from ecotourism to pharmaceutical prospecting. In support of these opportunities, the Bank is supervising projects for almost \$200 million, and is implementing finances of over \$40 million in ongoing national and regional GEF grants. In conjunction with the Central American Commission on Environment and

Development (CCAD), the Bank has worked to consolidate and mainstream the MBC by mobilizing resources to cover the costs of connecting the multiple ongoing activities at the national level, promoting public-private partnerships, and increasing awareness of both the local and international communities about the value of the MBC initiative.

In Indonesia, the Integrated Conservation and Development Project (ICDP) for the one million hectare national park of Kerinci Seblat is using a Bank loan and major GEF grant to integrate biodiversity needs into land use and local development planning, supporting biodiversity surveys and audits in adjacent forest concessions, and providing small development grants to communities that enter conservation agreements with the park.

In India, The Ecodevelopment Project provides development opportunities to neighboring communities to address some of the social and poverty needs that lead to biodiversity loss around evergreen and monsoon forest parks which provide important habitat for tigers, also using a World Bank loan and GEF funds. At Periyar, Kerala, park managers have developed innovative partnerships with different user groups, such as thatch, reed, and firewood collectors, to allow organized collections in strictly zoned



Indonesia

areas in return for help with forest patrols and forest protection. The park is also using its partnership with local communities to eradicate invasive alien species such as *Eucalyptus* and *Lantana*, that inhibit natural regeneration and threaten ecosystem health.

Protected Area Financing

One of the greatest challenges for conservation is covering the recurrent costs of parks and protected areas. To address this problem, the Bank has helped to establish several national conservation trust funds, using GEF financing as part of the co-funding. Conservation funds are especially valuable, because they provide a regular and predictable source of funding.

The Mgahinga-Bwindi Impenetrable Forest Conservation Trust in Uganda focuses on two national parks, Bwindi and Mgahinga, which protect important gorilla habitats along the borders with Rwanda and Zaire. The conservation fund provides resources for park management to strengthen protection of the gorilla populations, and for research to better understand the ecology and social behavior of the gorillas and other native wildlife. Initially capitalized with \$4 million of GEF financing, the conservation fund has received additional support from

USAID to finance park-related activities, and an additional \$2 million from the Government of the Netherlands. By providing resources to protect the gorillas in Uganda, the trust fund is helping to support reservoir populations of this endangered species which may provide migrants to re-colonize forest habitats in Uganda's war-torn neighbors.

The Table Mountain Fund (TMF) in South Africa is financing conservation in the world's smallest plant kingdom, the Cape Floral Kingdom, which is a Mediterranean-type ecosystem that lies at the southern tip of South Africa. It is the smallest and richest of the world's six floral kingdoms,³ and the only one contained within a single country. The Cape Floral Kingdom harbors 8,600 plant species (equivalent to one thirtieth of the global flora) in just 90,000 square kilometers, with 70 percent of those plants unique to the region. Within this kingdom lies the Cape peninsula, an area of spectacular beauty and a diverse flora of more than 2,500 species. To provide funding for this floral "hotspot," the TMF was established with

\$7 million, including \$5 million from the World Bank/GEF program and \$2 million from South African sources. These funds have been matched with large land donations and purchases of private land to expand the Cape Peninsula National Park. The TMF is designed to provide income in perpetuity to support the NGO-managed community conservation program within the park.

The Mexican fund will provide a long-term, reliable source of funds for core protection and conservation activities. Moreover, it will contribute to strengthened protected areas management, and the protection of unique biodiversity in eligible and special biosphere reserves.

The Peruvian fund for protected areas (PROFONAPE) has also strengthened and extended the protected area network, and improved policy framework and financial sustainability.

Conservation Outside Protected Areas

Expanding biodiversity activities into the wider landscape, thus integrating biodiversity conservation and sustainable management into regular programs and projects, has been a World Bank priority in recent years.

³ The world is divided into six floral kingdoms: the Holarctic Kingdom (America and Eurasia—42 percent), the Paleotropical Kingdom (most of Africa—35 percent), Neotropical Kingdom (most of South America—14 percent), Australian Kingdom (8 percent), the Holarctic Kingdom (the southern tip of South America—1 percent), and the Capensis (Cape Floral Kingdom—0.04 percent).

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In India, more than 275 million people depend on forest lands for their livelihoods and cash income (firewood, non-timber forest products, building materials), including more than 35 million tribal peoples, the most disadvantaged groups in society. The World Bank has committed over \$800 million to the forestry sector in India over the last 20 years with 16 community-based joint forest management projects in several states throughout the subcontinent. These projects have led to significant improvements in forest management, reversal of deforestation trends in three states, and increases in assets and incomes for thousands of forest fringe villagers. In Madhya Pradesh, for instance, the Bank financed joint forest management activities that led to the establishment of over 2,400 oversight committees, and benefited more than 6 million people.

In Eastern Europe and the former Soviet Union, biodiversity has been mainstreamed into the forestry sector, using the complementarities between GEF grants and World Bank lending. Bank assistance has focused on improved forest sector management, including fire and pest management, development of regulatory frameworks, restitution of forested lands to private landowners and communities, and restoration with native species of forests damaged by air pollution and acid rain. A tri-national trans-boundary conservation project in the Western Tien Shan in Central Asia (Kyrgyz Republic, Kazakhstan, and Uzbekistan) will help to maintain important juniper and walnut forests, as well as the gene pool of native apple trees, within conservation areas and the intervening landscape.

In China, The Natural Forest Protection Program is designed to ensure the long-term protection of national forests in watershed catchments and reduce vulnerability of downstream villages and towns to flooding. After the severe floods of 1998, the Chinese government introduced a moratorium on logging, and is now re-assessing its forestry programs. Approximately 50 million hectares, more than half the country's natural forests, will now be re-assessed for designation as nature reserves, forest parks, watershed forests, or areas for selective logging according to their biological and protection values.

Across East Asia, many nationals had no direct access to information about their national flora and fauna. Although some field guides were available, these tended to be in English, expensive, and largely inaccessible to a local market. Two Bank projects have specifically addressed this need for local language field guides. A project funded by the Bank-Netherlands Partnership Program and managed by IUCN produced 17 titles and 26 books (some titles appear in more than one language), in partnership with NGOs and academics in seven East Asian nations. A second GEF-financed Indonesia Biodiversity Collections

Project, executed by the Indonesian Institute of Sciences, produced 15 books.

Also in East Asia, the World Bank, through the Bank-Netherlands Partnership Program and the World Bank/WWF Alliance for forest conservation and sustainable use, has been encouraging faith leaders to initiate practical conservation projects, seeking the support of the 'networks' of workers and members. The project seeks to facilitate, deepen and raise the awareness and profile of religious arguments for forest/biodiversity protection and stewardship, engaging leaders of this important sector of civil society which extends to virtually all communities through chains of respect and authority. It is active in Mongolia (Buddhism), Thailand (Buddhism), Cambodia (Buddhism), Indonesia (Islam, Christianity-Protestant), Papua New Guinea (Christianity-Protestant), and East Timor (Christianity-Catholic), and seeks to apply lessons as much as possible to mainstream World Bank work through consultations for projects, programs and policies.

Looking Ahead

The integration of biodiversity issues throughout World Bank projects is essential to ensuring that local and global priorities for biodiversity conservation are being met. Over the last decade, a number of World Bank

projects have been making explicit linkages between biodiversity, carbon sequestration, and watershed values associated with rural development, forest conservation and management, erosion control, clean water supplies, flood control, and coastal protection.

Looking towards the future, there are several key issues that must be addressed in order to ensure the further implementation of *Agenda 21*. In order to conserve biodiversity, it is imperative to:

- Harness the potential of biodiversity and improved natural resource management as a driver of poverty reduction by creating opportunity, empowerment, and security for rural people, especially among the rural poor, in the sustainable use and management of forests and other biological resources.
- Integrate biodiversity into sustainable economic development by:
 - (i) developing markets for environmental services;
 - (ii) encouraging improved forest and dryland management;
 - (iii) improving governance, including control of illegal activities;
 - (iv) promoting active participation in management and decision-making by all stakeholders; and,
 - (v) managing adverse cross-sectoral and macroeconomic impacts on forests and other biological resources.
- Encourage the recognition of the moral imperative for conserving biodiversity that we receive in

trust for future generations, for example, by working with faith leaders and communities.

Partnerships

Because of the global imperative to preserve biodiversity and meet various stakeholder interests, strong collaborative partnerships are an essential component in sustainable resource management and biodiversity conservation. As such, partnerships provide much of the basis for successfully implementing programs with client governments, other multi- and bi-lateral organizations, NGOs, the private sector, and people living in and near forest areas.

Partnership with the GEF for Biodiversity

The GEF has been the Bank's major external co-financing partner in assisting countries to conserve and sustainably use their biodiversity. The GEF provides incremental grant funding to include a biodiversity or conservation element in regular sustainable development projects.

Since the GEF was established in 1991, the World Bank Group has managed \$713.9 million in GEF resources for biodiversity conservation projects. The projects range in size, and cover four types of ecosystems: arid and semi-arid; coastal and freshwater; forests; and mountains. A major focus of the Bank's GEF biodiversity portfolio



Kenya

The Bank's GEF Program

The Bank's GEF program in biodiversity recognizes two important emerging issues:

- Promoting financial sustainability of biodiversity conservation through conservation trust funds, private sector development, and payments for ecosystems services.
- Expanding conservation of biodiversity in production landscapes, through integrated conservation and development projects, conservation in agricultural landscapes, and addressing sustainable forest conservation and management, and fisheries.

has been support for new or existing protected areas. The components include developing management plans, addressing sustainable use of the areas, and encouraging participation of stakeholders and local beneficiaries. Coastal zone management, fisheries, and biodiversity activities have also been included as the result of the formulation of National Environmental Action Plans in many countries. These have allowed stakeholders to prioritize and act on their environmental concerns.

<http://worldbank.org/gef>

World Bank/WWF Alliance for Forest Conservation and Sustainable Use

The World Bank/WWF Alliance was created in response to the crisis of continued depletion of the world's forest biodiversity, and of the forest-based goods and services essential for development.

The Alliance works to help achieve three targets in a broad range of forest types by 2005:

- 50 million hectares of new forest protected areas;
- 50 million hectares of existing but highly threatened protected areas secured under effective management; and,
- 200 million hectares of production forests under independently certified management.

Thus far, the Alliance has helped secure almost 45 million hectares of new protected areas, and is close to achieving this target. Alliance support of certification efforts has contributed to improved management of millions of hectares of commercial forests. Independent certification is a powerful tool for promoting best management practices. By combining the Bank's access to policy dialogue, convening power, analytical capacity and financing operations with the WWF's field presence, public trust, private sector partnerships and forest conservation expertise, the Alliance can address

forest conservation and management issues on a broad front, working with a diverse group of partners. (<http://www.forest-alliance.org>)

Critical Ecosystems Partnership Fund

The Critical Ecosystem Partnership Fund (CEPF) of Conservation International, the GEF, the MacArthur Foundation, the Japanese Government, and the World Bank serves as a catalyst to create strategic alliances among diverse groups, combining unique capacities, and eliminating duplication of efforts for a coordinated approach to conservation challenges. Investments include support for managing protected areas and coordinating biodiversity corridors, training, trans-boundary planning, conflict resolution and consensus building, and facilitating partnerships with the private sector. (www.cepf.net)

Pilot Program to Conserve the Brazilian Rainforest

The Pilot Program to Conserve the Brazilian Rainforest is a joint undertaking of the Brazilian government, civil society, and the international community, that seeks to find ways to conserve tropical rainforests of the Amazon and Brazil's Atlantic coast, and to maximize their environmental benefits in a manner consistent with Brazil's development goals. The international donors include Canada, the European Union, France,

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Germany, Italy, Japan, the Netherlands, and Spain, as well as the GEF, the Inter-American Development Bank (IDB), and the United Nations Development Program (UNDP).

www.worldbank.org/rfpp

International Coral Reef Initiative (ICRI)

The International Coral Reef Initiative (ICRI) is a partnership among nations and organizations seeking to implement Chapter 17 of *Agenda 21* and other international conventions and agreements for the benefit of coral reefs and related ecosystems. The initiative was established in order to stop and reverse the global degradation of coral reefs and related ecosystems. The ICRI partnership and approach thus far has been to mobilize governments and a wide range of other stakeholders in over 80 countries in an effort to improve management practices, increase capacity and political support, and share information on the health of these ecosystems. The Bank has been an active participant in the initiative since its inception.

www.icriforum.org

Showing Results on the Ground

Beyond the examples already described, the following cases also demonstrate how the biodiversity portfolio is achieving results on the ground, according to the Bank's independent Operations Evaluation Department (OED).

Pilot Program to Conserve the Brazilian Rainforest

This program, a joint undertaking of the Brazilian government, civil society, and the international community, seeks to find ways to conserve tropical rainforests of the Amazon and Brazil's Atlantic coast, and to maximize their environmental benefits. Begun in 1995 as described above, the program set up *Demonstration Projects*, which have supported almost 100 small-scale community-based projects with an average grant of \$140,000 each. Projects are selected by an executive commission that includes representatives of the public sector and civil society organizations. Many of these projects experiment with new forms of sustainable resource use, including the processing and marketing of non-timber forest products, such as fruits and nuts. Some projects involve local communities in addressing the conservation of small, but biologically diverse areas, such as public and private protected areas. Others are restoring degraded lands by establishing agro-forestry systems using native tree species together with annual food crops and other perennial crops. Dissemination of best practices and lessons learned from these projects is an integral part of the

program, which will rely primarily on networks established by NGOs and the media, following a strategy currently being designed.

The Biodiversity Resources Development Project in Costa Rica

Costa Rica has become a leader in environmental sustainability and reforestation by offering incentives such as tax credits, direct payments, and subsidized loans that have benefited large and small landowners. Developing a strategic framework and unifying the administration of forests and protected areas into one organization was key to the project's success. In addition, important legislation has been passed to protect the nation's forests, including the Environment Law, the Biodiversity Law, and the Forest Law. The "polluters pay" principle was introduced through the establishment of a tax on fossil fuels to pay for environmental services. With this framework, the Costa Rican Government supports the National Biodiversity Inventory in the Conservation Areas of Costa Rica.

The project was carried out by the NGO INBio, with the support of a

Objectives	Results so far
Specimens collected and recorded in database	2,000,000
Parataxonomists trained	61
Technicians and curators trained	45

\$7 million GEF grant for a seven-year period, and additional funding from Canada and Norway through INBio. The project's overall objectives are to demonstrate that increased knowledge and information about particular species enhance the value and marketability of biodiversity services. They include undertaking biodiversity inventories of priority areas, and collecting and cataloging activities. Five taxonomic groups, including plants, mollusks, nematodes, lepidopterous insects, and vertebrates have already been collected and catalogued. Also, the ecosystem mapping of the Conservation Areas has been completed, and the biodiversity information management system has been developed.

Vietnam: Coastal Wetlands Protection and Development Project

In order to develop sustainable coastal protection, the Coastal Wetlands Protection and Development Project will reestablish the coastal mangrove wetland ecosystems along the Mekong delta.

The project components include: (i) the provision of seedlings, civil works, and equipment supply for planting, rehabilitation, and protection of mangrove forests and barren or degraded land, and project management and training focusing on protecting newly planted or existing forests, improving forest conservation, and implementing fish sanctuar-

Objectives	Projection
Coastal land to be reclaimed in the Mekong Delta	470 km
Household incomes to be stabilized and diversified	25,000
Population included in the conservation belt	600,000

ies management; (ii) institutional strengthening of the Vietnam Bank for Agriculture and Rural Development to improve creditability; (iii) demonstrations to grass roots organizations and farmer groups so that technology development and transfer will improve farm productivity and thereby decrease farming risks; (iv) social support for the development and implementation of commune action plans, as well as the establishment of communal grants and social funds; (v) technical assistance and training for policy development assistance to improve land and water uses allocation, and restructure selected enterprises; and, (vi) resettlement plans to assist affected groups, and assessments of the environmental, biodiversity and socioeconomic impacts of the project.

Mesoamerican Barrier Reef System

The Mesoamerican Barrier Reef System, which extends from the southern half of the Yucatan Peninsula to the Bay of Honduras, is the second longest barrier reef system in the world. The reefs help protect the coastal landscape and



Mexico

maintain water quality, while over one million people who live in adjacent coastal zones benefit from fishing and tourism. The project will help Belize, Guatemala, Honduras and Mexico manage the Barrier Reef System as a shared, regional ecosystem, safeguard its biodiversity values and functional integrity, and create a framework for its sustainable use.

The \$11 million GEF grant is co-financed by counterpart contributions from the Governments of Belize, Guatemala, Honduras, and Mexico, and by complementary funding from the World Wildlife Fund, the University of Miami, the Oak Foundation, and the Government of Canada. The total cost of the program is \$24.2 million. Because of the complexity of the goals involved, there will be a 15-year implementation program with a gradualist approach of three consecutive phases. The first phase will end in 2006. Key performance indicators for the first phase will include: (i) establishing regional frameworks to manage diverse resources of the MBRS; and, (ii) maintaining biological represen-

tation and ecological interconnectivity in coastal and marine ecosystems throughout the program.

The beneficiaries include indigenous groups, such as Garifuna of Belize, Honduras, and Guatemala; Mayan communities in frontier areas between Belize and Guatemala; Miskito communities; and Ladino populations who more recently have moved to coastal areas and tourist destinations in search of employment.

Mexico: Habitat Enhancement in Productive Landscapes Project

The problems faced by Chiapas include poverty, a marginalized indigenous population, low levels of public service and infrastructure, and political unrest. About 700 hectares of forests are cleared each year to establish new coffee plantations.

In the El Triunfo Biosphere Reserve in Chiapas, poor communities are now substantially improving their livelihood while protecting biodiversity through the 'Habitat Enhancement in Productive Landscapes'

Objective	Results
Increased coffee price for farmers	40-100%
Virgin forest conserved	1000 ha
Certified organic coffee	1800 ha
Certified shade grown (habitat for native species) coffee	910 ha
Communities with participatory environmental monitoring and evaluation	28

project. Financed with a \$750,000 grant from the GEF, the project developed economic incentives for smallholder farmers to protect the forest through the promotion of organic and biodiversity-friendly shade coffee.

Institutional Impacts

The project resulted in the elaboration of a coffee standard—the Norm for Sustainable Coffee—and four new cooperatives have begun to replicate the project's scheme. In addition, the first Civil Council for Sustainable Coffee was created in Mexico. An "El Triunfo" Roundtable with the Government, NGOs, and the private sector was also created.

For Further Reading

World Bank (2000). *The World Bank and the Global Environment – A Progress Report*. The World Bank Group, Washington D.C.

World Bank (2001). *Supporting the Web of Life – Biodiversity at the World Bank*. The World Bank Group, Washington D.C.

World Bank (2000). *Supporting the Web of Life. Biodiversity at the World Bank – A portfolio update, 1988 - 1999*. The World Bank Group, Washington D.C.

World Bank (2002). *Biodiversity Conservation in Forest Ecosystems – World Bank Assistance, 1992 - 2002*. The World Bank Group, Washington D.C..

MacKinnon, K. (2000). *Transboundary Reserves – World Bank Implementation of the Ecosystem Approach*. The World Bank Group, Washington D.C.

MacKinnon, K., Chow, N., Esikuri, E., and Platais, G. (2000). *Conserving and Managing Biodiversity in Dryland Ecosystems*. The World Bank Group, Washington D.C.

Pagiola, S., and Platais, G. (2000). *Payments for Environmental Services*. In: *Environment Strategy Notes* series, May 2000, No. 3. World Bank Environment Department, The World Bank Group, Washington D.C.

For further information about biodiversity projects, and to download a wide variety of interesting reports and books, visit www.worldbank.org/biodiversity. For World Bank project evaluations, visit the World Bank's independent Operations Evaluation Department, at www.worldbank.org/oed