

Sustainability Report 2010



Inter-American Development Bank

The IDB in Brief

The Inter-American Development Bank (IDB) is the main source of multilateral financing for Latin America and the Caribbean. Since it began operations in 1961, the IDB has provided more than US\$195.9¹ billion in loans and guarantees to countries in the region for projects to reduce poverty, raise standards of living, spur economic growth, protect natural resources, foster integration and trade, and reach other agreed goals. Loan operations approved in 2010 totaled US\$12.7 billion, down from US\$15.6 billion in 2009, and Bank disbursements on approved loans amounted to US\$10.9 billion in 2010, compared with US\$11.9 billion in 2009.

The IDB is a global partnership of 48 member countries in which the 26 borrowing countries of Latin America and the Caribbean hold the majority of shares. The Bank's 22 nonborrowing countries in North America, Europe, the Middle East, and East Asia provide resources and technical expertise. The voting authority of each member corresponds to its subscriptions to shares in the Bank's ordinary capital. The IDB holds a credit rating of AAA/aaa, the highest available.

Each member country is represented on the IDB's Board of Governors, which delegates oversight of Bank operations to the Board of Executive Directors. The Bank's senior officers are its president, executive vice president, and four vice presidents.

Other IDB affiliates are the Multilateral Investment Fund, which fosters private sector growth through grants and investments, and the Inter-American Investment Corporation, which supports small and medium-size businesses.

A Better Bank

Over the last five years the IDB has realigned its priorities and structure to meet the needs of the region and to renew its ability to serve as a catalyst for development. The Bank has made major advances in effectiveness, transparency, and accountability. With the 2010 capital increase, the Bank will better meet the needs of its member countries and fulfill its mission to reduce poverty and inequality and to bring sustainable development to Latin America and the Caribbean. By putting sustainability at the heart of its operations, the Bank aims to help countries maintain and enhance their natural and social capital for development.

IDB People and Locations

The IDB's 1,881 employees are located at its Washington, D.C., headquarters, in country offices throughout Latin America and the Caribbean, and in offices in Tokyo and Paris. Some 68 percent of

IDB staff are nationals of the Bank's borrowing countries. Women account for nearly 46 percent of the Bank's professional staff, and 28 percent of management.

About This Report

This is the Bank's sixth annual Sustainability Report. It covers sustainability progress and performance in the 2010 fiscal year for the Inter-American Development Bank.

This document is available in electronic format in English and Spanish. Printed copies may be ordered in English. A bilingual summary brochure of the report is available in both digital and print format.

Available for Download

IDB Sustainability Report 2010

IDB Sustainability Summary 2010

IDB Global Reporting Index 2010

IDB Corporate Environmental and Social Responsibility Report 2010

This symbol "@" signifies that there is additional information available through the online version at www.iadb.org/sustainability

1) Excludes grants from Haiti.

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Message from the President



Luis Alberto Moreno

For the countries of Latin America and the Caribbean, the year 2010 demonstrated the region's growing capacity for solving its problems and further improving the living conditions of its people. For one, the region demonstrated the growing resilience of its financial, monetary, and fiscal institutions by emerging from the global financial crisis more quickly than expected and ahead of many other parts of the world. For another, many of the countries are already reaping major benefits from shifts in world trading patterns, most notably stronger ties with Asian countries. For example, Latin America and the Caribbean is well positioned to gain from continued growth in China's economy, which could create a demand for commodities from Brazil, Peru, and Chile with a value of US\$300 billion in 2025. Prospects for meeting a burgeoning world demand for agricultural products are particularly favorable: the region accounts for a fourth of the land suitable for expanding rain-fed agriculture, compared with 10 percent in industrial nations.

At the same time, 2010 underlined the critical challenges posed by sustainability, both in terms of short-term events and long-term trends. The earthquake in Haiti was the year's most serious event and the worst natural disaster in the region's history. In Brazil, a severe drought reduced the Rio Negro to its lowest level since recordkeeping began over a century ago.

Abnormally warm waters in the Caribbean probably contributed to this region's most severe recorded episode of coral bleaching. Torrential rains caused extensive human suffering and loss of property in Brazil, Guatemala, Venezuela, and Colombia. In addition to taking many thousands of lives, these events destroyed valuable infrastructure the region needs to improve economic and social conditions.

The region is also experiencing an intensification of a complex set of trends that will have significant implications in coming decades. Climate change will likely increase extreme weather events while threatening water supply, biodiversity, and infrastructure. In the Caribbean, for example, a sea level rise of one meter will put almost a third of tourism resorts at risk from flooding; losses could total US\$22 billion a year by 2050. The drought in Brazil in 2010 reverberated in grain markets in Chicago and Beijing, while the UN Food and Agriculture Organization recently announced that food prices have now surpassed their 2008 peak.

Here again, however, the past year underscored the region's increasing capacity to solve its problems and address the challenges of sustainability. In Brazil, rates of deforestation in the Amazon dropped almost 50 percent in 2010 compared with the previous year. Many countries are stepping up investments in clean energy, high-efficiency transportation, smart

Message from the President *continued*

power grids, increased agricultural efficiency, and other innovative technologies.

The IDB now has an unprecedented opportunity to help its Latin American and Caribbean member countries increase their sustainability by reducing their vulnerabilities while benefiting from global change. In 2010, the approval of the terms and conditions of the Bank's Ninth General Capital Increase (GCI-9) will vastly expand our resources for financing innovative programs that will build a future of sustainable growth. Further, the institutional changes called for in GCI-9 will provide a sharper strategic focus for Bank support in fostering equality of opportunity, better infrastructure and institutions for improving competitiveness and social welfare, greater regional and global integration, environmental protection, responses to climate change challenges, promotion of renewable energy, and measures to ensure food security. In all of these areas, GCI-9 ensures that sustainability remains the measure by which IDB operations are judged.

These institutional changes will build on a record of reform and innovation that has included a robust suite of sustainability policies, a notable increase in staff and budget for environmental and social safeguards, and implementation of key initiatives to help the region manage challenges associated with climate change. In 2010 the Bank approved new

policies on gender equality and information disclosure and established an Independent Consultation and Investigation Mechanism. As we look to 2011 and beyond, the recommendations of our independent group of international experts will help us to continue to improve our practices and investments in sustainability.

We are proud of the Bank's record in helping the countries of the region pursue environmental and social sustainability. It therefore gives me great pleasure to present the IDB's *Sustainability Report 2010*, which presents an overview of sustainability issues in our region and how they form a key element in the Bank's policies, organization, investment operations, and the partnerships we have created to increase knowledge. We look forward to working with our borrowers and partners to embrace the challenges and opportunities of the future.

Luis Alberto Moreno
President

Key Figures 2010

The Bank's Operations	2008	2009	2010
Current volume of portfolio (US\$ billion)	38.2	39.7	42.9
Number of projects in portfolio	626	613	647
Volume of projects approved (US\$ billion)*	11.3	15.5	12.7
Total number of projects approved	126	152	170
Volume of technical cooperations approved (US\$ million)	184	213	198
Number of technical cooperations approved	511	451	411
Total disbursements (US\$ billion)	7.1	11.9	10.9
Cumulative volume of approved sovereign guarantee operations that support poverty reduction and social equity enhancement (% of total financing)	50	50	49
Number (and percent of total lending) of approved loans that target environmental sustainability, climate change mitigation and adaptation, and sustainable energy	37 (23%)	43 (23%)	42 (28%)
Value of approved loans that target environmental sustainability, climate change mitigation and adaptation, and sustainable energy (US\$ billion)	2.6	3.7	3.6
Environmental and Social Risk Management	2008	2009	2010
Approved loan and investment grant operations by environmental and social safeguard category (number)			
Category A	3	10	6
Category B	36	51	67
Category C	27	61	57
Other (B.13)	34	46	38
No Category	6	1	1
Projects declined for noncompliance with IDB Environment and Safeguards Compliance Policy	0	2	0

Environmental and Social Risk Management	2008	2009	2010
Approved loan operations with an environmental and social safeguard (ESG) specialist assigned			
Category A	3	10	6
Category B	13	28	44
Category C	6	13	4
Other (B.13)	16	32	18
Non-sovereign guaranteed projects in implementation			
Projects in operation with an ESG specialist assigned	46	133**	273**
Projects with conducted site visit	27	22	28
Sovereign guaranteed projects in implementation			
Projects supervised by an ESG specialist	29	38	162
Projects with conducted site visit	29	12	29
Becoming a Knowledge Bank	2008	2009	2010
Number of registrations in staff training	7,150	8,438	11,683
Training hours delivered to staff	84,644	135,678	128,889
Training and knowledge costs (US\$ millions)	5.07	6.00	6.05***
Number of registrations in training on environmental and social safeguards	112	379	294
Training hours delivered on safeguards	836	1,771	1,437
Number of external registrations for client training	1,059	2,003	2,410
Training hours delivered to clients	98,944	103,629	70,852

*Includes all approved loans, as well as grants (Haiti), but not trade finance facilitation program operations.

**Includes trade finance facilitation program operations.

***Does not include Regional Technical Cooperations.

Five Years of Progress on Sustainability

For the past five years, through its annual *Sustainability Report*, the Bank has tracked its progress in improving the IDB's ability to help its countries achieve environmental and social sustainability.

Progress is measured against commitments that fall into the following four consolidated lines of action:

Enhancing Governance for Sustainability

- Approval of new sustainability policies: Environment and Safeguards Compliance Policy (2006), Operational Policy on Indigenous Peoples (2007), Disaster Risk Management Policy (2008), and Gender Policy (2010). *See page 42.*
- Review of the Environment and Safeguards Compliance Policy undertaken by an Independent Advisory Group on Sustainability (2010). *See page 44.*
- Approval of a new Independent Consultation and Investigation Mechanism as part of IDB's efforts to increase the transparency, accountability, and effectiveness of operations (2010). *See page 77.*

Strengthening Stakeholder Relations

- Approval of a new Access to Information Policy (2010). *See page 42.*
- Approval of guidelines for the IDB Civil Society Consulting Group (ConSOC), aimed at exchanging information, strengthening dialogue, and ensuring ongoing consultations between the IDB and civil society organizations in the region.
- Launch of the IDB and Civil Society Report to increase awareness of the work that the Bank is doing and the changes that have taken place in an effort to listen to the voice of civil society (2010).

Improving Environmental and Social Safeguards

- Creation of a unit for environmental and social safeguard risk management (2008).
- Increase in the number of safeguard specialists, from 13 in 2008 to 24 in 2010.
- Launch of an environmental and social safeguard knowledge and capacity program for Bank staff (2008) and first external safeguards training in Haiti (2010).
- Implementation of the Natural Habitats Decision support system (2009).
- Approval of climate change notes providing guidance on sectors and subsectors that have significant greenhouse gas (GHG) emissions: coal-fired power plants (2009), cement manufacturing, and landfill projects (2010). *See page 60.*
- Development of methodology to calculate IDB portfolio greenhouse gas emissions (gross in 2009 and net in 2010) and completion of pilot study to calculate gross emissions (2010).
- Development of an interactive web-based biofuels scorecard for evaluating potential impacts of new investments (2008).

Expanding the Sustainability Portfolio

- Launch of the Sustainable Energy and Climate Change Initiative (2007).
- Launch of the Water and Sanitation Initiative (2007). *See page 64.*

- Launch of Opportunities for the Majority initiative for market-based solutions that benefit low-income people and contribute to the creation of sustainable communities (2008).
- Creation of a Climate Change Unit with dedicated financial and human resources (2009).
- Development of a tourism sustainability scorecard to identify and evaluate the social, economic, cultural, and environmental benefits of private sector tourism projects (2009).
- Launch of a contingent credit facility for national disasters (2009).
- Launch of a Gender and Diversity Fund (2009).
- Approval of first IDB projects under the Climate Investment Fund, Clean Technology Fund (2009).
- Launch of public consultation for draft Integrated Strategy for Climate Change Adaptation and Mitigation and for Sustainable and Renewable Energy (2010). *See page 58.*
- Drafting of the new Regional Environmentally Sustainable Transportation Action Plan (2010). *See page 72.*
- Preparation of the new Sustainable Cities Platform (2010). *See page 72.*
- Increase in investments targeting environmental sustainability, climate change, and renewable energy from US\$425 million in 2007 to US\$3.6 billion in 2010.
- Increased lending through the Global Environment Facility to US\$17.1 million (2010). *See page 62.*



Sustainability in Our Region

Tracking Developmental Meta-trends and Their Implications
for Long-term Sustainability in Latin America and the Caribbean



Overview

- This section presents leading-edge thinking on the opportunities and challenges for sustainability in Latin America and the Caribbean.
- Four specialists—Gonzalo Castro de la Mata, Daniel Nepstad, Haroldo da Gama Torres, and Murray Simpson—present technical papers on major economic, social, and environmental trends in the region, including increased trade with Asia, expanding tropical agriculture, growing cities, and the effect of climate change on tourism in the Caribbean.
- Four individuals with long and substantive experience on the front lines of sustainability in Latin America and the Caribbean—Minister Antonio Brack Egg, Henry Paulson, Israel Klabin, and Antoni Estevadeordal—provide their views on how to achieve sustainability in today's rapidly changing world.
- Together, these technical papers and viewpoints are intended to provide the reader with a regional context for the important sustainability work of the Bank.

Tracking Developmental Meta-trends and Their Implications for Long-term Sustainability

The world is facing an unprecedented transformation driven by increasing and migrating human populations, growing affluence, new technologies, and new business models that extend the formal market into previously unserved communities. Underlying all these changes are the increasingly pervasive effects of climate change: shifting rainfall and weather patterns, the changing frequency and intensity of extreme events that cause natural disasters, threats to ecosystems and biodiversity, and the imminent impacts of sea level rise and associated coastal erosion.

These trends affect, both positively and negatively, the ability of countries to ensure sustainability—achieving economic growth, reducing poverty, and providing lasting environmental and social benefits. The impact of these trends on Latin America and the Caribbean will be determined by the ability of its leaders and civil society to address the challenges and pursue the opportunities associated with the trends. This section of the *Sustainability Report 2010* presents leading-edge thinking on the challenges and opportunities for sustainability in the region and so provides a framework within which the work of the Bank with its clients can be better formulated and implemented.

The Bank invited four acclaimed specialists to examine the trends affecting sustainability in Latin America and the Caribbean. The resulting papers discuss the environmental implications of growth in

Asia-Latin America trade, the tropical agriculture revolution, the growth of cities, and climate change effects on tourism in the Caribbean. The papers cover a wide range of major issues likely to affect development options and long-term economic and social welfare, including the migration of people to cities, the impacts of increasing affluence, technological change, globalization, and global climate change. The authors ask how these trends may affect sustainability and present ideas on how to address the challenges and seize the opportunities presented by change. (For the versions of the papers that include endnotes and references, see www.iadb.org/sustainability.)

Increasing South-South Trade

Gonzalo Castro de la Mata describes how globalization has been a game changer for all countries, with

Latin America and the Caribbean reaping many benefits. These include reduced trade barriers and increased physical connections between markets and producers, which opens access to rapidly growing Asian markets. The demand for products is already driving growth in exports and is likely to be sustained. The growing market for natural resources and agricultural products in Asia, especially China, poses important challenges and crucial choices for communities and governments, particularly in the frontier areas. The author suggests that the environmental and social risks associated with this rapid growth could be addressed through improvements in technology, new economic instruments (including reducing emissions from deforestation and forest degradation, or REDD), improved governance and regional planning, and further development of South-South collaboration.

Tracking Developmental Meta-trends and Their Implications for Long-term Sustainability *continued*

Growing Tropical Agriculture

Daniel Nepstad discusses how limited land availability, increased global demand for agricultural products, and climate change are expected to drive food shortages. Options for expanding food production are limited because the technological advances from the Green Revolution of the mid-twentieth century are winding down, and suitable agricultural lands in temperate countries are already occupied, while institutional weaknesses are inhibiting expansion into new areas in Eastern Europe and Africa. Nevertheless, the institutional conditions for farming in Latin America are very favorable—and new technologies are opening up previously low productivity areas, leading to a rapid expansion of agriculture in several countries. Unless properly managed, this expansion will have negative environmental and social consequences such as chemical runoff, displacement of rural communities, increased greenhouse gas emissions, a worsening in the loss of biodiversity, and threatened ecosystem services. The approaches to managing these impacts include safeguards standards established by commodity round tables, the application of REDD to provide competitive returns for standing forests, and improvements in integrated land use management.

Changing Face of Cities

Haroldo Torres addresses peri-urban growth—the increasing numbers of people coming to live in areas around metropolitan centers. Most cities exhibit rapid growth driven by rural-urban migration, leading to informal housing arrangements and

segregation of housing for the rich and the poor. The most rapidly growing areas are those near small to medium-size cities—often associated with economic initiatives such as agriculture, tourism development, and natural resource extraction. In wealthier countries, integrated planning, housing policies and programs, infrastructure and service provision, and socioeconomic opportunities will address the problems of peri-urban growth. In many countries, however, this trend will be associated with environmental degradation, loss of biodiversity, degraded air and water quality, and an increase in disaster-related risks—all of which will be exacerbated by climate change. Key to addressing this challenge is increasing the visibility of the peri-urban poor and their participation in developing policy and strategies to address the challenges of growth in these areas.

Climate Change and the Caribbean

Murray Simpson, Daniel Scott, and Ulric Trotz indicate that tourism—the mainstay of the Caribbean economy—will be substantially affected by changes in sea surface temperatures, weather, climate policy, and sea level rise. Such changes will affect tourism and transportation infrastructure, cultural and natural heritage assets, and the attractiveness of the Caribbean to visitors. In addition, climate policy that increases the costs of travel from source markets will modify the competitive framework for international tourism. The authors conclude that while climate change impacts maintain a degree of uncertainty, to ensure sustainability it is essential to plan and implement strategies to increase the resilience of the tourism industry, using evidence-based

planning to conserve the natural assets upon which tourism depends, apply adaptive management policies, and incorporate adaptation responses to sea level change in tourism and transportation master plans.

As all the authors point out, the future for Latin America and the Caribbean hinges on addressing the new challenges and opportunities resulting from shifting demographics, new markets, rapid economic growth, increased globalization, and climate change. Following the papers, Minister Antonio Brack, Henry Paulson, Israel Klabin, and Antoni Esteveordal present their views on how to embrace the opportunities and address the challenges. All agree that addressing such systemic challenges will require integrated thinking and work across traditional institutional and social boundaries to find pragmatic and effective solutions that ensure long-term sustainability. It will also require the sustained commitment of many parties at local, national, and regional levels. There is no more compelling and urgent task.

The four specialist reports were selected through a process of internal discussion. This procedure initially identified four key environmental and social trends in Latin America and the Caribbean from an extensive literature review: 1) Economic growth of Asia and trade with Latin America; 2) Growth in agriculture in Latin America; 3) Climate change and sea level rise in the Caribbean; and, 4) Peri-urban growth in Latin American cities. The team then proceeded to identify four individuals who had published extensively on the selected subject matter.

The opinions presented by named authors in this report do not necessarily reflect the perspectives of the Bank.

Seeking Opportunities from New Patterns in Global Trade

Gonzalo Castro de la Mata

Dr. Gonzalo Castro de la Mata is a recognized international figure in the environmental field with a background in the private sector and international organizations. He was Executive Vice President of Sustainable Forestry Management, Head of Biodiversity at the Global Environment Facility, Principal Environmental Specialist at the World Bank, and Vice President for Latin America of the World Wildlife Fund. He has published over 150 scientific articles and is presently President of Ecosystem Services LLC.

Globalization is changing worldwide patterns of economic growth, consumption, commerce, and natural resources extraction. In the next decade, direct commercial ties between Southeast Asia and Latin America and the Caribbean are expected to continue to strengthen, replacing the traditional northern hemisphere markets for Latin American commodity exports. China has become the main destination for most commodity exports from the region.

The emergence of this new South-South axis in commerce provides extraordinary opportunities for poverty alleviation, investment in clean technologies, and strong movement toward sustainable development in both regions. Yet there is also the possibility of major impacts on the environment. How can the challenges be turned into opportunities and the impacts minimized?

Southeast Asia's Demand for Commodities from Latin America and the Caribbean

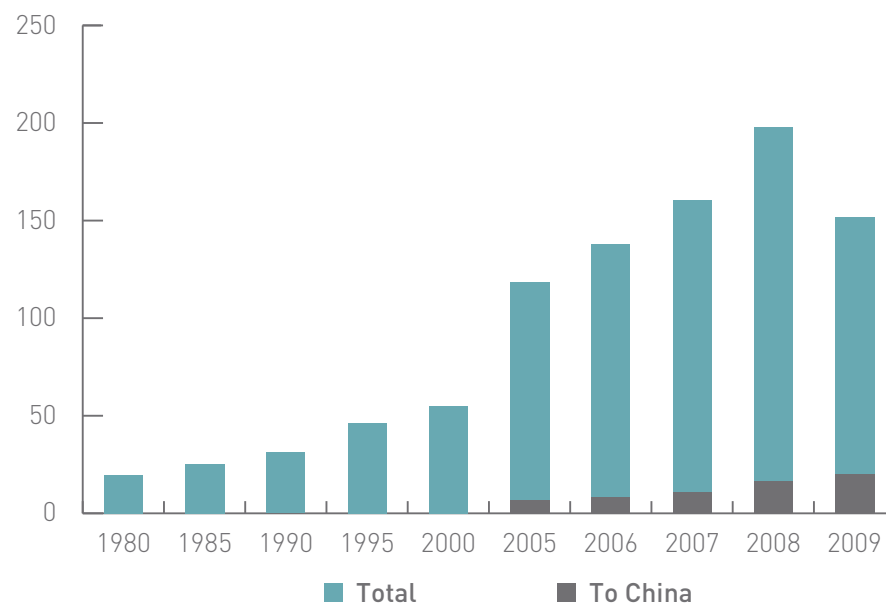
According to IDB President Luis Alberto Moreno, a "South-South" transference of economic power is increasingly driving a rebalancing of the center of gravity in politics and culture. Trade between China and Latin America and the Caribbean grew at the impressive rate of 31 percent a year between 2000 and 2008. In 2009, exports to China from all countries in the region amounted to US\$44.5 billion, most of which were commodities.

Despite the region's widespread and strong economic progress since the 1990s, the economic performance of countries still depends heavily on commodity exports. Although Latin America and the Caribbean is now a relatively urbanized and industrialized region, commodities still represented 52 percent of its exports in 2009. And 90 percent of the people in the region live in countries that are net exporters of commodities.

Seeking Opportunities from New Patterns in Global Trade *continued*

Commodity Exports from Brazil (in US\$ billions)

Source: United Nations Commodity Trade Statistics Database Online



China's reliance on Latin American commodities is illustrated by data on the export of these goods from Brazil to China between 1980 and 2009. (See Figure.) Strikingly similar patterns are seen in Peru and Chile, the other major commodity exporters to China.

In all three countries, total commodity exports grew moderately until 2000 and then accelerated rapidly. China became the top commodity export destination for Chile in 2007 and number one for Brazil in 2009, and it was the second highest destination for Peru in 2009. Iron-based minerals and copper account for by far the largest segment, followed by oil seeds and grains in the case of Brazil. Even though total commodity exports slowed or even decreased slightly since 2008 due to the international financial crisis, exports to China rose then in absolute numbers.

Although extrapolation of these figures is an uncertain exercise, if China's economy and imports continue to grow at the same rate as the last 10 years and if Brazil, Peru, and Chile are able to provide such commodities, total Chinese imports of commodities from these three countries could reach US\$150 billion in 2020 and US\$300 billion in 2025. Indeed, these numbers may underestimate the true potential.

Seeking Opportunities from New Patterns in Global Trade *continued*

Intrinsic Economic Growth in Latin America and the Caribbean

Growth within the region itself is also very strong and is a major force driving natural resource extraction. A new political consensus has emerged that centers on free markets, stability, the need for responsible fiscal and monetary policies, and sound financial systems. New political and social institutions have improved governments' capacity to support human capital development and to offer social safety nets for low-income families. Many countries in the region are also enjoying large and sustained growth rates, allowing decreases in absolute and relative poverty and in extreme poverty as well as the emergence of a new middle class that is better educated and eager to consume.

One implication of this growth is that for the most part the region no longer relies on foreign investment for major infrastructure development. For example, the Brazilian Development Bank (BNDES) disbursed US\$69 billion in 2009, twice as much as in 2007 and far more than the combined funds from the World Bank and the IDB. Another consequence of the intrinsic growth is the emergence of global players among large corporations. The Companhia Vale do Rio Doce (VALE today) is the second largest

mining company in the world, for instance. With revenues close to US\$180 billion in 2009, the company is thirsty for energy, consuming 5 percent of all electricity in Brazil. As a result, it invests in power generation to ensure that its needs are met. Most analysts expect that large natural resource companies generating their own energy will become the norm in the region.

Environmental Challenges

The combination of commodity demand from China and intrinsic economic growth in Latin America and the Caribbean provides a new challenge for the region. It increases the pressure on natural habitats on a scale never seen before. As economies in both Asia and Latin America grow, the middle class quickly becomes the main economic actor. This is excellent news for poverty reduction, governance, democracy, equality, and quality of life. Yet the middle class is exercising consumer preferences that in turn put pressures on resources. For example, the increased meat consumption of the expanding middle class translates into pressure on land resources, since producing one unit of meat requires 3–10 units of the same inputs as grains. The middle class also buys refrigerators, cars, electronics, and apartments,

with the consequent push for more commodities and pressure on natural ecosystems. In addition, informal sectors in peri-urban areas also drive consumption, as Haroldo da Gama Torres points out in his article. Land use change at huge scales is justified on economic terms, as the environment, for the most part, remains an externality in the economic process.

The Amazon and the Cerrado, two globally important ecosystems, will have to supply most of these natural resources. Increased commodities production leads to changes in land use that result in deforestation and habitat loss. The comprehensive work of B. S. Soares-Filho and colleagues predicts the loss of habitat due to the expansion of the cattle and soy industries in the Amazon Basin to supply export markets. They predicted that current trends in agricultural expansion will eliminate 40 percent of Amazonian forests by 2050, including at least two-thirds of the forest cover of six major watersheds and 12 ecoregions, and would release some 32 billion tons of carbon dioxide to the atmosphere. One-quarter of the 382 mammalian species examined will lose more than 40 percent of the forest within their Amazon ranges. Peru could lose 56–91 percent of its forest by 2021 to make way for US\$80 billion of planned energy, hydrocarbon, mining, and land-use-change projects.

Seeking Opportunities from New Patterns in Global Trade *continued*

If left unchecked, the consequences of these land use changes are not difficult to predict: loss of biodiversity and loss and degradation of globally important ecosystems; loss of ecosystem services, with the resulting run-away consequences related to desertification, water shortages, and soil erosion; increased greenhouse gas emissions; changes in local weather patterns; and potential conflict and localized social unrest as a result of the loss of the ecosystems' capacity to sustain human life.

The loss of ecosystem services and increased GHG emissions are of particular concern. Precise impacts on ecosystem services are hard to measure, but the implications for the region's economies can be severe in terms of the loss of agricultural productivity, soil and water degradation, extended droughts, and so on. Changes in land use (including forestry) already account for 18 percent of all GHG emissions in Latin America. An accelerated assault on natural habitats to make way for new crops, mines, and infrastructure no doubt would have a major effect on global carbon emissions. Furthermore, the negative effects of climate change related to increased GHG emissions and the loss of ecosystem services are synergistic.

One sign of hope in this picture is that growing economies provide better opportunities for societies to address environmental challenges. These opportunities can arise from increased public awareness, more-effective governments, and better opportunities for the private sector to participate in environmental management and to lower environmental footprints through increased efficiencies.

Opportunities and Policy Responses

Isolated efforts to protect the environment will fail unless the broader picture is fully incorporated in long-term action. Commodity richness is not necessarily a curse. In fact, A. de la Torre, E. Sinnott, and J. Nash note that "recent evidence suggests that overall, natural resources may indeed have a positive impact on growth." But high rents during a period of major commodity exports tend to cause the real exchange rate to appreciate and to attract resources from other activities, discouraging diversification of non-commodity exports. The fact that the growth in trade involves primarily exports of commodities represents a major challenge to the region's manufacturing prospects and its long-term development path.

The growth in trade in another part of the world—between China and Africa—is instructive. Although

at times these enormous investments can accelerate ecological degradation and support undemocratic regimes in order to obtain access to resources, they have been a crucial source of funding for infrastructure and job creation in Africa. As is often the case, the real question is, How to do it right?

The potential consequences of the trends described are not at all inevitable. Understanding the trends as well as the cause-and-effect relationships that result in environmental degradation can provide the basis for delineating appropriate policy responses from governments as well as the potential role for institutions such as the IDB. The following nine broad recommendations provide a way forward and can be fine-tuned and adapted, based on specific circumstances.

- **Efficiency and technology.** The relationship between increased agricultural output, land use change, and deforestation does not need to be rigid. Leading research by EMBRAPA in Brazil over the last three decades has greatly increased soybean production (by 150 percent) while requiring an increase of only 20 percent in new lands (mostly in the Cerrado). This shows that great opportunities to enhance production through increasing yields exist within already deforested lands and degraded habitats.

Seeking Opportunities from New Patterns in Global Trade *continued*

- **Economic instruments.** Human behavior cannot be changed by decree. People respond to incentives, so policies need to reward behavior that maintains functioning natural habitats. One powerful economic incentive is the “pull” force of markets that demand green products such as certified timber, ecologically friendly agricultural products, products that comply with standards set by commodity roundtables, socially just production systems, and so on. In 2009 China passed the United States and other members of the G20 as the leader in clean energy investments. Environmental awareness in China and East Asia is in the early stages, but its growth is fast and inevitable—a trend that needs to be nurtured and rewarded by policy makers on both sides of the Pacific.
- **Reducing emissions from deforestation and forest degradation.** Of all economic incentives, REDD offers the most promise. Widespread deforestation is caused by a myriad of disconnected decisions by individuals who choose to change forests to other land uses for economic gain. REDD represents the first tangible market mechanism to reward forest conservation and to fight deforestation one hectare at a time, on purely economic competitive terms—thus unleashing the efficiency of market forces. REDD can draw on the forces of global carbon markets to allow land owners to maintain forest cover (and with it, ecosystem services) instead of changing land use. Conservation in private lands is an essential element of a larger, long-term sustainability strategy.
- **Appropriate policy responses.** A key challenge is to be able to develop and implement the necessary policy tools that can link stated environmental objectives with the responses to these challenges.

Several countries in the Amazon Basin, including Brazil and Peru, are making extraordinary efforts to reduce deforestation and to some extent are succeeding. But these gains could be reversed without appropriate policy responses that directly address the challenges described here.

- **Protected areas.** Strengthening Protected Areas systems in the region is a proven way to protect habitats and ecosystem services. The region is a world leader in Protected Area Management, with numerous examples of successful private-public partnerships, community participation in management, and the development and implementation of long-term economic instruments for sustainability. Institutions such as FUNBIO in Brazil and Profonanpe in Peru are at the cutting edge of sustainable financing for Protected Areas globally; their work needs to be multiplied and replicated.
- **Governance and transparency.** Societies in Latin America and the Caribbean should not be afraid of discussing their visions for the future openly. Democracy, the rule of law, the introduction of high social standards, and safeguards for indigenous and vulnerable groups still remain challenges for a region that struggles with how to maintain its economic growth while maximizing environmental sustainability.
- **Institutional strengthening.** The institutional capacity of countries in the region for sound environmental management continues to be below the standards needed. In many cases environmental issues are still relegated to the box of “development hindrances.” Increased environmental awareness leads people to demand clean water, clean air, and nature conservation. Brazil leads the way here by

having developed a broad-based societal understanding of environmental sustainability. These societal pressures need to be translated into stronger environmental institutions at all levels.

- **South-south collaboration.** The discussion of these issues cannot be restricted to Latin America and the Caribbean alone. They need to be discussed in the context of the new South-South axis. Countries in the region need to include the environmental sustainability agenda in trade discussions with their South Asian counterparts.
- **Multilateral institutions.** Helping countries on both sides of the Pacific to make the best use of the opportunities from increased commercial ties is an excellent role for multilateral institutions, given their convening power, financial resources, and technical capacity. The IDB and the Asian Development Bank can actively collaborate to promote discussion and help delineate and implement appropriate policy responses. The organization of technical round tables to better understand these trends and make policy recommendations in Asia and Latin America could be a tangible and cost-effective way to start.

A version of this paper that includes endnotes and a full reference list is available at www.iadb.org/sustainability/castro.

Recognizing and Managing the Tropical Agricultural Revolution in Latin America and the Caribbean

Daniel Nepstad

Dr. Daniel Nepstad is a world-renowned tropical ecologist whose more than 100 publications have focused on the responses of the Amazon forests to climate change, fire, land use change, globalization, and natural resource policies. He is a Distinguished Visiting Scientist at the Woods Hole Research Center and was previously the Chief Program Officer for the Moore Foundation's Environmental Conservation Program. He is currently Director of the Amazon Environmental Research Institute's International Program.

Following on the heels of the well-known Green Revolution, a new agricultural trend has been identified: the tropical agricultural revolution. This can be broadly defined as a global shift in the expansion of agricultural commodity production from the temperate zone to the tropical latitudes, and it is most prevalent in Latin America and the Caribbean. The tropical agricultural revolution carries both risks and opportunities for food security, biodiversity, and climate change mitigation. It differs from the previous emergence of tropical food commodities—coffee, chocolate, bananas, and others—in that tropical nations are increasingly responding to the rising global demand for protein, calories, and biofuels that industrial nations are less capable of meeting. From the perspective of global food security, the rapid expansion of agricultural production in tropical nations has become key to avoiding chronic and disruptive global food shortages.

Global Commodity Food Price Index, 1991–2010

Index number 100 is the average for the entire period.
Source: IMF, *Commodity Food Price Index Monthly Price*, 2010.



A Global Shortage of Agricultural Production?

World food shortages appeared in dozens of countries in 2007 and 2008, providing an early glimpse of a possible global food crisis. The food price index reached its highest level in 30 years in 2007/2008 (see Figure) and declined only as the global economic recession began to shrink or slow major economies. Still, the index remained above the average pre-2007 price, and in 2010 food commodity prices rose again. The OECD/FAO world food outlook for the next 10 years predicts that food prices will on average be 20–40 percent higher than during the decade prior to 2007. The long-term shortages of land-based commodity production that underlie the projected increases in food prices are an important stimulus for increasing the flow of investments into tropical agriculture and the conversion of tropical forests into industrial farms.

Latin America and the Caribbean is the most important region for the tropical agricultural revolution over the next decade because of the stability of many governments in the region and its enormous potential for expansion of land-based production. Sub-Saharan Africa, in contrast, has room for expansion but precarious institutions and governments. Although the major non-tropical region of potential agricultural expansion—Eastern Europe—could meet some of the growing demand for food, it too suffers from low institutional capacity and stability.

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Participation in the revolution varies greatly in Latin America and the Caribbean, depending on the potential for agricultural expansion onto new land. Brazil is where the revolution is most advanced, with a modern agro-industrial sector that many observers expect to meet half or more of the expanded global demand for food, fuel, fiber, and feed over the next decade. Argentina is another agricultural superpower, but with far less potential for expanding production. Other large nations with substantial forest estates and high potential for agricultural expansion—including Bolivia, Colombia, Venezuela, Peru, and Mexico—could be strongly affected by this revolution. Each nation could respond to higher food prices through expanded agricultural production and exports. Many of the region's smaller nations have lost their self-sufficiency in food through reforms of their farm sectors to promote greater exports that were implemented in the context of structural adjustment policies. They could become even less food self-sufficient because of the tropical agricultural revolution.

The causes of escalating food prices and the shift of expansion in agricultural output to the tropical latitudes are complex. One set of factors is leveling off the rapid growth in land-based production that was ushered in during the Green Revolution. A second set of factors is increasing the demand for land-based production. In other words, growth in supply is becoming flatter, but growth in demand is accelerating.

The supply of land-based production is growing more slowly in part because agricultural yield gains are leveling off in industrial agricultural systems around the world. Yield improvements achieved through Green Revolution technologies are providing smaller incremental gains. The area of prime agricultural land that is not already under cultivation is also diminishing in the temperate zone. Only 10 percent of the world's land suitable for rain-fed agricultural expansion is found in industrial nations; in contrast, Latin America and the Caribbean holds one-fourth of this potential. The region also has the greatest potential for irrigated agriculture, with abundant, reliable water resources (except for the glacier-fed Andean agricultural regions). In the temperate zone, with the important exception of Eastern Europe, increasingly the land on which agriculture could potentially expand is only marginally suitable for crops or is under formal protection against conversion to cropland.

New factors are also contributing to the leveling off of land-based production. Climate-related disruptions in agricultural output, such as the 11-year drought that devastated the Australian rice industry, are restricting agricultural production at the global scale, pushing prices up. In 2010, the failure of the Russian wheat crop following severe drought and fire could provide an early glimpse of the impacts of anthropogenic climate disruption. It is impossible to know with certainty if these individual weather

anomalies are the direct result of human-caused climate change, but they are consistent with the predictions of a warming world. The growth of agricultural output is also slowing through the loss of farmland to urbanization, soil erosion, and degradation through salinization.

The demand for land-based output is growing rapidly in large part because of economic growth in China, India, South Africa, Brazil, and other emerging economies and the increased consumption of meat and dairy products that accompanies growing affluence. It takes 3–10 times as much agricultural land to produce a gram of animal protein as a gram of vegetable protein, which means that rising meat consumption increases the need for new agricultural land or higher yields. In just 15 years, China has gone from a nation that imports virtually no soy (the best source of vegetable protein for animal feed) to being the world's leading importer of this commodity.

The growing demand for land-based production is reinforced by policy decisions in the European Community and the United States—decisions stimulated by rising oil prices—to increase the contribution of biofuels to national fuel supplies. The impacts of these policy decisions have been striking, particularly in the United States, where corn production increased at the expense of soy production to supply the new market for corn-derived ethanol. These decisions may also trigger indirect changes in land use in the

Recognizing and Managing the Tropical Agricultural Revolution in Latin America and the Caribbean *continued*

tropics, as the rising prices of soy and sugar drive the expansion of these crops in Latin America.

An important factor here is the development of new varieties of crops that can withstand the high humidity and temperatures of moist tropical regions. New soy varieties introduced a decade ago in the northern Cerrado and southern Amazon region of Brazil yield more soy than in the United States, for example. As Gonzalo Castro notes in his article, EMBRAPA played an important role in developing technologies and crop varieties for this transition.

The speed of the tropical agricultural revolution in Latin America and the Caribbean will depend on several important overarching factors. Currency exchange rates (and hence the competitiveness of the region's products in international markets) will determine how quickly agricultural expansion takes place. Cattle ranching—for most nations, the major land use in terms of area of land occupied—will also shape agricultural expansion. If rapid progress is made in increasing the stocking density of the regional cattle herd, much of the agricultural expansion that is anticipated could be accommodated on lands that have already been cleared of native forests and savannas. Similarly, the REDD+ program, which will create incentives for nations that slow carbon emissions from the clearing and degradation of native forests, could keep much of the anticipated agricultural expansion within lands that have already been cleared.

Consequences of the New Revolution

The consequences of the tropical agricultural revolution for Latin America and the Caribbean vary greatly across nations and regions. The anticipated growth of the agricultural sectors in many nations could lead to higher rates of economic growth, more jobs, and higher export revenues. Properly managed, it could also increase food security. In addition to these important positive aspects there are some important risks, however. Agro-industrial farming often uses far more fertilizer, chemical pesticides, and water than smallholder production systems aimed at local markets and therefore risks contamination of surface and groundwater, soils, and native ecosystems and the depletion of water supplies.

Another process that often accompanies the growth of agro-industrial production is the displacement of smallholder farmers and traditional communities, who sell their farms (or are forcibly displaced) and often seek new lives in cities. This can exacerbate the problem of informal urbanization along the edges of cities. It could diminish food security, as became abundantly clear during the 2007/2008 food crisis. The displacement of smallholders by industrial farms has already started in many nations, with secondary forests growing up on marginal lands left behind by small-scale farmers. But this landscape recovery could be reversed in a world of elevated food prices.

The countries that will change most dramatically through the tropical agricultural revolution are those with large areas of native vegetation. Brazil has greater potential for rain-fed agricultural expansion than any other nation in the world and is expected to provide approximately half or more of the global increase in land-based production over the next 10 years. In this and other nations in Latin America with potential for agro-industrial expansion—Bolivia, Colombia, and Peru—the areal expansion of export-oriented agro-industrial cropland threatens native forests, savannas, and woodlands that are rich in species, cultures, and stores of carbon. Sustained high food prices could potentially increase forest and savanna conversion to cropland, maintaining or increasing carbon emissions to the atmosphere at a time when deforestation already accounts for at least 6 percent of global emissions. These nations are poised for large-scale losses of native assemblages of plant and animal species, disruption of indigenous and traditional communities who live in these forested landscapes, and contamination of vast river basins with agricultural toxins.

These potential negative consequences of the tropical agricultural revolution are superimposed on growing stresses from climate change in the form of damaging storms and hurricanes and rising sea levels in the Caribbean and Central America as well as record droughts in the Amazon Basin (for example, in 2005 and 2010) that provoke widespread forest fires, interrupt cropping cycles, and reduce

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the flow of streams and rivers. In addition, a sustained increase in the price of food and further shifts toward export-oriented agriculture could reverse progress made in lowering poverty and hunger in the region, especially in the Caribbean and Central American nations that are precariously dependent on food imports.

Managing the Revolution

The development and environmental conservation communities must capitalize on the tropical agricultural revolution through strategies that promote socioeconomic well-being and the conservation of native ecosystems and ecosystem services, harnessing its potential to bring about positive change while minimizing its negative impacts. Three opportunities in particular for managing the tropical agricultural revolution are worth highlighting.

The first opportunity is found in market transformation as represented in agricultural commodity roundtables. Unlike previous environmental certification systems, the roundtables have developed international criteria for the certification of commodity producers through multiple stakeholder processes that emphasized early participation of a large portion of the supply chain, a focus on performance instead of on techniques to achieve that performance, a small but meaningful number of performance targets, and a way to avoid cumbersome product tracing systems through the “book and claim” approach.

Another core concept of the roundtables is to not depend on price premiums or consumer choice but to become “pre-competitive”—that is, to transform the market to exclude products grown in unsustainable ways. Roundtables for soy, sugarcane, and palm oil are now completed, and certification is under way. Companies and producers representing 20–50 percent of world production of each commodity have joined the roundtables. In less than two years, the organization farthest along has certified farmers who produce 7 percent of the world’s palm oil.

Additional roundtables are under development. All the roundtables prohibit the certification of farmers who are clearing forests or savannas to plant their crops, require observance of labor and environmental laws, and restrict the use of dangerous chemicals. Producers in Brazil, Argentina, Paraguay, Bolivia, Colombia, and Honduras are participating in at least one of the roundtables.

A second opportunity for improvement is found in the emerging forest carbon market. The mechanism for compensating nations that reduce carbon emissions from deforestation and forest degradation that was agreed to in Cancun has attracted more than US\$4 billion in public funding. Several nations—Brazil, Peru, Colombia, Mexico, Ecuador, Guyana, and Panama—are developing REDD programs that could systematically plan agricultural and forestry expansion within zoning schemes, with supporting policies that allow agricultural and forestry production to increase while lowering deforestation rates.

Brazil, for example, has reduced deforestation in the Amazon region 67 percent since 2004 and has enacted a National Climate Change Policy that commits it to reduce Amazon and Cerrado deforestation 80 percent and 40 percent, respectively, by 2020. This ambitious goal will probably be achieved by directing agricultural expansion onto the more than 100 million hectares of planted cattle pasture that are underproductive.

The architecture by which REDD will link forest nations with industrial ones is most advanced among state governments. The Governors’ Climate and Forest Task Force links California with states in Brazil, Mexico, Indonesia, and Nigeria. California’s cap-and-trade policy allows for 4 percent of emissions reductions to be achieved through international offsets provided by REDD states. This task force will probably create the first REDD compliance market, which could grow as new states, and potentially companies, take on emission reduction targets.

Both commodity market transformation and REDD+ are ushering in a new era of large-scale integrated land use planning that could become a third important component of a strategy for managing the agricultural revolution in Latin America and the Caribbean. This promising new trend facilitates the participatory analysis and planning of land use across large jurisdictions to more effectively reconcile economic activities with the maintenance of ecosystem services. Ecological and economic land use zoning plans that previously had rarely been implemented with the

Recognizing and Managing the Tropical Agricultural Revolution in Latin America and the Caribbean *continued*

force of law are now being used as the foundation for state-wide REDD programs. In the state of Acre, Brazil, for instance, the zoning plan maps the allowable land uses for the entire state. It determines the percentage of private landholdings that must be maintained as forest (in keeping with the federal Forest Code) and will be the focus of programs designed in 2011 for each of the rural economic sectors, including extractivist populations such as rubber tappers, indigenous peoples, smallholder settlements, protected areas, state- and federal-run forest concessions, and private landholdings.

A version of this paper that includes endnotes and a full reference list is available at www.iadb.org/sustainability/nepstad.

Conclusion

The tropical agricultural revolution could mean greater economic prosperity for the nations in Latin America and the Caribbean. But it could also exacerbate food insecurity, increase the contamination of waters, soils, and ecosystems, and speed the conversion of native forests to croplands and pastures, which would increase carbon emissions. If properly managed, on the other hand, this agricultural trend could motivate governments to develop coherent, practical policies to protect the environment and laborers and to support agricultural communities who grow food for local markets, knowing that socially and environmentally responsible low-emission farming systems will help boost access to increasingly demanding commodity markets while positioning these nations to participate in the world's rapidly emerging low-carbon economy.

Environmental Implications of Peri-urban Sprawl and the Urbanization of Secondary Cities in Latin America

Haroldo da Gama Torres

Dr. Haroldo da Gama Torres is a demographer and economist who has worked extensively in the analysis and planning of urban and regional development. His research publications include studies of urban indicators, urban policy, urban poverty, education policy, and urban environments. He is presently a Senior Partner in Plano CDE and a researcher at the Brazilian Center for Analysis and Planning.

Informal low-income peri-urban settlements can be considered the rule rather than the exception for most Latin American cities. "Peri-urban" can be broadly defined as unregulated low-income districts far from a city's center. Consequently peri-urban irregular sprawl often translates into poor housing conditions, urban violence, lack of infrastructure, and a diversity of environmental hazards, including deforestation, poor sanitation, pollution of rivers and streams, and loss of biodiversity. Handling growth in these areas depends on stimulating compact urban development, regularizing land occupation, and preparing cities for future population growth.

Latin American Urbanization

Between 1950 and 2000, Latin America and the Caribbean experienced a momentous urbanization process. The share of the population living in cities increased from 42 percent to 75 percent. The United Nations projects that the region will be 82 percent urban in 2020, home to 529 million people. Since the 1980s, the most dynamic demographic growth has been found in cities between 50,000 and 500,000 inhabitants.

This rapid urbanization has translated into stressful urban dynamics. In most Latin American urban areas, poorly regulated land use, inadequate housing, high crime levels, lack of infrastructure, and environmental degradation have been as common as industrialization, skyscrapers, and highways. Moreover, the

recent increase of food and land prices, as well as the further modernization of agriculture, will probably reinforce the urbanization phenomenon in many countries since its dynamics varies significantly across the region, with different countries at different stages of the demographic and urban transitions. (See Figure.)

Latin American Suburbanization

Most peri-urban areas in medium and large cities are experiencing three major phenomena: fast growth, informal households, and a concentration of poor families. (Informality refers to a lack of land tenure, when a house is built in an invaded area or in an irregular settlement, and includes different violations of urban codes and building norms.)

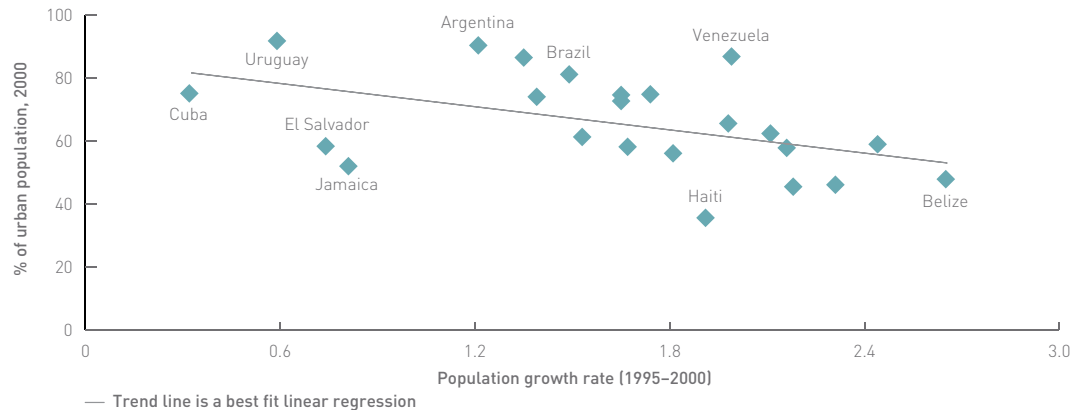
First, accelerated peri-urban growth can be seen in an overall decline in the density of built-up areas. A 2005 study that used satellite imagery found an average decline of 0.3 percent per year in the density of built-up areas in Latin American metro areas, which means not only that rural areas were being incorporated intensively but also that suburban cities tended to grow faster than capitals. Fast-growing secondary cities within metro areas have also been documented for the 1990s through census data for the nine largest Brazilian metropolitan areas, Buenos Aires, Mexico City, and Montevideo.

Household informality is estimated to account for 74 percent of poor households in Latin American

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Share of Population That Is Urban and Population Growth Rates, Selected Countries, 1995–2000

Source: United Nations, *World Population Prospects: The 2005 and 2008 Revisions* (New York: UN Population Division).



cities. These houses are generally substandard and often referred to as slums. According to the Economic Commission for Latin America and the Caribbean, the population of slum households accounted for 32 percent of the region's population in 2001 and increased in absolute terms between 1990 and 2001. Peri-urban areas normally house the majority of the slum population; they are the fastest-growing sites and the most precarious ones.

High levels of urban segregation by income have also been an important feature in urban Latin America. The region has a historical centralization pattern of high-income groups leaving peri-urban areas to low-income populations. Thus contrary to the

suburbanization pattern found in the United States, most peri-urban growth in Latin America results from enormous rural land settlements by poor migrants in areas typically poorly regulated and far from key employment centers.

That said, recent trends have called into question this general picture of Latin America's peri-urban growth. Since the 1990s, urbanized and highly urbanized countries—particularly Chile and Mexico—have started to offer housing alternatives in the form of significant low-medium income housing projects, mostly public or private (subsidized) and located far from the city center due to the availability of large, less expensive land lots. In those countries,

peri-urban areas are still growing, but they are becoming less informal. At the same time, a move toward "elite decentralization" can also be observed in more urbanized countries, with the development of high-income gated neighborhoods in particular sections of peri-urban areas, particularly those with significant environmental and aesthetic value. Although indicating important changes in some sectors of Latin American suburbs, and with the exception of Chilean cities, these housing projects and high-income gated communities still represent a small fraction of the overall urban and peri-urban population.

Trends in Peri-urban Sprawl

Peri-urban expansion is influenced by different social forces. National population growth and rural-urban migration patterns are two of the most often discussed aspects, but far from the only ones. Institutional dimensions related to property rights and land tenure legislation also influence the likelihood of peri-urban irregular settlements. Costly judicial processes, red tape, and corruption, for instance, discourage low-income dwellers from obtaining regular land tenure through the justice system, thus reducing the probability of land regularization.

Furthermore, the growing settlements in distant, underserved peri-urban areas are strongly influenced by land market prices: since central areas tend to be highly expensive, low-income groups and

Environmental Implications of Peri-urban Sprawl and the Urbanization of Secondary Cities in Latin America *continued*

recent migrants are driven to the outskirts of cities. Many urban policies that are supposed to enhance environmental quality within a city—such as the definition of low-density areas and other zoning strategies—end up producing further sprawl by increasing land prices within central urban areas.

But housing policies may also play a role in reducing irregular settlements in peri-urban areas. Aside from some large private and public housing projects commonly found in Chile and Mexico, many countries started introducing land regularization programs as a less expensive way of dealing with irregular settlements. Although recently growing in importance, these initiatives have suffered setbacks in the region due to inadequate legislation and slow judicial processes. In most countries, these programs have yet to reach a critical mass capable of preventing peri-urban population growth.

Finally, economic growth, income distribution, and credit availability also influence irregular peri-urban expansion. The opportunities for poor and low-middle class families to gain access to formal housing markets (even when subsidies are in place) depend on economic stability, the availability of formal jobs, and long-term loans. Chile is the only country in the region to have significantly reduced the share of irregular settlements in its housing stock; it is certainly no coincidence that the country presented the most stable economic growth trend over the last 20 years.

Local governments face important institutional constraints than tend to limit the provision of social services and the solution of the most acute environmental problems. Although less expensive than traditional housing projects, implementing urbanization projects may be costly too: for example, the average cost per household in the state of São Paulo, Brazil, varied between US\$3,000 and US\$15,000 in 2010, depending on topography, population density, and previous urban design, and this generally includes only the provision of basic urban infrastructure (water, sewage, electricity, street pavement, and population resettlement out of risk areas).

One way to look at future trends in peri-urban sprawl is by distinguishing different levels of urbanization. Urbanized and highly urbanized countries such as Brazil, Chile, Mexico, Peru, and Uruguay will probably experience a decrease in the share of the population living in peri-urban irregular settlements, particularly in large metropolitan areas, albeit with the persistence of urban sprawl. This trend is the result of slower demographic growth, the development of urban improvement projects in these areas, more-stable economic expansion, and the introduction of new institutional mechanisms that favor land regularization.

Average and low urbanized countries such as Bolivia, the Dominican Republic, Ecuador, Guatemala, Honduras, and Paraguay, in contrast, will probably continue to experience increased urbanization and a greater share of their urban population living in

peri-urban irregular settlements for the next 15 years. In these countries, the urban population is still growing significantly but the governments often do not have the resources to undertake major urban improvement projects.

Another important urban issue for all Latin American countries is the increased presence of fast-urbanizing locations near large development projects—as is the case of Macae in Brazil and Camisea in Peru (gas and oil extraction), Cancun in Mexico (tourism), and Porto Velho in Brazil (hydroelectric power plants). Three other large hydroelectric projects are currently under way in the Amazon basin that will probably produce significant environmental impacts and imbalanced urbanization dynamics. Moreover, the Panama Canal is being enlarged, which will likely induce further urban concentration in Panama City.

Finally, the expansion of the agricultural frontier, notably in the Brazilian savannas and around the Amazon in Bolivia, Brazil, and Peru, is also producing fast and often unstable urbanization dynamics. The fastest-growing cities in Brazil in the last decade are located in the center of the state of Mato Grosso (Brazilian West) around the newly developed soybean-producing areas and in some Amazonian states, particularly Pará.

Many of these locations are not well prepared for the substantial migration movements that should occur within a short time frame, mostly associated with road works, timber exploration, and initial agricultural development. Land speculation and a rapid

Environmental Implications of Peri-urban Sprawl and the Urbanization of Secondary Cities in Latin America *continued*

surge in the offer of formal or informal jobs attract a significant number of migrants, pressuring local public services and leading to irregular settlement growth in urban areas. This type of land occupation produces a “boom and bust phenomenon” that can be seen in the southern part of the state of Rondônia, Brazil. This area has experienced significant growth in the last decades, but it is now losing population because more stable economic activities have not been established.

The Peri-urban Environment

Urban sprawl worldwide has long been associated with the destruction and fragmentation of natural ecosystems, reduced diversity of species, and an increased risk of flooding due to a more extensive impervious surface. Urban sprawl has also been linked with greater commuting times, air pollution, increases in the number of people who are overweight, higher energy consumption, declining social contacts, decreased aesthetic appeal of landscape, and loss of farmland. All these are true in Latin America and the Caribbean as well, but in addition the region’s peri-urban sprawl involves limited sanitation, poor housing conditions, increased health risks, invasion of protected areas, deforestation, and pollution of rivers and streams.

Situations of environmental risk are also quite common. Peri-urban occupation of volcanic areas is

noticeable around Mexico City and Quito. And global warming is raising important concerns regarding the increased occurrence of extreme climatic events, destruction of infrastructure, and greater risks from water- and vector-borne infections, for which peri-urban areas are often ill prepared. In Central America, Hurricane Mitch established new urban devastation records after hitting Tegucigalpa and surrounding areas, destroying 78 percent of the water pipelines, among other impacts.

Coastal cities such as Panama City, Buenos Aires, Santo Domingo, Havana, and Rio de Janeiro are particularly ill prepared for major windstorms. The informal settlements in Rio de Janeiro’s coastal mountains are a significant source of concern, as this contributes to severe landslides. Moreover, rising sea levels are apparently intensifying such risks, particularly in the areas known as low elevation coastal zones (those up to 10 meters above sea level). An estimated 23 million people in cities live in this type of area in Latin America and the Caribbean. Suriname, the Bahamas, and Guyana are listed as the top three countries in the world in terms of urban population living in low-elevation coastal zones.

Conclusions and Recommendations

Although peri-urban drama has been a sad reality in Latin America since the 1960s, it has rarely reached the top of the public agenda. Overall economic growth, infrastructure building, and, more recently,

poverty alleviation programs have generally occupied the spotlight. Recent decentralization initiatives can be perceived as an opportunity to address such issues. Organizations of the urban poor may also play a role in pressuring public officers and even providing services. Some important housing policy initiatives are also emerging in different countries, as noted earlier. However, due to the size of the problem and the strength of the urbanization trends, peri-urban sustainability still has a long way to go.

Considering these elements, some key recommendations regarding peri-urban sprawl can be made:

- Cities should stimulate strategies for compact growth to allow for a more intensive use of existing infrastructure instead of having to extend costly roads and sanitation networks to new, more distant peri-urban areas. This would likely require a revision of building codes, new zoning practices, and progressive tax strategies that would help establish lower land prices within city centers.
- Countries should avoid the anti-migration policies followed over the last 50 years in Latin America (which according to most authors are rarely effective) in view of the strength of urbanization trends. A more relevant proposal in this field involves policies that try to prepare cities for situations of growth that will inevitably continue to happen in the near future, especially in fast-growing, medium-income, less-urbanized countries.

Environmental Implications of Peri-urban Sprawl and the Urbanization of Secondary Cities in Latin America *continued*

- Efforts to regularize existing irregular settlements should be strongly supported as a means to both stabilize urban occupation and allow for the adoption of minimum urban and environmental standards.
- Support to new housing projects should avoid fostering new peri-urban occupations as well as increasing levels of urban segregation. Whenever possible, local housing policies should rely on retrofit as well as on the production of smaller-scale projects within more-adequate and central urban locations.
- Large project developers should be held accountable for the urban impact of their activities in a more comprehensive way, particularly in less-urbanized frontiers. They should be involved in infrastructure development of urban sites that expand significantly as a result of their operation and also get more involved in income generation and other social development programs, particularly those that will ensure the city's economic, social, and environmental sustainability in the long run.
- Cities should be encouraged to develop adaptation strategies for climate change, following some of the initiatives that are happening along the Caribbean. The first step would be to have detailed studies on the local impact of climate change to identify the most affected intra-urban areas and local services. Next, a local adaptation investment plan should be put in place to improve the infrastructure most likely to be affected, with the establishment of prevention measures. It is also important to mention that those plans should consider the particular conditions of peri-urban occupations. This kind of initiative is particularly relevant in disaster-prone cities and coastal areas subject to significant sea level increase.
- The invisibility of the peri-urban poor is a key issue: peri-urban dwellers are not only less able to make their voices heard, they are also inaccurately described or registered in the public information systems available. Efforts should be made to improve the registration of peri-urban sprawl, building adequate geographic information systems that could anticipate rapid population growth as much as possible.

A version of this paper that includes endnotes and a full reference list is available at www.iadb.org/sustainability/torres.

Climate Change's Impact on the Caribbean's Ability to Sustain Tourism, Natural Assets, and Livelihoods

Murray Simpson, Daniel Scott, and Ulric Trotz

Dr. Murray Simpson has wide-ranging experience in research on sustainable development, tourism, and climate change and has published extensively in these areas. He has also worked within the public and private sectors on tourism strategy, tourism analysis, and climate change adaptation and mitigation, particularly in small island developing states. He is presently a Senior Research Associate at the Oxford University School of Environment and Geography and the Centre for the Environment. Dr. Daniel Scott is a Canada Research Chair in Global Change and Tourism and a contributing author/expert reviewer for the IPCC; his research focuses on the nexus of people, tourism, environment, and climate change. Dr. Ulric Trotz is the Science Adviser to the Caribbean Community Climate Change Centre and the review editor of the IPCC Working Group II Report and is author of more than 50 publications on climate change issues.

Internationally and regionally, it is widely recognized that several groups of countries require significant and urgent assistance to adapt to climate change, especially small islands, countries with low-lying coastal areas, and those with areas prone to natural disasters. Caribbean nations are particularly vulnerable to the effects of climate change, sea level rise (SLR), and extreme events (see Table) as a result of their relative isolation, small land masses, concentrations of population and infrastructure in coastal areas, limited economic bases, high dependence on international tourism and climate-sensitive ecosystems (reefs, beaches, and mangroves), and limited financial, technical, and institutional capacity for adaptation. Indeed, experts have consistently identified the Caribbean and small island developing states as the areas most at risk.

Tourism is vital to the economy of the Caribbean and the livelihoods of its people; it accounts for 14.8 percent of the gross domestic product (GDP) and 15.5 percent of employment. For some islands, the figures are even higher. In 2009, the Caribbean received 19.5 million international tourist arrivals, and tourist receipts reached US\$22.2 billion. Climate not only determines the length and quality of the tourism season, it is also an important driver of tourism demand to some regions, because it affects the natural environment in ways that can either attract or deter visitors. The region has invested heavily in tourism-related infrastructure, most of which lies in the coastal zone. All of these assets are threatened by climate change.

Climate Change Trends and Projections

Over the past 50 years, increases in mean air temperature across the Caribbean have been consistent with the observed global warming trend, and they are expected to generally parallel global trends in the twenty-first century. Average air temperatures are projected to increase in all seasons, more so inland than over oceans and in coastal locations. Changes in sea surface temperatures are projected to be similar to those for at least the minimum air temperatures over coastal regions and islands.

Most climate models project total annual rainfall to decrease through all CARICOM countries by an average of 5–10 percent, with decreases amplifying with increased temperatures. Changes in regional precipitation should be treated with greater caution, however: while most projections simulate rainfall decreases, some simulate increases of up to 20 percent. Projected changes in wind speed for the whole of the Caribbean are similarly uncertain. North Atlantic hurricanes and tropical storms appear to have increased in intensity over the last 30 years, although there is still debate about whether this is a long-term trend.

Climate Change's Impact on the Caribbean's Ability to Sustain Tourism, Natural Assets, and Livelihoods *continued*

Main Impacts of Climate Change and Their Implications for Tourism	
Impact	Implications for Tourism
Warmer temperatures	Altered seasonality, heat stress for tourists, cooling costs, changes in plant-wildlife-insect populations and distribution range, health impacts such as infectious and vector-borne disease ranges
Increasing frequency and intensity of extreme storms	Risk for tourism facilities, increased insurance costs/loss of insurability, business interruption costs
Reduced precipitation and increased evaporation in some regions	Water shortages, competition over water between tourism and other sectors, desertification, increased wildfires threatening infrastructure and affecting demand
Increased frequency of heavy precipitation in some regions	Flooding damage to historic architectural and cultural assets, damage to tourism infrastructure, altered seasonality (beaches, biodiversity, river flow)
Sea level rise	Coastal erosion, loss of beach area, higher costs to protect and maintain waterfronts and sea defenses
Sea surface temperature rise	Increased coral bleaching and marine resource and aesthetic degradation in dive and snorkel destinations
Changes in terrestrial and marine biodiversity	Loss of natural attractions and species from destinations, higher risk of diseases in tropical-subtropical countries
More-frequent and larger forest fires	Loss of natural attractions, increase of flooding risk, damage to tourism infrastructure
Soil changes (moisture levels, erosion, acidity)	Loss of archaeological assets and other natural resources, with impacts on destination attractions and agriculture

Source: Adapted from UNWTO-UNEP-WMO, *Climate Change and Tourism: Responding to Global Challenges* (Madrid: 2008).

Climate Change's Impact on the Caribbean's Ability to Sustain Tourism, Natural Assets, and Livelihoods *continued*

Sea Level Rise and Storm Surge

As the coastlines of the Caribbean include many low-lying and highly erodible shore areas, the region is particularly susceptible to sea level rise, storm surge, and coastal erosion. Observed SLR in most of the Caribbean has paralleled the global trend over the last 40 years and currently stands at around 1.5–3 millimeters a year. Several recent studies project global SLR of 0.5–2.15 meters by 2100. Furthermore, the Caribbean could experience a significant increase above global averages due to geophysical and gravitational factors.

Almost one-third of Caribbean tourism resorts are at flooding risk from SLR of 1 meter, and many more would have their beach assets substantially eroded or destroyed. The loss of critical beach assets has major implications for property values, destination competitiveness, and marketability. A number of Caribbean cities that are key tourism attractions also have substantial areas at risk if the sea level rises by 1 meter.

While the absolute size of projected economic losses is generally much greater in the larger CARICOM economies, the proportional impacts—the losses compared with the size of the national economy—are generally higher in the smaller economies of St. Kitts and Nevis, Antigua and Barbuda, Barbados, St. Vincent and the Grenadines, and Grenada. Tourism infrastructure is particularly vulnerable in these nations, and tourism contributes a greater proportion

to their national economies. A complete and focused analysis of the vulnerability of tourism-dependent small island economies needs to be conducted and evidence-based adaptation strategies developed.

Natural Assets

Climate change will directly affect the natural resource base on which much of the Caribbean tourism industry is based, including its biodiversity and beaches. Coral reefs, in particular, are an important tourist attraction. They play an essential role as physical barriers to ocean waves and as a vital habitat for fisheries. The Reefs at Risk project found that, in 2000, coral reefs provided net benefits in terms of fisheries, dive tourism, and shoreline protection with an estimated value of US\$3.1–4.6 billion. There has been a general increase in the frequency and intensity of coral bleaching and outbreaks of infectious coral diseases. Furthermore, increased sea surface temperatures are expected to cause severe bleaching stress to the reefs of the Caribbean as early as the 2030s, surpassing the ability of many areas to recover.

Next to corals, mangroves appear to be the hardest-hit natural asset. Mangrove cover in the region has declined by 42 percent over the past 25 years, with two of the eight mangrove species now considered vulnerable to extinction and two more in near-threatened status. Mangroves, in a similar way to reefs, are vital to low-lying coasts, as they protect

them from damage caused by storm surges. They also serve as a nursery for fish and other species that support coastal livelihoods. Moreover, they sequester carbon from the atmosphere and are both a source of and a repository for nutrients and sediments for other inshore marine habitats, such as seagrass beds and coral reefs.

Climate change is projected to reduce the availability of freshwater resources in many parts of the Caribbean—in some areas, to a point where these become insufficient to meet demand by local populations and tourists, at least in periods with low rainfall. Since many islands rely on groundwater sources and rainwater harvesting for their water supply, any changes in the amount, frequency, and intensity of rainfall will affect the amount of water available for extraction. SLR will cause further saline intrusion into aquifers, with as little as 0.1 meter SLR reducing the availability of fresh water in aquifers. In addition, the water table may be altered sufficiently so that fresh water is above the surface and subjected to greater evapotranspiration.

Climate and Destination Choice

One of the main tourism assets of the Caribbean is predictable sunny and warm conditions, particularly during the winter in major market regions in North America and Europe. With changing climatic conditions, two potentially negative impacts are possible. First, some Caribbean destinations may become “too

Climate Change's Impact on the Caribbean's Ability to Sustain Tourism, Natural Assets, and Livelihoods *continued*

hot” for tourists during some seasons. Surveys of European tourists have revealed the optimal conditions for beach tourism of 27°–32°C are currently prevalent throughout the region. But under climate change scenarios, the number of months in this optimal climatic zone declines somewhat, as some destinations exceed the “unacceptably hot threshold” during the summer. Little impact in the peak winter tourism season is anticipated, however.

The second negative impact is related to the temperature in the countries that tourists come from. As temperatures increase, demand for winter getaway holidays is anticipated to decline, though the extent of this has not yet been quantified. Similarly, if climatic conditions in other destinations—the Mediterranean, for instance—improve sufficiently, they may become more competitive with the Caribbean.

Potential Costs of Climate Change to Caribbean Tourism

Climate change will have an impact on the operating costs of tourism operators, such as insurance, heating and cooling costs, pest management, and the need to augment the water supply for drinking and irrigation needs. Of significant importance to tourism will be the effects of extreme events on infrastructure and insurance costs. The Association of British Insurers suggests that insurance premiums for the Caribbean region could increase by 20–80

percent by mid-century. Private sector insurance coverage may no longer be available in particularly high-risk areas, forcing governments to provide insurance for tourism development or causing the retreat of development from these areas.

Annual average losses from wind, storm surge, and inland flooding are estimated to be as high as 6 percent of GDP in some countries, and climate change has the potential to increase these risks 33–50 percent by 2030. One study found that if no action is taken, increased hurricane damages, loss of tourism revenue, and infrastructure damages could total US\$22 billion a year by 2050 and US\$46 billion by 2100. While there remains debate about the exact amount of losses in regional GDP due to climate change, several studies have found that the impact will be highly significant.

Sea level rise of 1 meter is projected to put 266 out of 906 tourism resorts and 26 out of 73 airports in the Caribbean at risk of inundation. An estimated 49 percent of major tourism resorts in CARICOM would be damaged or destroyed by combined SLR and storm surge and SLR-enhanced erosion, as many lack extensive coastal protection in order to preserve the aesthetics of natural beach areas and views to the sea. These figures are particularly worrying, as they give an indication of the shorter-term risk of SLR. Beach assets so critical to tourism would be severely affected. The longer time frames of sea level rise should also not be an excuse for delay, since putting

effective protection measures in place takes considerable time. In fact, previous defense projects have shown that coastal protection infrastructure typically has a lead time of 30 years or more.

International climate policy poses one of the most immediate economic risks to Caribbean tourism. Policies designed to mitigate greenhouse gas emissions are expected to have a considerable impact on long-haul air travel destinations. Of particular concern is the United Kingdom's Air Passenger Duty; voluntary initiatives such as “carbon offsetting” also present considerable challenges. The United Kingdom is one of the primary sources of tourists in the Caribbean, and the recent doubling of this fee is projected to have a significant impact on travel to the Caribbean.

The effects of climate change in the Caribbean are not events in some distant future. The tourism sector and the economies and livelihoods in the region are already being affected by sea level rise and erosion and also by extreme impacts such as coral bleaching, flooding, and drought. Effective responses are necessary from all stakeholders—government, communities, and the private sector—to reduce vulnerability and increase the resilience of the tourism sector. There is an urgent need for technical and financial resource assistance, enhanced capacity, and evidence-based adaptation strategies in the region that are practical and effective in reducing vulnerability and increasing resilience to ensure sustainable development.

Climate Change's Impact on the Caribbean's Ability to Sustain Tourism, Natural Assets, and Livelihoods *continued*

Some Political Responses to Climate Change in the Caribbean

CARICOM, Caribbean countries, and the Caribbean Community Climate Change Centre (CCCCC) have participated in a number of major regional projects designed to build institutional, national, and human capacities. The most important activities to date include National Enabling Activities supported by the U.N. Development Programme; the Caribbean Planning for Adaptation to Climate Change project (1998–2001) supported by the Global Environment Facility; the Adaptation to Climate Change in the Caribbean project (2001–2004), which helped establish the CCCCC in Belmopan, Belize; the Mainstreaming Adaptation to Climate Change project (2003–2009), with GEF funding through the World Bank; and the Implementation of Adaptation Measures in Coastal Zones project (2006–2011), with GEF funding. The CCCCC is also working on a range of tourism and climate change initiatives, one of which is providing an evidence-based approach to the development and implementation of practical strategies to assist communities, the private sector, and national governments in building a sustainable and climate-resilient tourism sector.

In July 2009 the CARICOM Heads of Government approved the Regional Framework for Achieving Development Resilient to Climate Change. They also mandated the CCCCC to develop a comprehensive regional plan for implementation of this strategy.

This will identify and establish priorities for activities under each strategic element and goal area of the Framework, allocate responsibilities and outline functional cooperation between regional and national agencies, develop an investment program, and propose a governance regime and a monitoring and evaluation system.

Conclusion and Recommendations

For government and business decision makers in the tourism sector, climate change is a new strategic reality. Increasingly, institutional investors, banks, and insurance companies seek information on the material risks associated with climate change—driven by regulations at national and international levels, physical impacts on business, and the indirect consequences of regulation on business trends, such as changes in the demands for goods and services.

It is clear that any actions to be implemented in the region should be “mainstreamed” and that climate change should be integrated into government decision making while sector-level climate change vulnerability analysis is incorporated into Caribbean tourism planning. This approach includes important debate and decisions with stakeholders on, for example, how space is used in coastal zones due to strong competition in these restricted areas. The debate will involve costing of assets, cost-benefit analyses, and assessment of losses and damages across

related sectors. Not only will decisions be made about land usage and related policies, but the debate will inform adaptation strategies regarding coastal protection and the extent to which governments can commit limited resources and capacities.

Although the impact of climate change on extreme events in the Caribbean remains uncertain, enhanced collaboration with organizations such as the Caribbean Catastrophe Risk Insurance Facility is a “no regrets” strategy that provides benefits—mainly, shorter recovery times following extreme events—regardless of the magnitude of climate change. Given recent developments and discussions at the U.N. climate change conference in Cancun, it may also be possible to leverage microfinance on the implementation of additional insurance coverage.

Coastal management policies should be reviewed and revised to account for SLR and storm surge—with specific attention for regulations related to setback requirements, mangrove and coral reef conservation, beach nourishment, and property decommissioning. Furthermore, management strategies for enhancing the resilience of coral to climate change should be implemented—for example, by reducing pollution and overfishing through the establishment and demarcation of fish sanctuaries, improved management and support of marine protected areas, and more awareness of the impacts of climate change within coastal communities and the private sector. Architectural and engineering coastal protection designs for beach resorts should

Climate Change's Impact on the Caribbean's Ability to Sustain Tourism, Natural Assets, and Livelihoods *continued*

be market-tested with international tourists in order to avoid unsuccessful or mal-adaptation.

Caribbean leaders and regional groups like the Caribbean Tourism Organization, the Caribbean Hotel Association, and the Caribbean Council have strongly recommended that international mitigation policies need to be carefully designed so as not to disadvantage the least developed countries or destinations. The airline industry has made similar recommendations. More robust lobbying and pressure from the industry and from governments is required to ensure that the Caribbean tourism sector is protected and treated in a fair and equitable manner. Strategies to reduce vulnerability to the various climate mitigation policies and oil price fluctuations need to be developed. International policies that provide the most regional control over revenues generated by any charges or levies to international air travel should be supported, as should any regional or national carbon-neutral tourism initiative, while taking care to consider emissions from air travel as a significant factor.

As sea level rise is transforming coastal tourism in the Caribbean, SLR vulnerability mapping should be used to inform revised Tourism Master Plans and Land Use Plans. Future tourism development should be redirected away from highly vulnerable areas,

and priority areas for coastal protection need to be identified. Where feasible, high-resolution remote sensing data can be used to monitor and evaluate engineering adaptations and support insurance risk assessments.

There is an urgent need to improve the information base with regard to the risks posed by climate change impacts in the Caribbean and the capacity of adaptation options to cope with different levels of climate change. This will allow the international community to provide greater evidence-based adaptation assistance. A complete and focused analysis of the vulnerability of tourism-dependent small island economies needs to be conducted, and evidence-based adaptation strategies need to be developed.

If Caribbean countries are unable to adapt to climate change due to lack of capacity or resources, they will experience direct and substantial economic and environmental negative impacts on tourism—their most important industry sector. This will not only affect national economic development and increase unemployment, it will have serious social and cultural consequences for communities. Without significant support from the international community, governments' ability to pursue sustainable development in the region and achieve Millennium Development Goals will be severely compromised.

A version of this paper that includes endnotes and a full reference list is available at www.iadb.org/sustainability/simpson.

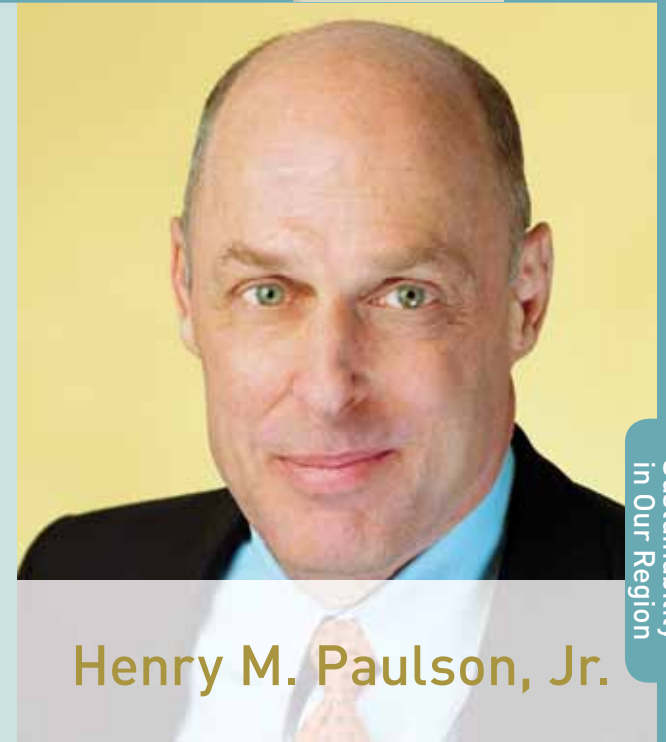
The countries of Latin America and the Caribbean are home to extraordinary ecological diversity. The region boasts a priceless spectrum of island, mountain, savanna, forest, grassland, coral reef, and oceanic habitats. However, it is facing a period of unprecedented rapid change.

National economies are expanding in response to increasing global demand for natural resources and agricultural products, driving infrastructure construction into habitat frontiers. The ensuing environmental challenges demand a working partnership among government, the private sector, civil society, and financial institutions. If we are to sustain the rich natural capital of the region to the benefit of its people, it is imperative to build linkages between the finance community and the environmental management community.

The Inter-American Development Bank plays an important role as hemispheric leader in financial and environmental management. The Bank has considerable expertise and capacity to partner with governments and the private sector. It is already funding agriculture and infrastructure projects with components that provide a net benefit to biodiversity and the environment. The Bank is a key leader in supporting plans for innovative financing to improve biodiversity and resource management—and to develop the financial frameworks through which ecosystem services can be effectively managed and sustained. My hope is that, in the longer term, the Bank will invest even more in natural habitats and maintaining the forests, grasslands, and wetlands that are so critical to mitigate climate change.

We must recognize the risks and challenges of maintaining business as usual. It is clear that economic growth is necessary to reduce poverty. But this growth will be self-defeating and unsustainable if the ecological and environmental risks are not properly managed. Effective management requires a partnership between people from the financial and environmental sectors. Together they must strive to find solutions that maximize the opportunities offered by economic growth while ensuring that our ecological heritage is preserved. The objective of “doing no harm” needs to be replaced by “doing good.” We are the custodians of critical natural assets for future generations. We must work together to ensure that natural resources and rich biodiversity are available for our children and grandchildren, which will also ensure that economic growth is healthy and sustainable.

Henry M. Paulson, Jr.



Henry M. Paulson, Jr.

Henry Paulson served as U.S. Secretary of the Treasury from 2006 to 2009 after serving as Chairman and CEO of Goldman Sachs from 1999 to 2006. He is an avid bird-watcher and was Chairman of the Board of The Nature Conservancy.



Antonio Brack Egg

Dr. Antonio Brack has substantial experience working on the conservation and sustainable use of wildlife and as an environmental communicator. He has published 15 books and more than 200 articles on natural resources, sustainable development, and biodiversity and is a recognized and prize-winning authority on biological diversity and bio-commerce. In 2008, Dr. Brack became the first Minister of Environment in Peru.

Latin America, a region blessed with abundant natural resources, currently has unprecedented prospects for economic expansion. At the same time, however, an accelerating migration from rural areas is driving the sharp growth of its cities, and rural and urban poverty rates remain high. This rapid economic expansion is also associated with social unrest and growing public concern about environmental issues. In a number of countries, particularly in the Andean

region, migration from poor mountain districts to forested areas has become unstoppable. The rural poor from the Andes are moving to jungle areas in search of land for subsistence farming. In the case of Peru, migration from the Andes to the Amazon rainforest has now reached record levels. Moreover, high gold prices are encouraging unlicensed and illegal mining, which is putting even greater strain on forest ecosystems. Economic expansion is also driving up energy demand, which in Peru, for example, is rising 9 percent a year.

Latin America has a huge range of biological diversity in the form of ecosystems, species, and genetic resources, and over the millennia more than 200 species of plant have been domesticated—some of which are of considerable global importance, such as the potato, corn (maize), cassava, and sweet potato—along with six species of animal, making the region one of the world's most significant gene banks. These genetic resources are also associated with a diversity of cultures and traditional knowledge. It should not be forgotten that Latin America has the planet's largest area of tropical forest, with its huge biodiversity, which constitutes one of its greatest assets and a heritage that must not be sacrificed for the sake of modern development.

Uncontrolled economic growth, the unrestrained expansion of cities, the exploitation of natural resources, and the colonization of pristine spaces have left a series of environmental problems in their wake. These include polluted water supplies, inadequate disposal of solid waste, soil erosion and degradation, urban air pollution, and forest destruction. These all have serious environmental, economic,

and social consequences, which are today having an impact in terms of the costs of environmental remediation and of ensuring people's health and quality of life. For example, development in the Amazon tended to be based on slash-and-burn forest clearance to make space for farmers to produce crops and livestock, but today there is scant relationship between the areas cleared and those in production. Millions of hectares of unproductive and degraded land have been left behind, and in some countries this land has been turned over to producing drug crops that are in high demand in international markets.

Today, however, the focus is changing, and the outlook for Latin America is beginning to look brighter. Lessons have been learned from the mistakes of the past, and more effective research institutions are making their influence felt. Society too is pressing for change, and major international financial organizations have become more cautious, avoiding the large-scale road building and deforestation projects of the past and including environmental considerations in their funding conditions. Countries have also made tremendous efforts, setting aside over 60 million hectares for protected natural areas (national parks and the like), granting indigenous peoples and communities tenure to their land (more than 130 million hectares), establishing more-stringent environmental standards and policies on the exploitation of natural resources, and improving living standards, with poverty reduction measures going hand in hand with economic growth.

Against a backdrop of worsening environmental degradation and the threats of climate change, with its environmental, social, and economic impacts,

excellent opportunities nevertheless present themselves for innovative, sustainable growth in Latin America while bolstering incomes for the poor. Some of the main areas in which opportunities lie include the following:

- **Water management and conservation:** With an emphasis on restoring degraded watersheds; rainwater storage during the rainy season; saving water by using more-efficient irrigation systems; and treatment and recycling of wastewater.
- **Forest conservation and management:** The huge area of forest that still remains offers opportunities for conservation and sustainable use, replacing a model of slash and burn with sustainable forestry management to produce timber, supply water, and develop ecotourism.
- **Management of the marine environment and responsible fisheries:** Latin America's extensive marine ecosystems are an important protein source for its countries and the rest of the world, and they need to be managed sustainably to ensure a continued supply of protein.
- **Forestry:** The region has tens of millions of hectares of degraded land that are suitable for forestry, with huge potential for creating rural jobs, generating income, and restoring eroded and degraded soils.
- **Aquaculture:** Marine, lake, and river environments have underutilized potential for aquaculture, which is still in the early stages of development.
- **Ecotourism and experiential tourism:** Drawing on the biological, historical, and cultural diversity of the region, including its extraordinary culinary diversity.
- **Biotrade and organic farming:** Based on native genetic resources and with quality certification, as is the case in Peru, where more than 50,000 small farmers have certification, giving them access to the most competitive markets.
- **Renewable energy:** Based on water, wind, and solar energy resources and biofuels, provided the latter do not interfere with food production areas or lead to clearing of primary forest and are based on efficient irrigation systems.
- **Environmental services:** This emerging economic topic offers a new opportunity for climate change mitigation while enabling forests to provide new opportunities to generate wealth.
- **Socially responsible, clean extraction of mineral and hydrocarbon resources:** Significant progress has been made in this direction, but further development is needed in order to temper the social upheavals these activities can cause.
- **Appropriate disposal of solid waste:** With priority being given to recycling and the capture and use of the methane produced.

Progress has been made on all these fronts, and outstanding examples already exist in which wealth generation, improved living standards, and environmental restoration have been combined harmoniously. International financial organizations such as the IDB can make an important contribution to generating new economic activities to mitigate the region's environmental and social problems.

Antonio Brack Egg



Israel Klabin

Dr. Israel Klabin was the Mayor of Rio de Janeiro from March 1979 to May 1980 and has served the Brazilian and U.S. governments as a consultant and advisor in regional development. In 1992 he helped organize the U.N. Conference on Environment and Development in Rio and founded the Brazilian Foundation for Sustainable Development, which he remains President of. He was the President of the Host Committee and Co-Chair of the International Committee of Rio+5 and is a member of the IDB Independent Advisory Group on Sustainability.

The world is facing unprecedented transformation. Based on the expected outcomes and consequences of the changes under way, Latin America and the Caribbean can capture increasing economic and social benefits if countries institute the necessary environmental safeguards.

Several main factors must be considered when designing sustainable growth in terms of economic development, social inclusion, and environmental assets: growing affluence, new technologies, people moving from rural areas into cities, and climate change. Sustainability in the region will be determined by the ability of its leaders to address these challenges and pursue the opportunities based on the abundant natural capital that is available.

Among the strategies that should be developed, high priority must be given to improved governance, transparency, integrated planning and management, new financial incentives from industry-led market forces, stronger South-South cooperation, and technological advances that minimize land use expansion.

Increasing demand for natural resources and agricultural products from China and elsewhere provides an unparalleled opportunity for Latin America and the Caribbean. Yet it also increases the pressure on natural habitats on a scale never seen before, representing a threat to biodiversity and ecosystem services and leading to desertification, water shortages, and soil erosion. Growing agricultural developments and resource extraction increase greenhouse gas emissions, causing changes in local weather patterns and potentially conflicts and social unrest.

Environmental and social degradation can be minimized with stronger environmental institutions and appropriate public policies as well as through market instruments such as REDD or regulated and institutionalized public/private partnerships. Multilateral institutions such as the IDB should be active in promoting discussion and should help delineate and implement appropriate policy responses. The main

goals of these policies should be to reduce poverty and achieve sustainable growth.

In the near future, geopolitics will be responding to a new set of pressures. The global demand for food and land-based products such as biofuels and fibers is increasing, and the availability of land and other factors such as climate will mean that access to those commodities moves the center of gravity to Latin America.

One precondition for Latin America's successful tapping of new economic possibilities is the increased use of technological advances that have been so successful in Brazil. Coupled with that, governments need to develop coherent and practical policies to protect the environment, provide a fair deal for laborers, and support projects of family farming that grow food for local markets. Environmentally responsible low-emission farm systems will help provide access to increasingly demanding commodity markets.

In order to harness the potential for agro-industrial expansion to bring about positive change while minimizing negative impacts, sustainable development strategies in Latin America and the Caribbean should include standards established by agricultural commodity roundtables, policies that allow agricultural and forestry production to increase while lowering deforestation rates, and large-scale integrated land use and development of forest carbon market mechanisms (such as REDD+) to provide competitive returns for standing forests.

Informal peri-urban expansion—people moving into low-income districts far from a city's center—represents the majority of Latin America's rapid

urbanization. This has translated into stressful urban dynamics: poorly regulated land use, inadequate housing conditions, high crime levels, inadequate infrastructure, increased health risks, and environmental degradation (deforestation, pollution of rivers and streams, increased greenhouse gas emissions). Pressure from climate change exacerbates these dynamics.

In order to meet the challenge of accommodating demographic and economic growth, in particular peri-urban sustainability, governments need to regularize land occupation, encourage compact urban development, and prepare cities for future population growth. Efforts to legalize existing irregular settlements should be strongly supported in order to increase visibility of the peri-urban poor and allow for more effective planning. Cities should encourage compact growth to allow for a more intensive use of existing infrastructure. Having to extend costly roads and sanitation networks to a new, more distant peri-urban area will prove uneconomical. In addition, new housing projects should avoid fostering new peri-urban occupations as well as increasing levels of urban segregation.

Large urban development should be held accountable for social and environmental impacts in a more comprehensive way. Finally, countries—in particular the ones that are less urbanized now but growing fast—should put in place policies that try to prepare cities for massive growth, which is expected to continue in the near future.

Latin America and the Caribbean are faced with yet another challenge. Climate change is expected to have far-reaching effects on the sustainable

development of developing countries. Small island countries like those in the Caribbean are highly vulnerable to the effects of climate change and already feeling its impacts on tourism—their most important industry sector. The increasing frequency and severity of extreme weather, sea level rise, accelerated beach erosion, the degradation of coral reefs, and the loss of cultural heritage on the coasts through inundation and flooding will have a direct effect on the economies of these countries.

Increases in population and the unsustainable use of available natural resources add to these problems. Tropical storms and cyclones cause storm surges, coral bleaching, inundation of land, and coastal and soil erosion, with resulting high-cost damages to socioeconomic and cultural infrastructure. Also, climate change impacts affect not only economic development and employment; they have serious social and cultural consequences for communities.

In order to minimize these impacts, Caribbean countries should focus on reducing their vulnerability to the effects of climate change. Relevant actions should include management strategies for enhancing the resilience of climate-sensitive ecosystems, market-tested architectural and engineering coastal protection designs in beach resorts, technological aids (such as high-resolution remote sensing data) to monitor and evaluate engineering adaptations, and support for insurance risk assessments. Without enhanced capacity, resource assistance, and evidence-based adaptation strategies in the region, the ability of governments to respond to climate change and achieve sustainable development in the region will be seriously compromised.

Israel Klabin



Antoni Estevadeordal

Dr. Antoni Estevadeordal is an economist with expertise in economic integration, trade policy, and regional cooperation. He has published extensively in major journals and coordinated several major IDB publications on regionalism, trade, and the emergence of China. He is presently the Manager of Integration and Trade at the Inter-American Development Bank.

There was time when trade was seen as inimical to growth in Latin America and the Caribbean. The arguments ranged from declining terms of trade to “unequal exchange” and, in their name, a huge and

long-lasting wall of trade barriers was built around and within the region; the impact of these barriers on growth was either ephemeral or disastrous. This was also a time when environmental considerations were seen as whims of a tiny minority and not as an impediment to industrialization at “all costs.” This kind of thinking led to projects with costly environmental impacts, among them highways that were built across the Amazon forest.

The fact that anti-trade and bad environment policies went hand and hand in the region is not surprising. They both reflected a deep skepticism about markets, prices, and opportunity costs. Trade is about acknowledging that resources are scarce. It is about taking into account the relative productivity and opportunity costs of producing goods and services and their impact on welfare and eventually growth. Likewise, a sound environmental policy has to be based on finding the right price for limited natural resources, a price that reflects both private and social considerations and, as such, guides decisions toward a sustainable and welfare-enhancing exploitation of those resources.

These days, there is hardly a dispute about trade’s key contribution to the region’s recent recovery. The growth performance of the last decade has been particularly impressive. These gains of trade have both motivated and benefited from remarkable improvements in governments’ transparency and

accountability, which soon translated into more-effective and responsible public policies. The environmental policies were no exception. The combination of less intervention on market prices, macroeconomic stability, and better governance has provided more visibility for the environmental impacts of economic activities, giving governments a better footing to design incentives and regulations to internalize the well-known negative externalities.

This positive link between openness and environmental policy in the region has often escaped analysts, some of whom are now particularly worried by the region’s increasing specialization on natural resources, driven by its explosive trade with resource-hungry Asia. Whereas this concern is warranted—after all, activities such as mining and agriculture are often listed among those with the highest environmental costs—there are reasons to be optimistic.

In a seminal 1993 paper, Gene Grossman and Alan Kruger helped map the channels through which trade can have an impact on the environment—a framework that is particularly useful for addressing the region’s current challenges. The first channel is the so-called scale effect, associated with the environmental impacts of larger trade volumes; the second is the composition effect, which covers changes in the countries’ specialization brought about by trade. And finally there is the technique effect, which is about the way goods and services

are produced. The first and second effects seem to be at the heart of the Asia-Latin America concerns. This involves the idea that Asia's explosive growth and demand for natural resources is pushing the region toward a specialization in environmentally damaging activities that will eventually lead it to a Malthusian end, with increasing pollution and environmental degradation.

For this scenario to be credible, however, someone has to make a number of improbable assumptions. First, that despite the growing wealth brought by these exports and its impacts on education, poverty, and relative prices, the region's economies and governments will not be able to reallocate resources to more knowledge-intensive and environmentally friendly activities. This goes against the evidence already seen on the ground, with countries such as Chile, Peru, and Brazil pursuing policies that seek to reallocate a significant share of their export revenues toward knowledge-intensive activities. The experiences of countries such as Canada, Norway, and even the United States suggest that such diversification is not only possible, it is likely.

But this Malthusian scenario looks even more improbable if the implicit assumption that the technology does not change is dropped. It is a well-established fact that trade boosts productivity via competition, scale, and knowledge transfer. These effects are particularly visible in the region's

agriculture, the productivity of which has grown faster than in any other region of the developing world in the last decades—thanks, in part, to innovations absorbed through trade, such as genetically engineered seeds and global positioning systems. Productivity in mining has also been growing fast through the adoption of new, more environmentally friendly techniques, suggesting that the region is increasingly doing more with less.

This push toward more productive and environmentally friendly techniques can of course be accelerated: first, by improvements in countries' environmental policies, particularly through the greater use of tax incentives to align private and social interests, and second, by the careful adoption of environmental regulations in regional and multilateral trade agreements, with the important proviso that they should be designed to reflect the countries' "ability to pay" and to prevent their capture by protectionist interests.

Trade, prosperity, and better environmental policies have been walking hand in hand in Latin America and the Caribbean in the last few decades, and despite the challenges of its trade relationship with Asia, the region can still prove Malthus wrong. The combination of market-incentives, trade gains, and well-designed policy interventions seems to be the best strategy to meet this challenge.

Antoni Estevadeordal



Sustainability in Our Operations

Ensuring Environmental and Social Sustainability Through IDB Programs and Investments in Latin America and the Caribbean



Overview

- This section presents an overview of how the Bank is helping the region manage its opportunities and challenges for environmental and social sustainability.
- It provides an overview of IDB governance for sustainability, outlining the implications of the 2010 increase in the Bank's ordinary capital for a stronger emphasis on environmental sustainability, climate change mitigation and adaptation, and sustainable energy.
- It also details advances in IDB environmental and social policies during the year, in particular the approval of a new operational policy on gender equality, as well as the recommendations stemming from an independent assessment of the Bank's Environment and Safeguards Compliance Policy.
- The section provides details of the Bank's sustained increases in lending—approving US\$3.6 billion in environmental sustainability, climate change, and sustainable energy—as well as progress with initiatives on sustainable energy, climate change, and water and sanitation. It describes new initiatives and programs on environmentally sustainable transportation, sustainable cities, and sustainable banking.

Building a Better Bank

Demand for development lending to Latin America and the Caribbean has increased in recent years—a trend that accelerated after the global financial crisis hit the region. The poorest and most vulnerable countries have been hit especially hard. The sharp increase in demand for IDB resources prior to and after the crisis—together with long-term development needs related to climate change, lagging productivity, and social and economic inequality—led to a re-evaluation of the Bank’s capital levels.

On July 21, 2010, the Board of Governors agreed to the terms and conditions of an increase of the Bank’s ordinary capital by US\$70 billion, the largest expansion of resources in the Bank’s history, and to provide an unprecedented package of financial support to Haiti. This capital increase (the ninth General Capital Increase, or GCI-9) will let the Bank lend, on average, approximately US\$12 billion a year—double the pre-crisis level. The agreement also includes a replenishment of the Fund for Special Operations, which finances operations in the region’s poorest nations.

The GCI-9 establishes a new Institutional Strategy for the Bank centered on the core objectives of reducing poverty and inequality and promoting sustainable growth. Alongside these overarching objectives, the Bank also sets two strategic goals that build on its comparative advantages and are essential to achieve its mission: address the special needs of the less developed and smaller countries and foster development through the private sector. To operationalize the new Institutional Strategy, the Bank defined five sector priorities: social policy for equity and productivity; infrastructure for competitiveness and social welfare; institutions for growth and social welfare; competitive regional and global international

integration; and protection for the environment, response to climate change, promotion of renewable energy, and food security.

An established results framework sets lending program priorities and will enable IDB stakeholders to monitor the Bank’s contribution to the sector priorities and to selected regional development goals.

Specific lending targets by the end of 2015 include:

- Engaging **small and vulnerable countries**, with 35 percent of total lending going to this group.
- Supporting **climate change adaptation** initiatives as well as projects in **renewable energy and environmental sustainability**, which are expected to reach 25 percent of total lending.
- Increasing lending for **poverty reduction and equity enhancement** programs to as much as 50 percent of total lending.
- Increasing support for **integration and trade-related programs** threefold, to 15 percent of total lending.

The capital increase follows an unprecedented period of reform and renovation in the IDB. During the last few years the Bank has realigned its priorities and structure and renewed its ability to serve as a catalyst for development in Latin America and the Caribbean. This agenda of profound change is reshaping the Bank and has allowed it to re-engage with borrowers at a time when they most need the institution. The IDB has made major advances in effectiveness, transparency, and accountability.

The Bank now has stronger systems to make sure the projects it finances can demonstrate how they significantly improve people’s lives. The Bank

structure has been revamped to ensure that technical knowledge is used effectively and to focus on specific country needs. Offices in the field have been given greater responsibilities and more technical staff. The project cycle has been streamlined, putting more emphasis on implementation and on achieving results.

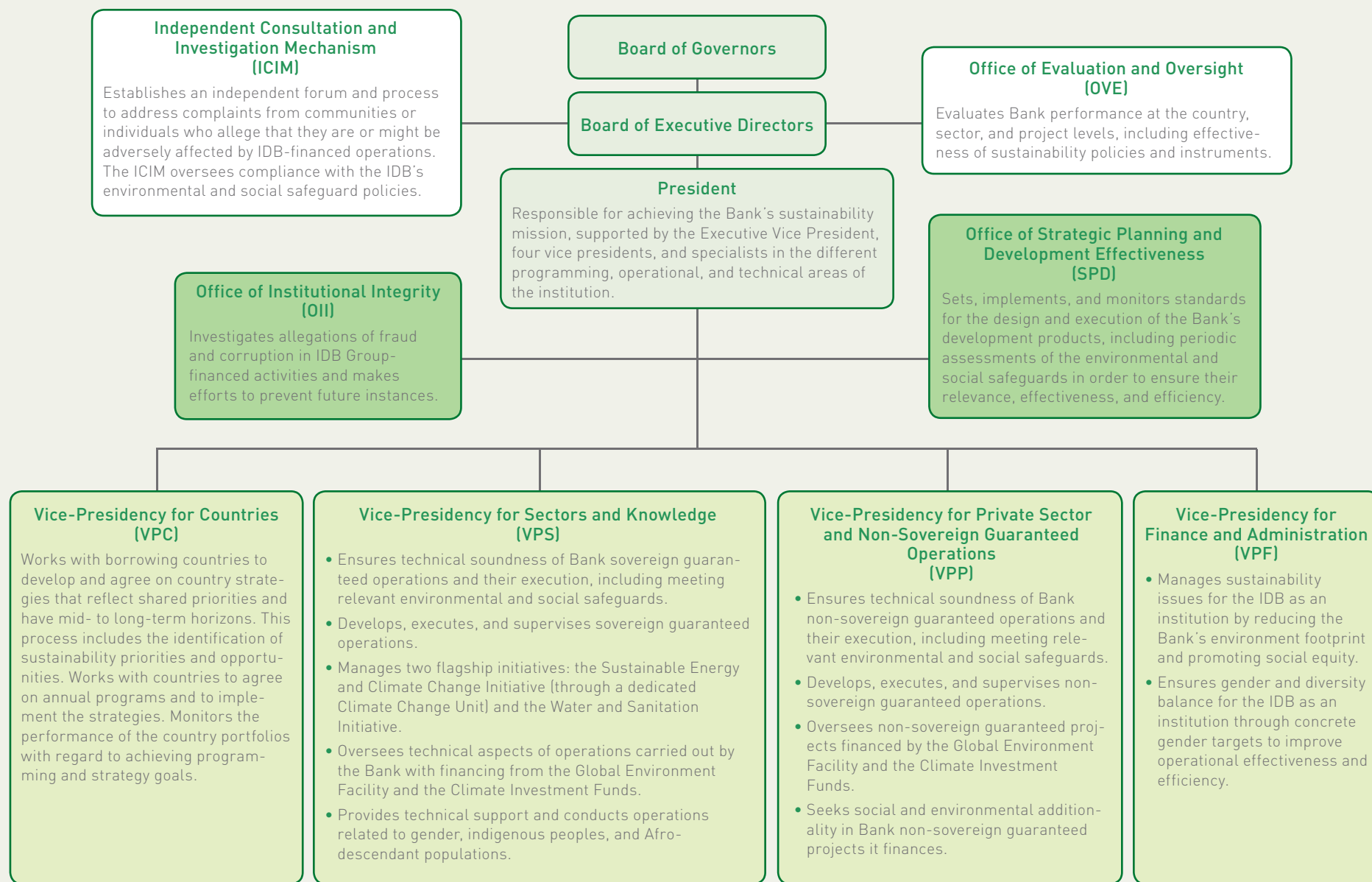
The IDB reforms fall into five broad areas:

- Ensuring that the Bank’s products have the development impact its borrowers deserve and expect from it.
- Making sure the IDB operates under the highest standards of transparency, ethics, and integrity.
- Proactively reaching out to civil society across the region.
- Strengthening the Bank’s social and environmental safeguards in all operations.
- Improving the way the Bank manages its finances and assesses risks.

The reforms that led to the capital increase agreement provide the Bank with a solid footing for a new institutional strategy with two overarching objectives: reducing poverty and inequality and promoting sustainable growth. Alongside these are two strategic goals of addressing the special needs of the lesser developed and smaller countries and fostering development through the private sector.

Robust measures have been put in place to mitigate financial risks and to strengthen environmental and social safeguards. In the process, the IDB has become a more effective institution, more accountable to its shareholders and to civil society.

Integrating Responsibility for Sustainability



Adding to IDB Sustainability Policies

The IDB is committed to upholding standard-setting policies that are equivalent to the best international practices. These policies provide a coherent set of sustainability standards to guide our work.

- The [Environmental and Safeguards Compliance Policy](#) mainstreams environmental considerations into the IDB's social and economic development objectives.
- The [Indigenous Peoples Policy](#) requires safeguarding indigenous peoples' rights in all IDB operations and mainstreaming indigenous priorities for development in the IDB portfolio.
- The [Involuntary Resettlement Policy](#) aims to minimize the physical and economic disruption of people living in the area of IDB-financed projects and defines the scope and criteria of any resettlement plans.
- The [Disaster Risk Management Policy](#) works to prevent and mitigate disasters resulting from natural hazards and to improve the post-disaster responses.

In 2010, two other policies were revised after careful review and consultations in the region: Access to Information Policy and the new Operational Policy on Gender Equality in Development.

A new [Access to Information Policy](#) was approved by the Board of Executive Directors in May. It applies to information created by the Bank or provided to it as of January 1, 2011. The new policy eliminates the "positive list" contained in the previous disclosure policies—instead, all information created by or provided to the Bank will be disclosed unless it appears on a list of "exceptions" specified in the policy.

For the first time, interested individuals can obtain a review of Bank denials of requests for access to information. The new policy also provides for the routine disclosure of the agendas and minutes of the standing committees of the Board. Statements by individual Executive Directors will be disclosed on a voluntary basis.

One new provision allows for the release of Country Strategies, sovereign-guaranteed Loan Proposals, and Technical Cooperation Plans of Operation when they are distributed to the Board of Executive Directors, subject to the prior authorization of the country involved. In terms of operational information, a number of project monitoring and evaluation documents, including annual audit reports and the "non-deliberative" aspects of Progress Monitoring Reports, will be made public for the first time.

The exceptions list, which indicates what types of information will not be disclosed, includes legal or investigative documents; proprietary, business, and financial information from private-sector entities; personal information on Bank staff and information on safety and security; all but a number of specified types of information related to non-sovereign guaranteed operations financed by the Bank; and communications among Executive Directors and between individual Directors and their governments that is prepared as part of Management's and the Board's internal discussions.

To implement the new policy, the Bank has for the first time created a system for classifying information as either public or non-public. This is to ensure that the policy is being implemented consistently. Certain types of information that are initially classified as "confidential," or not disclosed, may be declassified after 5, 10, or 20 years, as the sensitivity declines.

In November 2010, the Board of Executive Directors approved a new [Operational Policy on Gender Equality in Development](#) following a full year of consultations with governments, civil society organizations, gender specialists, academics, and other stakeholders both outside and inside the IDB.

Although Latin America and the Caribbean has made significant advances in gender equality, many challenges remain. Women continue to be overrepresented in informal and vulnerable employment, men earn higher wages than women, adolescent pregnancy and maternal mortality rates have not declined sufficiently, and top level decision-making positions still go to men.

The new policy calls for proactive attention to gender issues across development sectors and throughout the design, implementation, monitoring, and evaluation of IDB-financed operations. While continuing to mandate gender mainstreaming in Bank operations, the policy adds three new elements:

- Direct investment in strategic areas of gender equality and women's empowerment.
- The addition of gender safeguards to the Bank's current environmental and social impact review of IDB projects.
- Institutional monitoring indicators that will help monitor and evaluate progress toward implementing the policy.

In order to translate the new gender policy into action, the IDB is preparing a Gender Action Plan for Operations that will contain specific actions to jumpstart implementation and monitoring of the policy in 2011–2012.

Project Snapshot:

Road Rehabilitation Program Promotes Gender Equality

Decentralized Rural Transportation Program, Peru

In rural Peru, inadequate transport has contributed to the severe poverty that affects all population groups, especially women. The IDB and its partners have addressed these issues through their support for a 15-year rural road program that has benefited some 3.5 million people by improving access to markets, schools, and social services and by strengthening participatory decision making.

In the most recent operation, the Decentralized Rural Transportation Program, strong measures to address gender issues have resulted in major benefits for women. Financed with the help of a US\$50 million IDB loan approved in 2006, the program is being carried out by the Peruvian Ministry of Transport and Communications through its Special Project for Rural Transportation Infrastructure (Provías).

In conjunction with the program, a 2006 IDB technical cooperation grant for US\$65,000 financed activities to bring gender-related lessons to the attention of local stakeholder institutions and individuals. Training in gender issues was provided for mayors and municipal staff, men and women micro-entrepreneurs, and Provías technical staff. The grant is also financing a plan for long-term monitoring of gender-related results.

Greater women's participation. The program's emphasis on gender has produced gains in raising women's income. The quotas established for female membership in the more than 530 road maintenance microenterprises have been largely exceeded. In Cajamarca, Victoria Jara Cuevas is one of the 43

percent of women in the targeted regions who have reported higher earnings. A single mother of two children and also the main source of support for her mother and brothers, she was selected to join the local road rehabilitation microenterprise, whose membership was previously all male. She uses her earnings to buy rice and cooking oil and to send her eldest daughter to high school. She even has a little left over for savings.

Provías is also helping women to increase their participation as community decision makers. The number of women members of road maintenance microenterprises increased from 4 to 24 percent, significantly exceeding the 10 percent target. About half the rural roads committees have women treasurers, nearly 19 percent have women secretaries, and over 4 percent have women presidents. About half of the women from participating communities are involved in drawing up local development plans and projects. One result has been a greater emphasis on the construction of footpaths, since women find them to be the easiest and safest way to gather firewood, haul water, and take animals to pasture.

Reduced travel times. By 2010 some 14,750 kilometers of rural roads in 24 participating departments had been rehabilitated—fully a third of Peru's rural roads network. The result has been shorter travel times and lower costs for farmers and microenterprises getting products to market as well as improved access to schools, social services, and job opportunities.

The microenterprises charged with maintaining the rehabilitated roads and tracks employ some 6,000 persons, most of them indigenous. Works are managed by municipalities that belong to 132 provincial

road institutes. New economic opportunities created by better transport are being supplemented by 167 small-scale productive projects financed through the program's Local Development Window.

The availability of buses and other transport services has increased by 115 percent, and travel times have been cut in half. Poverty rates in areas without motorized transport have been reduced by nearly 9 percent, and cultivated areas have increased by over 22 percent. Better access to schools has increased female enrollment at the primary school level by nearly 7 percent, and greater access to health care has helped reduce illnesses among children under the age of five by 8 percent.

“Provías clearly demonstrates the shared conviction of the Government of Peru, through its Law of Equal Opportunities, and the IDB that gender equality is critical for a nation's equity and economic progress, particularly in rural areas,” said Fabiola Caballero, who directs activities to promote gender issues, inclusion, citizenship, and democracy in the Provías program. “In this regard, the Provías program stands as a successful example of the IDB's new Operating Policy on Gender Equality, which calls for more direct investment in projects that empower women, such as road maintenance microenterprises; gender mainstreaming across operations; and the use of safeguards to prevent negative impacts or exclusion based on gender.”

Assessing the Implementation of Our Environment and Safeguards Compliance Policy

In 2009, the IDB convened the Independent Advisory Group (IAG) on Sustainability, fulfilling a commitment made in 2006 when the IDB adopted the new Environment and Safeguards Compliance Policy. At that time the Bank pledged to report on its experience with implementation of the policy and to obtain an independent evaluation of the achievement of its objectives within three years. The nine-person IAG, chaired by Dr. Thomas Lovejoy, concluded its assessment in 2010.

The purpose of the IAG was “to provide advice and recommendations to the IDB on the experience of the Bank with the implementation of this policy and the achievement of its objectives.” The Panel was asked to provide advice on:

- IDB efforts and performance in addressing the critical environmental issues affecting the region.
- Improvements or amendments to the policy and to IDB processes that may be necessary to better enable the IDB to address critical environmental issues.
- Emerging sustainability issues in the region and how the Bank could effectively address them in the context of its Better Bank Agenda.
- How the Bank can play a sustainability leadership role in the region.

A four-phase consultation and review process took place during 2010.

- **Phase 1 (Jan–Mar):** Members sought to gather as much information and insight as possible about the implementation of the Environment Policy and to identify critical issues. Documents were reviewed, while individual meetings and an internal workshop session were held with selected senior managers and professional staff from key Bank departments, the private sector, and country counterparts.
- **Phase 2 (Apr–Sept):** IAG met in a facilitated session with representatives of Washington-based NGOs and civil society organizations. IAG members visited selected borrowing member countries following the IDB Annual Meeting. They met with Bank staff, government representatives, and key NGO and private sector figures. During this phase, the IAG also reviewed other multilateral development bank (MDB) experiences in mainstreaming environmental policies and safeguards, in order to benchmark the IDB’s performance.
- **Phase 3 (Oct–Dec):** The IAG held a final meeting to review and discuss the findings of the country visits and other meetings as well as the results of commissioned consultancies.
- **Phase 4 (Dec–Feb):** The IAG met with the IDB Board of Directors in a Q&A session in late 2010 as it completed the report. In February 2011, the IAG presented its final report.

Assessing the Implementation of Our Environment and Safeguards Compliance Policy *continued*

The IAG report highlighted the depth of commitment and considerable progress in addressing the issues of sustainability affecting the region, particularly in terms of the sharp increases in lending and non-lending activities in projects that target environmental sustainability, climate change, and sustainable energy; increases in the Bank's safeguard staff; and the important strides made in implementing the safeguarding requirements (the B Directives) of the Environment and Safeguards Compliance Policy.

The IAG focused on a number of areas for improvements, particularly with respect to the implementation of the mainstreaming directives of the policy (the A Directives). More specifically, the group noted that the Bank should strengthen the mainstreaming directives of the Environment Policy, which is necessary to advance the aims of the Cancun Agreement and the Better Bank Agenda. While the IAG noted that the safeguards functions and capacity have been well established in the Bank, it pointed out that these

cannot substitute for implementation of the full scope of the environmental policy. As a result, the IAG recommended that greater effort and resources should go into achieving its mainstreaming objectives, without weakening the progress made with safeguards. It underscored that this would require new leadership on sustainability to reinvigorate the Bank's fundamental commitment to mainstreaming so as to enhance the quality of the region's environment, the integrity of its rich natural resource base, and its capacity to forge a sustainable future for people.

Designing for Sustainability

Ensuring sustainability throughout the Bank's portfolio starts at the earliest stages of country strategy dialogue and continues through programming and project planning. Priority sectors for lending are agreed upon with borrowing member countries in line with their development priorities at the strategy level, while yearly programming exercises are carried out to implement the strategies.

When an IDB project is prioritized during an annual programming exercise, Bank staff seek to identify environmental and social benefits and improvements not only to ensure that projects are consistent with Bank sectoral priorities, policies, and cross-cutting strategies and objectives but also to maximize the benefits to clients. This is achieved through multidisciplinary technical teams who have extensive experience in each sector or field of expertise.

A project must also pass through various sustainability checkpoints—from initial consideration for financing through preparation, implementation, completion, and evaluation. At each point, projects must comply with safeguard policies and implementation guidelines. *See page 47.*

Programming for Sustainability

Country strategies (CSs) provide the initial opportunity for mainstreaming and designing for sustainability. In consultation with national authorities, Bank staff analyze social and economic development priorities, providing the basis for agreed upon shared Bank and country lending priorities throughout the strategy period. In 2010 the Bank approved six CSs—for Bahamas, Dominican Republic, El Salvador, Mexico, Panama, and Paraguay—and progressed with work on CSs for Bolivia, Venezuela, and Uruguay.

The IDB Environment and Safeguards Compliance Policy sets the framework for ensuring that sustainability issues are incorporated into CSs. In addition, the country strategy guidelines refer to the inclusion of environmental and social sustainability issues. IDB is strengthening its internal processes to include more environmental and social experts in CS development, which is consistent with other multilateral institutions which are also gradually mainstreaming sustainability issues into this process.

Preparing Projects to Improve Environmental and Social Conditions

The Bank provides loans and grant funding that specifically target environmental issues such as water and sanitation, climate change mitigation, and disaster risk management as well as investing in projects

designed from the outset to target improvements for women, indigenous peoples, and Afro-descendant communities. These include operations, for example, that strengthen the institutional capacity of government agencies, help develop legal and regulatory frameworks such as improved sustainable energy matrices or frameworks for interagency watershed management, conserve key land or marine areas and associated biodiversity, reduce pollution such as air contaminants or through landfills or wastewater treatment plants built to international standards and support sustainable forestry and land management.

Enhancing the Sustainability Value of Productive and Social Sectors

In addition to investing in environmental and social sectors, the Bank tries to identify how to enhance the environmental and social value of projects in sectors such as transportation, energy, industry, and rural development through technical assistance and expertise in the identification of sustainability opportunities and components. IDB teams identify opportunities to enhance an operation either as part of the operation itself or through an additional loan or technical assistance. Examples of enhancement opportunities could include, for example, improving the management of protected areas in a rural roads project.

Applying Environmental and Social Safeguards

In addition to designing projects that target environmental and social sustainability as their main objective and developing sustainability outcomes as part of traditional development projects, the IDB works with its partners to ensure that its investments minimize harm to people and the environment. During the earliest stages of design, the Bank classifies a project according to its potential environmental and associated social impacts and risks (following an A, B, C classification model for high to minimal risk). This determines the depth and breadth of environmental and social assessment required and identifies key potential environmental, social, health, safety, labor, and other safeguard issues.

The Bank then proposes a strategy for in-depth analysis during project preparation and due diligence. This evaluates the adequacy of environmental and social assessments, plans, and procedures and the institutional arrangements on environmental and social risks and impacts. When a proposed project does not meet safeguard standards, the design is modified or mitigation measures are included. The Bank's analysis is summarized and made public, including the requirements that will become part of the contractual agreement once approval is granted. If the due diligence process reveals serious problems without reasonable remedies, IDB financing does not go forward until there is an acceptable plan to resolve the issues.

Once approved, the Bank works with its clients to ensure effective implementation of the environmental and social measures as part of project supervision. Whenever key issues are identified, corrective action plans are devised, and disbursement may be suspended until critical actions are taken.

Safeguards in Numbers

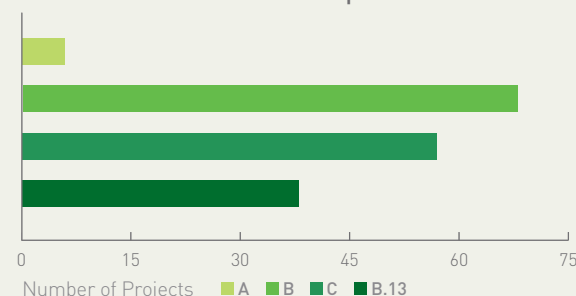
- The number of loans and investment grants increased by 25 percent from 2008 to 2009 and by 31 percent from 2009 to 2010. The total percentage of Category A (likely to have significant negative environmental and social impacts) and Category B (likely to have mostly local and short-term negative impacts, with mitigation measures readily available) operations increased slightly (39.8 percent in 2008 to 40.5 percent in 2010), although in absolute numbers the two categories have increased by 64 percent since 2008.
- In 2010 the approved loan operations fell into the following categories: 6 Category A; 67 Category B; and 57 Category C (likely to have minimal or no negative impacts). There were also 38 uncategorized operations (those that cannot be classified beforehand, such as an investment to an executing agency that on-lends IDB resources for projects to be defined during implementation and require alternative sustainability assessment and monitoring procedures).
- Of the category A and B operations approved, 71 percent triggered the pollution prevention and abatement directive; 64 percent triggered the disaster risk management policy; and about a third triggered the resettlement policy, the natural habitat directive, or the hazardous materials directive (37 percent). Sixteen percent triggered the Indigenous Peoples Policy.
- During 2010, at least 57 operations had site visits by environmental and social safeguard specialists and consultants as part of supervision activities.

- The IDB added three environmental and social safeguard specialists during 2010, bringing the total number of specialists to 24, a 13 percent increase over 2009.
- In 2010 the Bank arranged 1,437 hours of training for staff on environmental and social safeguards through 38 workshops.

Enhancing Safeguard Support Tools

The Bank has a suite of continually evolving tools to help develop projects that address environmental and social risks and impacts up front as well as identify sustainability opportunities. These include a geospatial mapping instrument to identify critical habitats, a tourism scorecard predominantly applied to private sector tourism developments, a biofuels scorecard, and knowledge materials. In 2010, new technical notes were developed to guide staff and clients on strategic environmental assessments (SEAs), community health and safety, sociocultural analysis, and invasive species. In addition, a tool for calculating net GHG emissions was piloted.

IDB loan approvals, 2010, by environmental and social impact classification



Project Snapshot:

Geothermal Project Lays Groundwork for Future Clean Energy Development

San Jacinto-Tizate Geothermal Power Project, Nicaragua

As part of the IDB's commitment to support its partners in innovative low-carbon energy production, the Bank is financing completion of a 72-megawatt geothermal plant that will increase Nicaragua's electricity generating capacity by 7 percent and pave the way for large-scale exploitation of this reliable, low-cost, and virtually non-polluting power source in accordance with the most rigorous industry standards.

The US\$300 million San Jacinto-Tizate plant expansion project, which received a US\$40 million IDB loan approved in 2010, is being carried out by Polaris Energy Nicaragua S.A. (PENSA) in a sparsely populated area two hours west of Managua. When it goes online in December 2011, the plant will be the second power project to exploit Nicaragua's abundant geothermal resources. As such, it will be a major step toward achieving the country's goal of having geothermal power provide 15 percent of total installed power capacity. And it will help the country achieve clean energy development, which is also the aim of another IDB financed operation: the National Sustainable Electrification and Renewable Energy Program. In addition, by confirming the viability of geothermal power, the new project is expected to stimulate further private sector investment in the sector.

Opportunities in the carbon market. Among energy sources, geothermal is generally considered to have a lower environmental impact and high reliability. In relation to the amount of power it produces, the San Jacinto plant emits only very small amounts of

greenhouse gases while reducing the carbon footprint of energy generation in Nicaragua. For this reason, in 2004 PENSA registered for certificates of emission reduction under the Clean Development Mechanism, and in 2006 it became the first Nicaraguan company registered to sell certified emission reduction credits. The average price per ton since PENSA began selling carbon credits has been US\$14.57, which has generated US\$2.1 million in revenues for the company so far. When expansion to 72 megawatt capacity is completed, the project is expected to displace approximately 58,036 megawatts per annum of thermal power generation, which will displace approximately 394,801 tons of CO₂ annually and generate higher levels of revenues for the company.

Minimal environmental impacts. San Jacinto's generating facilities and waste disposal area will occupy only 4 square kilometers, and they are located in an area already greatly altered by cattle grazing; thus, land conversion was not an issue. Environmental impacts from geothermal generation—aside from minimal gas emissions—are mainly limited to cuttings generated by drilling wells. Tests at San Jacinto have shown these materials to be benign and suitable for reuse or disposal. In addition to meeting IDB's environmental and social safeguards and IFC standards, PENSA adheres to many industry standards developed by the State of California.

Public participation and capacity building. The geothermal plant and most well sites are not close to any large communities or settlements, and there is no evidence that the project will alter the quality of water. The production zones and the aquifers used for drinking water by local communities are

separated by thousands of meters of impermeable layers of rock and soil. Multiple strings of leak-proof casings prevent seepage of drilling fluid into the groundwater.

Public consultations held by PENSA gave local people the opportunity to express concerns about the potential contamination of groundwater supplies. In response, PENSA has implemented a community water monitoring plan to establish a baseline water quality prior to completion of the project, to identify community water sources, and to map these water sources in relation to well sites.

Regular contact between company and government energy officials is helping to strengthen the capacity of agencies charged with setting standards and establishing regulations for geothermal power, according to Geovanni Carranza of the Ministry of Energy and Mines (MEM). Monthly meetings of MEM officials and PENSA technical staff constitute a "learning tool" that is particularly valuable due to the project's broad scope.

"Most energy companies in the country confine themselves to exploration or operation," says Carranza. "PENSA does everything, from exploration and construction of production facilities to operations, including ensuring that environmental risks are minimized and opportunities maximized during the entire process."

Project Snapshot:

Country-wide Tourism Program Protects the Environment as It Boosts the Economy

National Tourism Development Program (Prodetur), Brazil

Tourism development has fueled economic growth for many countries in Latin America and the Caribbean—but frequently at considerable cost to the environment and to communities. When properly planned, however, tourism can provide both economic opportunities for local people and critical leverage for protecting vulnerable ecosystems. This is the objective of a new tourism development program in Brazil carried out with the help of IDB financing.

In Brazil's National Tourism Development Program (Prodetur), states carry out projects according to strict strategic and technical guidelines designed to ensure their environmental sustainability as well as economic viability. The IDB approved three loans in 2010 to the states of Rio de Janeiro (US\$112 million), Pernambuco (US\$75 million), and Ceará (US\$150 million). In the planning stage are programs for Rio Grande do Norte, Pará, and Goiás. Eventually 12 Brazilian states will be participating in Prodetur, with approximately US\$874 million in IDB financing.

Critical support for launching the state-level program was provided to Brazil's Ministry of Tourism in a 2009 IDB loan for US\$15 million that included preparation of a comprehensive manual of requirements for ensuring the program's environmental and social viability. The financing also helped create a decentralized, cooperative public management system that improved market information and statistics, including training for ministry staff in designing investment projects.

Dialogue with the states. Prodetur's framework provides the IDB with opportunities to work directly with the states in formulating state tourism plans that include a strategic environmental analysis that provides the basis for making decisions on specific project proposals. The SEAs recommend implementation and mitigation measures and point out the need to build environmental management capacity at the local level. They also identify additional ways to support environmental protection measures that provide indirect benefits for achieving far-reaching conservation goals.

In Rio de Janeiro state, for example, Prodetur is also helping to strengthen the capacity of municipal tourism councils in an area with fragments of the Atlantic Forest that are the last refuge of the Golden Lion Tamarin. This small monkey was brought back from the brink of extinction by the Golden Lion Tamarin Association (AMD L, after its Portuguese initials), a past recipient of IDB financial support. Key habitat essential to the monkey's survival is located on private environmental reserves, many of which are endangered by a lack of visitors. With Prodetur support, the municipal tourism councils are working with reserve owners to establish eco-tourism routes that offer different attractions at each site.

The Prodetur tourism routes will help local communities as well as endangered species, said Denise Marçal Rambaldi, long-time AMD L general secretary and presently vice president of the Rio de Janeiro State Environment Institute.

“Helping private landowners and communities to earn income from bed and breakfasts, organic food production, guiding, handicrafts, and so on can be one of the most important ways to ensure the long-term integrity of remaining habitat and the sustainability of our local people,” she said.

In another example, the government proposed paving a road that runs through Rio de Janeiro's Mantiqueira Environmental Protection Area. One of the largest conservation units in southeastern Brazil, Mantiqueira contains remnants of the highly endangered Atlantic Forest ecosystem and is a major source of water for the region's cities. Based on the Prodetur guidelines, a minimal-impact project was designed in which the road would remain at its existing width and include animal crossings, complete with vegetation both below and above the road.

In an upcoming project in Rio Grande do Norte, the SEA of a road improvement project created an opportunity to protect a cliff and dunes habitat on the coast. The road will serve a largely undeveloped beach with just one small hotel; it would have limited economic value at present and would encourage long-term development, including more use of beach buggies, which would increase erosion of the fragile dunes. In response, the state agreed to create a preserve that would be open only to buggy drivers who have completed a 500-hour training course that includes environmental education.

Partnering with Haiti for Reconstruction

The January 2010 Haiti earthquake caused massive social and economic dislocation, with 230,000 people killed and 1 million made homeless. Since then the country has coped with its first cholera outbreak in over 50 years and hurricane threats. Haiti's gross domestic product fell 8.5 percent between October 2009 and September 2010. The earthquake damage and losses generated an unparalleled response by the international community, which has committed to providing nearly US\$10 billion in recovery and development assistance. The IDB has played a leading role in mobilizing this response and providing leadership during reconstruction.

By canceling Haiti's remaining IDB debt of US\$484 million, converting loan balances of US\$144 million into grants, and creating a Haiti Grant Facility to be financed by an annual transfer from ordinary capital of up to US\$200 million through 2020, the Bank's Governors identified a one-time opportunity to introduce a different strategic approach to tackle Haiti's economic, social, and environmental challenges. The Bank's strategy, based on the government's action plan for national recovery and development, has a 10-year vision, a spatial dimension, and a defined sector focus. In addition to investing in Port-au-Prince, the Bank will invest in a northern growth pole in line with the government's objective to reduce the concentration of economic activity in the capital. The Bank's vision for Haiti 2020 is of a country able to create jobs, raise incomes, and improve the quality of life through better and expanded education, energy, water, and sanitation services—in short, a country where educated Haitians have the opportunities to work toward sustainable national development.

Following discussions with government and an assessment of sector preferences of other members of the international community, six priority sectors were identified for the next five years.

The Bank's investment in **agriculture** will be concentrated in the northern and Artibonite regions and aligned with the Ministry of Agriculture's investment program. The aim is enhanced food security and reduced poverty through improvements in agricultural services, rural infrastructure rehabilitation (particularly irrigation systems), and "smart" transfers conditioned on the adoption of environmentally sustainable agricultural practices. A key element here is strengthening property ownership by farmers, and a program scheduled for approval in 2011 will finance the regularization of land tenure.

The strategy places **private sector development** at the core of jobs creation and increased incomes. Complementing innovative private sector mechanisms to finance productive enterprises, some too small to have access to formal credit services, the IDB is financing training and capacity building that introduces environmental protection and mitigation into the credit appraisal procedures of national financial institutions. Integrated investment to establish a center of growth in the north includes the financing of an industrial park to attract foreign manufacturing and the promotion of tourism and agri-business value chains. Importantly, US-based buyers expect that goods from Haiti will be produced in factories with the highest standards in workplace conditions, particularly since most employment opportunities are for women. The success of a

tourism value chain, anchored on the Citadel and Sans Souci and surrounding natural beauty, demands improved environmental management through investments that encourage sustainable and repeat tourism by an increasing number of visitors.

Investments in the **road network** will continue the Bank's support, but at an increased pace, for the implementation of Haiti's transport plan. Repairing, reconstructing, and maintaining the existing road network as well as the country's port and airport infrastructure will allow goods and people to move around the country more easily. An improved road network facilitates access to markets and social and other services but also speeds up vehicular traffic, necessitating remedial road safety measures and improved signage. Protecting road infrastructure investments from environmental damage inflicted by tropical storms and hurricanes involves mobilizing community-based initiatives. Equally, the Bank's 10-year commitment permits the type of discussion on institutional arrangements and investments needed to create a National Roads Agency responsible for road operations and maintenance.

With a commitment to spend US\$250 million and raise a matching amount in co-financing over the next five years, the Bank is fully invested in the unprecedented reforms aimed to create a universally accessible, tuition-free, publicly financed **education system**. Improved school infrastructure and enhanced education quality through curriculum reform and teacher training are expected to improve literacy rates significantly. Just as better primary education is critical to reducing illiteracy, reforms in technical

Partnering with Haiti for Reconstruction *continued*

and vocational training are the bedrock for educating the technicians required to maintain the infrastructure that will be built over the next decade.

The cholera outbreak in late 2010 highlighted the hazardous state of **drinking water and sanitation** services, not only in rural areas but also secondary cities and Port-au-Prince. In partnership with Spanish Cooperation and the financial resources of the Spanish Water Fund, the Bank aims to invest more than US\$200 million over five years in the rehabilitation and expansion of water and sanitation infrastructure and the improvement of solid waste management in Port-au-Prince, targeted secondary cities, and rural areas. Similarly, the successful experiment of private sector management of the San Marc water system—which has improved water service and quality and introduced a culture of payment for services received—will be replicated in other secondary urban centers. In Port-au-Prince, the company managing Barcelona's water supply has been awarded a management contract to provide operational and technical services to support the strengthening of the capital's water authority.

In the **energy** sector the Bank has partnered with the World Bank and USAID to develop a strategy to address overdue electricity sector institutional reforms. Such reforms aim to introduce efficiencies into electricity generation, transmission, and distribution; create a culture of payment for services received, as in the water sector; and tackle the solvency of the national electricity company. Institutional reforms will help facilitate private investment in electricity generation, promote the introduction

of green energy technologies, and contribute significantly to the government's fiscal health by stemming a gaping hole in public finances. In addition, the reforms would provide an impetus to replace firewood and charcoal for cooking with modern energy sources such as liquid gas. Simpler regulations for the development of decentralized, small-scale operations would help extend rural electrification to small and isolated populations. The near-term electricity sector program addresses the problems of generation decline, system losses, and restoration of electricity distribution networks in the main areas affected by the earthquake through repair of the Port-au-Prince distribution system and the rehabilitation of renewable hydroelectric plants.

IDB has learned that building sustainability depends on well-designed projects that also create national and local capacities in operations and maintenance.

The Bank's planned long-term engagement with Haiti's key sectors provides additional opportunities for consolidating local ownership of the investments that will be financed. Moreover, the decision to create the Haiti Response Group as a dedicated country department as well as an increase in the technical and professional staff in the representation constitutes an additional institutional momentum behind the effort to rebuild Haiti sustainably.

As the Bank supports Haiti in "building back better," there are opportunities to integrate environmental and social safeguards on key earthquake-related risks and impacts, particularly in using international seismic codes and natural disaster codes applicable to the infrastructure that will be built with Bank finance.

Investing in Sustainability

The Bank invests in sustainability in a variety of ways. It provides loans and grant funding that target environmental sustainability, climate change mitigation and adaptation, and sustainable energy. The Bank's social sustainability projects target improvements for women, indigenous people, and Afro-descendant communities.

Environmental Sustainability, Climate Change Mitigation and Adaptation, and Sustainable Energy

In 2010, the IDB approved 42 loans targeting these sectors, totaling US\$3.6 billion, representing 27.6 percent of the Bank's lending activity in 2010.

This included operations across more than 10 categories including:

- **Climate change mitigation:** four projects for US\$675 million, including climate change policy-based loans (PBLs) in Peru, Guatemala, and Mexico, to bolster the institutional capacity of national institutions and help integrate climate change policies into national planning processes. *See page 61.*
- **Energy infrastructure rehabilitation:** two projects for US\$880 million, including US\$700 million for the modernization and rehabilitation of the Simon Bolivar hydroelectric plant in Venezuela.
- **Sustainable tourism:** seven projects for US\$409 million, including three loans (US\$337 million) as part of Brazil's National Tourism Development Program. *See page 49.*

- **Sustainable transport:** four projects for US\$534 million, including the expansion of the São Paulo mass transit program.
- **Biodiversity and protected area conservation:** one project for US\$162 million to restore the Serra do Mar State Park in the State of São Paulo, the largest contiguous area of Atlantic Forest left in Brazil.

In 2010 the Bank also contributed to environmental improvements through the approval of more than 50 grants (US\$73 million) for projects focused on environmental sustainability, climate change, and sustainable energy.

Social Sustainability Projects on Gender, Indigenous Peoples, and Afro-descendants

In 2010 the IDB and the Multilateral Investment Fund (MIF) approved 10 grants targeting gender-specific issues (for a value of US\$6 million), 15 grants on indigenous peoples issues (US\$52.7 million), and 5 grants for Afro-descendant issues (US\$2.9 million), in each case leveraging important counterpart funding at the local level. The projects included:

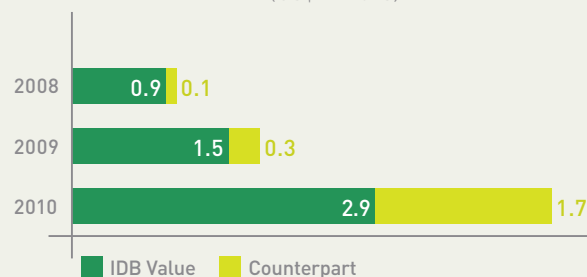
- **Women's parliament:** a US\$300,000 grant to strengthen the leadership capacity of women political leaders in the Women's Parliament in Paraguay.
- **Responding to violence against women:** a grant for US\$1.47 million to document what works to prevent violence against women in the region, with the results shared with civil society and governments.

- **Race and ethnicity data instruments:** a US\$740,000 grant to improve living standards surveys and censuses and to strengthen national statistics institutes.
- **Conditional cash transfer programs:** a grant of US\$699,843 to evaluate conditional cash transfer programs in diverse indigenous communities, seeking to identify common impacts or exclusionary factors that limit effectiveness as well as potential mitigation measures and alternative program designs.
- **Music schools for at-risk youth:** a grant of US\$470,000 to help establish band-based music schools for at-risk African-descendant children and adolescents in the southern Pacific Region of Colombia.

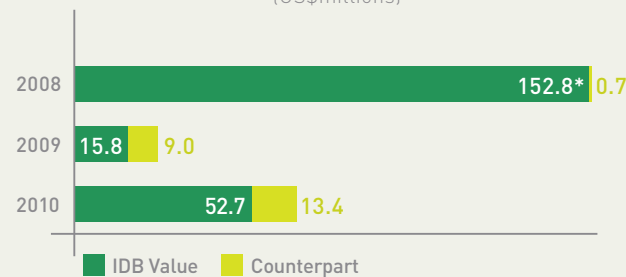
The Bank also makes investments that benefit gender equality, indigenous peoples, and Afro-descendants in a wide range of broader social, infrastructure, integration and trade, or environmental protection lending operations that address the specific needs of women and men, as well as indigenous and Afro-descendant populations, in their design, implementation, monitoring, and evaluation.

Investing in Sustainability

IDB technical cooperation grants focused on Afro-descendant issues, approved 2008–2010
(US\$millions)

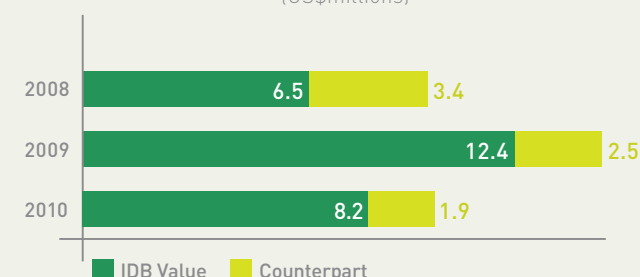


IDB technical cooperation grants focused on indigenous peoples, approved 2008–2010
(US\$millions)

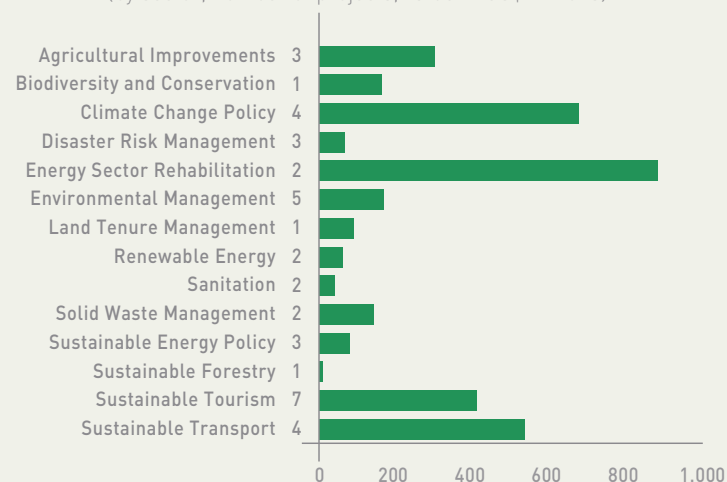


*Includes one loan.

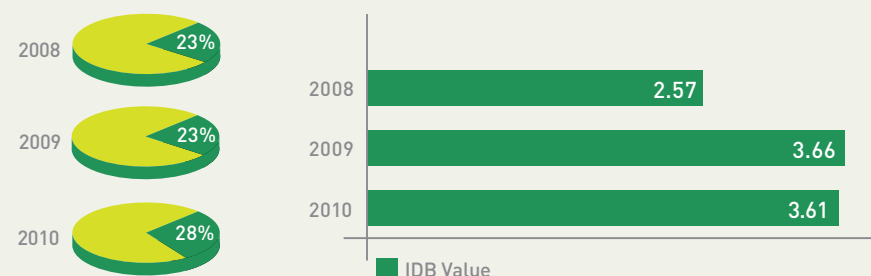
IDB technical cooperation grants focused on gender issues, approved 2008–2010
(US\$millions)



IDB loans targeting environmental sustainability, climate change mitigation and adaptation, and sustainable energy 2010*
(by sector, number of projects, value in US\$millions)



IDB loans targeting environmental sustainability, climate change mitigation and adaptation, and sustainable energy 2008–2010*
(percent of total lending, and value in US\$billions)



*Data amendments were made to 2008 and 2009 data during 2010. These calculations include projects whose main objective is environmental sustainability, climate change mitigation and adaptation, and/or sustainable energy. It does not include sub-components of other sectoral operations. Methodologies to account for these components will be developed during the course of 2011.

Sustainability Investment Highlights, 2010

During 2010 the Bank continued to approve new and innovative loan investments and provide grant funding for projects with long-term environmental and social sustainability objectives.

- **LEED financing facility for green hotels in Central America, Mexico, and the Caribbean.** A master financing facility received up to US\$42 million in long-term IDB loans for up to eight Marriott hotels to be developed by Caribe Hospitality S.A. in Costa Rica, Nicaragua, Guatemala, Panama, Jamaica, Trinidad and Tobago, and Mexico that will meet world-class environmental and sustainability standards. @

- **Green facility in Argentina.** Banco de Galicia y Buenos Aires received a US\$30 million loan to create a green facility to scale up private sector financing for projects with strong environmental benefits. The loan will support the development of projects on renewable energy, energy efficiency, and agriculture, among others. The operation reflects a key priority area of *beyondBanking*, an IDB program that promotes sustainable banking principles in the region. @

- **Petroecuador to modernize pumping stations and improve efficiency.** A US\$58 million loan to Petroecuador will improve the fuel supply to Ecuador's domestic market and increase energy efficiency at pumping stations through investments to replace existing pumps with the latest equipment and upgrade electrical and mechanical systems. The IDB will also support investments to improve environmental management at the pumping stations. @

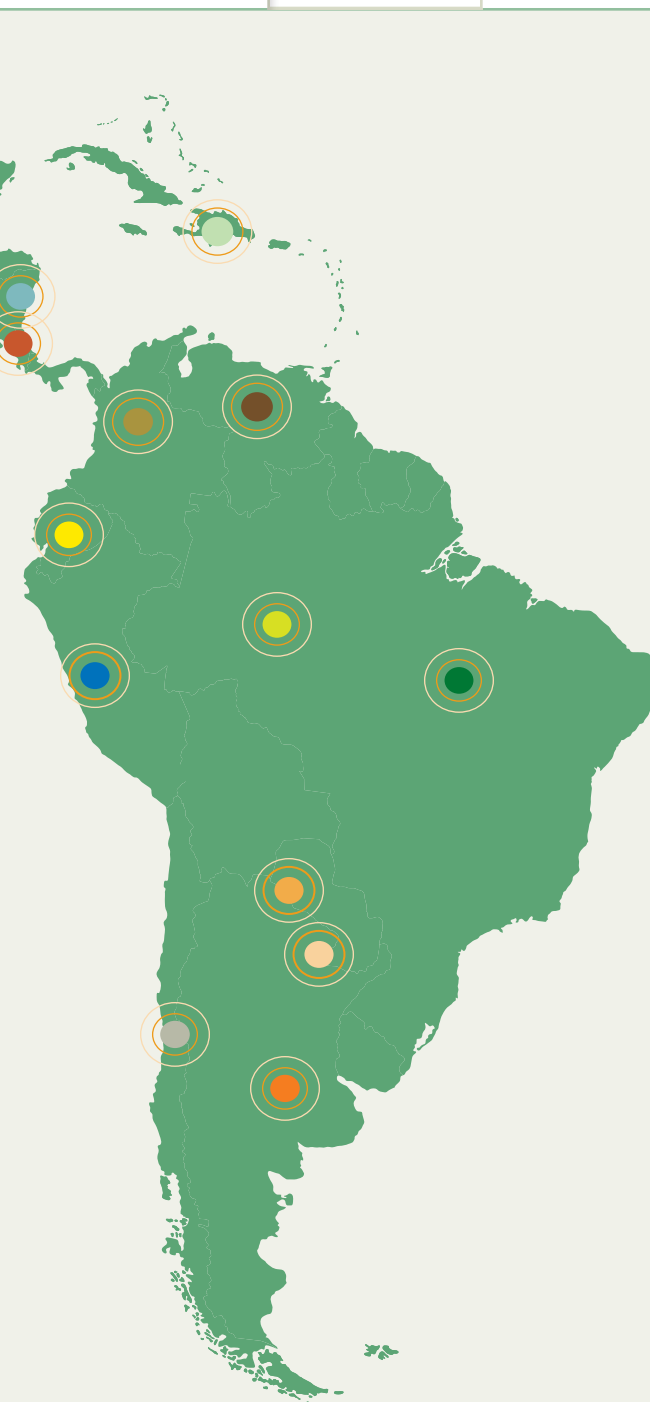
- **Jump-starting energy efficiency market in Chile.** Small and medium-size enterprises and energy efficiency service firms in Chile could see up to US\$92 million in energy savings and related revenues over the coming decade thanks to a government program that will be supported by the IDB and the Global Environmental Facility. @

- **Biodiversity conservation program for Bolivia.** A US\$20 million program for the conservation of the Andean ecosystems will revive traditional sustainable agricultural methods to promote biodiversity, protect the environment, and benefit local communities. @

- **Nicaragua to transform its energy matrix and expand access to electricity.** A US\$30.5 million IDB concessional loan approved in 2010 will benefit 1.7 million people and develop new sources of renewable energy, contributing to a US\$381 million multi-donor program. @

- **Venezuelan improvement of solid waste management.** Venezuela will improve its management of municipal solid waste at the national level with a program partially funded with a US\$140 million loan. The project will seek to reduce or prevent the environmental and health impacts of the improper management of waste by strengthening institutions involved in providing these services. @

- **Preservation of marine and coastal ecosystems in Costa Rica.** A US\$3 million grant from the IDB-Global Environment Facility will help preserve marine and coastal ecosystems in the Golfo de Nicoya and Pacífico Sur areas. The grant will help conserve important biodiversity, maintain the provision of crucial ecosystem services, and provide a basis for sustainable socioeconomic development through



Sustainability Investment Highlights, 2010 *continued*

tourism, artisanal fishing, and other activities in nearly 800,000 hectares of multiple-use marine areas on Costa Rica's Pacific coast. @

- **Water and sanitation program for rural and indigenous communities in Paraguay.** This US\$3 million program will contribute to increasing access to water and sewerage services in rural and indigenous communities across the country. @

- **Climate change and indigenous peoples of the Amazon.** Five countries in the region will benefit from this knowledge-based grant program, which aims to build the capacity of indigenous leaders and communities to represent themselves at international and national climate change discussions. The project will also provide technical assistance to these leaders and communities to help them manage the short- and long-term impacts and potential opportunities of mechanisms being developed under the U.N. climate change convention and existing and emerging voluntary carbon market mechanisms that support climate change mitigation for land use change and forestry in general.

- **Improvements to disaster risk management and climate change adaptation in Nicaragua.** Two loans totaling US\$10 million will reduce the vulnerability of rural communities in Nicaragua affected by climate change through a program to manage and conserve natural resources and protect watersheds. The program will improve risk management, primarily at the municipal level, in the areas of risk identification and reduction and the strengthening of governance. As part of this program, both women and men will be trained in risk management and climate change. It will also help agricultural producers adapt to climate change. @

- **Emergency program for solar generation in Haiti.** This US\$1 million investment grant will ensure the provision of solar power generators and solar-powered refrigerators to provide electricity and appropriate conditions for vaccine conservation for emergency centers and key establishments during disaster management and reconstruction. @

- **MicroCarbon Development Fund.** In 2010 the Multilateral Investment Fund (MIF) launched the MicroCarbon Development Fund, a carbon-based investment vehicle that will structure investments in at least 7–10 Clean Development Mechanism (CDM) Programmes of Activities. The Fund will invest in demand-side energy efficiency programs that deliver verifiable benefits to smaller firms and low-income communities and that administer technical assistance grants to support training for local firms. The Fund is expected to have a total capitalization of US\$50 million; the MIF will commit up to US\$5 million in capital and US\$540 thousand in non-reimbursable grants. @

- **Adaptation measures in four watersheds in Peru.** This technical cooperation grant, which supports the Peruvian policy-based loan also approved in 2010, will help the environment ministry develop instruments for evaluation and reduction of vulnerability and risks associated with climatic change in high-priority areas and will strengthen the regional and municipal sustainable development processes to incorporate adaptation approaches.

- **Exploring geothermal potential in Colombia.** A US\$900,000 technical cooperation grant will finance prefeasibility studies for two selected geothermal sites in Colombia. The grant will provide a model of the geothermal resource and its temperature in the two selected sites, identify the type of geothermal resource concerned and its potential capacity, make recommendations on geothermal resource exploration and development, and undertake environmental and sociological studies according to the scope of these activities.

- **Promoting forest conservation through commercialization and certification.** A US\$4.5 million MIF grant will spur small and medium-size forest enterprises managed by community-based associations, cooperatives, indigenous groups, or other local organizations or as communally held land—collectively representing 5,000 families and 750,000 hectares of forestland in Guatemala, Honduras, Mexico, Nicaragua, and Peru—to adopt sustainable forestry practices, develop business skills, and gain wider access to the market and financing tools in a context of more-favorable sector policies.

- **Piloting solar power in Brazil.** Two grants totaling US\$700,000 will help develop the Taua solar pilot project in Brazil, as the first utility-scale power generation project to connect a photovoltaic system into the country's National Interconnected System. In its pilot stage of 1 megawatt of direct current, it will already represent the largest project implemented in South America with its energy incorporated into the electrical grid.

Managing Sustainability in Complex Projects Approved in 2010

The IDB has a mandate to foster economic and social development through investments in projects that promote economic growth and meet the needs of people, particularly groups on the margins of the economic and social mainstream. In 2010 these projects, financed with loans totaling US\$12.7 billion, ranged from those with relatively low environmental and social impacts to potentially more complex projects. Principal among the latter are projects that build the infrastructure the region needs to grow and compete in a demanding global environment. By their sheer size and nature, such projects have the potential to produce environmental and social risks and negative impacts, sometimes on a large scale.

The Bank is committed to financing complex infrastructure, recognizing it is essential for the region's future. It also has confidence that it can do this in a sustainable way without causing irreversible harm. It does this by mainstreaming sustainability into its projects through a series of safeguards and mechanisms to ensure that they cause minimum harm. This often results in the inclusion of environmental and social components that create additional sustainability.

In 2010, six approved projects were assigned to Category A, meaning that they were likely to have significant negative environmental and/or social impacts. These projects accounted for 4 percent of the year's total lending. These operations are closely monitored and supervised by IDB staff—from initial preparation through implementation to completion—to ensure compliance with Bank policies and guidelines.

● South West Tocantins Region Development Program

IDB Investment: US\$99 million

A project to increase agricultural activities in a region of Brazil with innovative irrigation techniques in the Pium and Riozinho watersheds, contributing to sustainable development and a better quality of life. Category A due to potential permanent impacts on habitats in the Cerrado biome, where natural forest fragments are protected areas. An Integrated Environmental and Social Management System ensures consistent, timely, and adequate implementation of the Environmental Basic Plan developed for the operation; it has 17 subprojects designed to control, prevent, mitigate, and monitor potential impacts and risks.



Managing Sustainability in Complex Projects Approved in 2010 *continued*

● Embraport Port Project

IDB Investment: US\$100 million

The design, financing, construction, operation, and maintenance of a private port terminal in Brazil capable of handling both containers and liquid bulk (primarily ethanol). Category A due to potential impacts on a subsistence fishing community and on natural habitats such as mangroves and aquatic systems (which may affect terrestrial and aquatic species). Significant quantities of ethanol in the facilities present explosion risks if improperly handled. Project includes an environmental and social management system, ongoing social programs for the local fishing community, water quality and species monitoring, and an emergency management plan for explosion risks and other emergencies.

● Serra do Mar Project

IDB Investment: US\$162.5 million

A project to restore the Serra do Mar State Park in the State of São Paulo, the largest contiguous area of Atlantic Forest left in Brazil. Category A due to resettlement of large number of vulnerable families, redesignation of areas within the State Park, and relocation of non-traditional residents. Mitigation measures focused on a comprehensive resettlement plan for people in high-risk areas and a resettlement framework for non-traditional populations in protected areas. In addition, the Bank included guidelines for the removal of demolition debris and soil in environmentally sensitive areas and of sources of environmental contamination, and it required the provision of adequate sanitation. Project includes reforestation with native species of some 80 hectares of degraded rainforest that has been illegally occupied.

● Várzeas do Tiête Project

IDB Investment: US\$115 million

A project to reduce the risk of flooding in the upper Tiête River in Brazil. Category A due to the involuntary resettlement of some 8,000 vulnerable families from *favelas* along the river's banks. Mitigation and compensation measures involve environmental management of infrastructure, elaboration of separate resettlement plans for each area affected, and a natural habitat restoration and revegetation plan to recoup some 125 hectares of river banks and flood-plain areas.

● SIEPAC

IDB Investment: US\$4.5 million (additional financing)

Additional financing to facilitate the exchange of energy in the Regional Electric System in six Central American countries, avoid disruption of service, and help move toward an energy matrix that mitigates climate change. Category A due to possible impacts of energy projects on critical natural areas, archeological sites, and local communities. New project will conduct a one-year strategic environmental assessment to identify gaps in regulations in the six countries and suggest how governments and utility companies can increase capacity to meet common environmental standards.

● Eurus Wind Project

IDB Investment: US\$30 million
(complementary Clean Technology Fund loan)

A wind farm project with 250.5 megawatts of total installed capacity—so far the largest wind farm in the region—on the Isthmus of Tehuantepec in south-east Oaxaca, Mexico. Category A due to the scale of the project and potential impacts on migratory birds. Following initial loan in 2009, additional funding being provided through the Clean Technology Fund for, among other mitigation measures, radar and visual monitoring of migrating birds.

Making Action on Climate Change a Priority

Climate change threatens both to undermine the long-term efforts of the region to achieve sustainable development and to affect the most vulnerable members of society disproportionately.

To respond to increasing demand from clients for assistance in addressing climate change, the General Capital Increase (GCI-9) of 2010 commits the Bank to support the mitigation and adaptation efforts of borrowing members while meeting their developmental and energy requirements. GCI-9 sets a target of 25 percent of total lending going to a growing portfolio on climate change, environmental sustainability, and renewable energy.

In order to address risks, mainstream climate change in its operations, and further integrate both public and private sector actors, during 2010 the Bank worked on strategic and operational development, adaptation and mitigation efforts, knowledge generation and dissemination, the establishment of partnerships, and the mobilization of climate finance from external sources. A dedicated team works across all Bank sectors on these issues.

Mainstreaming Climate Change in Strategy and Operations

During 2010 the Bank advanced significantly on drafting and consulting about an *Integrated Strategy for Climate Change Adaptation and Mitigation and for Sustainable and Renewable Energy*, known as the Bank's Climate Change Strategy (CCS), which will serve as a guiding instrument to scale up the Bank's support for climate change action in the region.

Leveraging the IDB's institutional strengths and its competitive advantages, the CCS will promote the development and use of public and private sector financial and nonfinancial instruments for strengthening national capabilities and the Bank's institutional, technical, and financial capacity to address climate change. Public consultation on the strategy involved a 30-day comment period in May 2010, followed by a wider distribution of the draft over 90 days through the end of January 2011. The strategy is slated for consideration by the IDB Board of Executive Directors in early 2011.

Policy-based Lending

In 2010, the Bank approved three major climate change policy-based loans—for Guatemala, Mexico, and Peru—for a total of US\$675 million. These operations bolster the institutional capacity of national institutions and help integrate climate change policies into national planning processes. These multiyear commitments to policy reform and innovation require strong leadership from the Ministries of Economy and Finance to ensure effective policy making, implementation, and adequate financing, as well as effective coordination across sectors. *See page 61.*

Adaptation

The Bank's adaptation agenda was advanced through capacity-building workshops and a significant increase in the number of projects aimed at reducing vulnerability to climate change as well as efforts to address potential risks in Bank operations in diverse sectors.

More than 20 technical cooperation operations support regional efforts to address climate change adaptation. These operations include mainstreaming through capacity building as well as impact and vulnerability assessments. In support of Proyecto Mesoamérica, the Bank completed climate change diagnostic and training materials for decision makers on adaptation fundamentals.

Mitigation of Climate Change and Access to Carbon Markets

Given the wide gap between Latin America's potential and current presence in carbon markets, the IDB supports public and private actors in their access to carbon finance (CF) with the goal of strengthening capacity to develop a strategic, long-term approach to mitigation. To date, IDB has provided technical assistance to more than 40 public and private clients in the region, including tailored training on carbon finance opportunities for energy authorities in Mexico, Chile, and Colombia.

The Bank also promoted policy dialogue among local financial institutions, corporations, local governments, national Clean Development Mechanism authorities, and project developers to discuss incentives and promotion of CF as well as the links to environmental sustainability. The Bank cosponsored the Fifth Carbon Forum in Latin America and, in collaboration with the World Bank Institute and the United Nations Environment Programme (UNEP), is developing the Carbon Finance Knowledge Network—an initiative that combines development of a web-based platform with a series of complementary events.

Making Action on Climate Change a Priority *continued*

Renewable Energy and Energy Efficiency

In addition, the Bank is undertaking a series of climate change activities in the agri-business and infrastructure sectors to promote renewable energy, applying a preliminary framework for the promotion of biogas in electricity generation and domestic use. Support to assess the technical and economic potential for biogas was also given to the private sector in Paraguay, the Dominican Republic, and Uruguay. In Honduras and Nicaragua, the Bank has assessed the domestic biogas potential of rural households and seeks to channel that potential through the design of a national biogas pilot program. Energy efficiency practices and methodology were particularly successful in 2010 in water and sanitation infrastructure loans. Private sector technical assistance in efficiency was provided through retainers for a green building financing facility (LEED) as well as for a textile company and a private small hydro project.

Biofuel Sustainability

IDB partnered with the International Food Policy Research Institute to investigate the potential impacts of European Union (EU) and U.S. biofuels mandates on world markets. The study analyzed the impacts on the U.S. and EU markets of limited consumption of Brazilian ethanol, including GHG emission reduction commitments and biofuels consumption targets, and estimated the economic and environmental impacts of the mandates on the United States, Europe, and Brazil. In partnership with the Roundtable on Sustainable Biofuels (RSB), the Bank seeks to make

a Biofuels Scorecard available for users to quickly assess project sustainability as a voluntary first step in the RSB certification process. The Bank also made the Methodological Framework for GHG Lifecycle Analysis of Bioenergy available to its clients through its work with the Global Bioenergy Partnership. A January 2010 workshop on biofuels sustainability cohosted with UNEP brought together biofuel producers, sustainability criteria authors, and auditors to identify barriers to implementation, identify pilot-testing scenarios, and develop solutions.

Climate Investment Funds

The IDB is one of six MDB implementing entities of the Climate Investment Funds (CIF): the Clean Technology Fund (CTF) and the Strategic Climate Fund (SCF). Approved in 2010, the first CTF project provided US\$30 million in co-financing for the largest wind power farm in the region. In addition, an IBRD-IFC-IDB partnership supported Mexico and Colombia in mobilizing CTF resources for a total of US\$650 million in concessional co-financing. CTF and Bank resources in Colombia enabled the preparation of new sustainable transport systems in mid-sized cities and a public-private sector energy efficiency program. The latter offers risk-sharing facilities to Colombian commercial banks for energy efficiency lines of credit, direct financing lines for energy efficiency to local financial institutions through the national development bank, and seed capital for setting up a national energy efficiency fund for the residential sector, among other benefits.

The Bank also mobilized the Strategic Climate Fund, which consists of the Pilot Program for Climate Resilience, the Forest Investment Program, and the Scaling-up Renewable Energy in Low-income countries Program. In cooperation with the governments of Peru, Mexico, Brazil, Honduras, Bolivia, and several Caribbean countries, the SCF allocated up to US\$290 million during 2009–2010. In Honduras, the IDB supports the identification of potential renewable energy investments to demonstrate the economic, social, and environmental viability of low-carbon development.

Climate Change Technical Notes

In 2009 the Bank launched an effort to reduce its contribution to climate change in its investments through the development of technical notes for Bank investment sectors and subsectors that are known to contribute significantly to climate change. The first technical note was on coal-fired power plants. The purpose of these technical notes is to set out an approach for the financing of projects in high-emitting sectors in a manner consistent with IDB's commitment to protecting the environment and reducing adverse impacts on the global climate. The notes aim to provide clear and quantitative minimum GHG performance criteria as well as guidance on assessing and managing a given project's potential impacts on climate change. They also aim to encourage a more effective integration of costs savings into the design and operations of projects, in addition to the reduction of the carbon footprint. These will have long-term benefits, as these infrastructure assets normally have a shelf life of 25–30 years.

Making Action on Climate Change a Priority *continued*

New technical notes on cement plants and methane emissions from landfills were developed in 2010 on the basis of a thorough technical review of the best available technologies and practices to reduce greenhouse gas emissions and maximize efficiencies for each respective sector, carried out by external experts. Each draft technical note has also been subject to a comprehensive internal and external consultation process, including by recognized industry specialists, prior to its approval by Management.

The threshold for these criteria in GHG guidelines is based on the best available appropriate technology for energy efficiency or GHG emissions. The standards set for minimum performance become part of the IDB's project review (due diligence). At the eligibility stage, projects will need to either comply with the minimum performance criteria or make a commitment to do so. The guidelines encourage project teams to discuss with country authorities and the private sector the potential for increasing energy efficiency on the supply and demand sides (for example, by retrofitting existing hydroelectric plants).

The Bank also pursued its outreach efforts in providing technical support and guidance to other financial institutions, including commercial banks, interested in adopting good practices in relation to climate change and environmental safeguards. Some of them, including HSBC for example, have now adopted or are in the process of developing policies in a manner consistent with the approach taken by the Bank on greenhouse gas emissions from coal-fired power plants.

Technical Notes for Cement and Landfill Projects

Cement manufacturing is an energy-intensive process, requiring high fuel consumption to operate cement kilns, which in turn generates carbon dioxide (CO₂). In addition, CO₂ is generated during other parts of the process. Recent technological developments have increased the energy efficiency of cement plants and significantly decreased their hazardous air pollutants and therefore the overall environmental impact. Yet all the CO₂ emissions originating from cement plants cannot be abated with existing technologies. These plants still account for some 5 percent of anthropogenic sources of global climate change. Under the new guidelines, IDB will support new plants designed to use the best available technology appropriate to each project. In addition to promoting high efficiency and therefore lower GHG emissions, this is intended to meet internationally recognized and proven best practices and standards.

The guidelines for landfill projects note that about half of landfill gas (LFG) is methane—a GHG 23 times more potent than CO₂. Due to a lack of resources, institutional weakness, inadequate legislation, and other environmental governance issues, most municipal solid waste in Latin America and the Caribbean is disposed of in dumps or controlled landfills that do not meet minimum technical standards. Most controlled landfills do not include an LFG management system. The new guidelines establish innovative rules for funding landfill projects, requiring GHG mitigation by collection and destruction of landfill gas. The Bank will support landfill and LFG projects that ensure appropriate gas collection and destruction. One added incentive for developers is that an LFG plant may qualify as a Clean Development Mechanism project, generating revenue through certified emissions reductions, which has made the construction of flaring LFG plants economically feasible.

Project Snapshot:

IDB Supports National Programs for Climate Change Mitigation and Adaptation

Policy-Based Loans for the Climate Change Agenda in Mexico, Guatemala, and Peru

Climate change is increasingly regarded as a broad threat to economic and social security. In response, countries are seeking to strengthen institutional and technical capacities across sectors of government to address climate change issues. The IDB has taken a leadership role in mainstreaming the region's response to climate change through the use of policy-based loans, in which governments commit to implementing a broad range of initiatives combining policy measures, new institutional frameworks, and training and research. Three new PBLs were approved in 2010.

A national priority in Mexico. Mexico will use its PBL for US\$400 million to help consolidate the considerable progress made as the result of two previous climate change PBLs. A study undertaken as part of the first of these provided compelling evidence that mitigation and adaptation would cost considerably less than doing nothing. The second PBL helped implement the National Climate Change Program, which established mitigation and adaptation goals for priority sectors.

The new initiatives are being carried out by the Ministry of Finance in close collaboration with other government agencies to ensure that climate change is treated as a national priority for planning and public investment. The government will mainstream climate change throughout the public policy arena and continue mitigation and adaptation measures. A new information system will monitor how well federal agencies are meeting program objectives.

Mexico will also evaluate the implementation of climate change action plans already carried out in 10 states and being implemented in 5 others. Plans have been completed for the Federal District, Veracruz, Nuevo León, and Puebla. States currently formulating plans include Yucatán and Tabasco, using IDB technical cooperation grants. Guides for applying mitigation and adaptation policies are being used at the state level to develop greenhouse gas inventories and vulnerability evaluations.

Risk management in Guatemala. The IDB approved a US\$250 million PBL for Guatemala to develop a national climate change strategy and an institutional framework to carry it out. The project will help establish an Interagency Commission on Climate Change, a national climate change policy, a climate change unit in the Ministry of Finance of the Planning Secretary, and a division at the Ministry of Environment and Natural Resources. It will also help create a National Policy for Disaster Risk Reduction that includes climate change impacts that will be used for planning by government ministries.

The Guatemalan government will promote greater energy efficiency, including a project to offset greenhouse gas emissions. Better land management, crop diversification, and the development of new water management systems will improve adaptation to future droughts. The program will also address issues arising from the migration of large numbers of men to the United States, leaving women on the farm to confront climate change-induced reductions in small farm productivity that affect family food supply and nutrition.

New tools for Peru. In Peru, an IDB policy-based loan for US\$25 million will help the government create legal, institutional, and technical responses to climate change. Included will be an Action Plan for Climate Change Mitigation and Adaptation, establishment of a Climate Change Office in the Ministry of Environment, creation of a National Forest Conservation Program for Climate Change Mitigation, preparation of climate change vulnerability maps, and identification and prioritization of fragile ecosystems.

An estimated 70 percent of Peru's population lives in areas sensitive to climate change, such as the coastal desert and the Andean mountain region. Water supplies for these areas will be affected by declining seasonal runoff from Andean glaciers, which have lost around 22 percent of their mass over the past 25 years. In addition, a significant percentage of the country's energy is produced by hydroelectric plants.

"Addressing the challenges of climate change requires joint action by government and civil society and the strong collaboration of the productive sectors," said Juan Mata Sandoval, Director General for Climate Policies in the Ministry of Environment and Natural Resources. "Many climate change initiatives, such as land use and urban planning and waste management, are responsibilities of state and municipal governments; they must be coordinated among the federal, state, and municipal levels. Similarly, the executive and legislative branches must cooperate in creating legal and regulatory frameworks that ensure that mitigation and adaptation measures remain in place."

Bolstering Investments Through the GEF

As an agency of the Global Environment Facility, the Bank is working toward increasing the value of its lending and technical assistance by mainstreaming important environmental components into development projects across various sectors while leveraging additional resources from governments, local and international organizations, and the private sector.

Over the past six years, GEF financing has allowed the Bank to support more than 16 countries in conserving and generating global environmental benefits, and its impact in the lending portfolio is increasing as it becomes mainstreamed into the major areas of Bank lending.

- Climate change is a priority for both the GEF and the IDB, so projects focusing on energy efficiency and renewable energy are nearly 32 percent of the portfolio under execution, including six projects currently under preparation.
- Carbon financing is one of the most innovative areas where the Bank is partnering with the GEF. For example, the IDB is preparing a US\$2.7 million GEF project in Colombia to help create a voluntary market mechanism for verified emission reductions and promote voluntary mitigation efforts.
- The Bank approved two regional GEF projects that focus on testing different funding mechanisms to create sustainable long-term financing for environmentally sound and cost-effective wastewater management measures and to promote private sector participation in the conservation of freshwater ecosystems and biodiversity of global importance.

- IDB-GEF projects related to agriculture support planning and promotion of the rational use of land and water, encourage conservation practices that will protect natural resources, increase the capacity to adapt to climate change, and encourage appropriate protection of ecological systems.
- The IDB is using GEF funds to promote development of a model of low environmental impact ecotourism that contributes to biodiversity conservation and sustainability of protected areas within a framework of innovation, entrepreneurial integration, and sustainable social development.

During 2010, the Bank increased the value of its GEF-funded portfolio by 1.7 times, including six projects approved by the Board in areas of energy efficiency, renewable energy, marine and coastal biodiversity, watershed management, and land degradation. These approvals represent a total investment of US\$17.1 million in GEF funds, with counterpart funding of US\$87.7 million:

- **Barbados:** Support to the Sustainable Energy Framework for Barbados
- **Bolivia:** Sustainable Management in Highland Ecosystems, North Potosi
- **Chile:** Promoting an Energy Efficiency Market
- **Costa Rica:** Marine and Coastal Resources Management in Puntarenas
- **Ecuador:** Marine and Coastal Biodiversity Conservation
- **Haiti:** GEF Emergency Program for Solar Power Generation and Lighting

Moreover, three Project Preparation Grants totaling US\$339,952 were approved to support the preparation of this portfolio:

- **Colombia:** Mainstreaming Biodiversity in Palm Cropping with an Ecosystem Approach
- **Colombia:** Voluntary Market for Certified Emissions Reduction Exchange
- **Nicaragua:** Sustainable Integrated Management of the Apanás-Asturias Watershed

By the end of the year, the IDB's portfolio included 30 operations with a total value of US\$123.4 million, with nearly US\$950 million in co-financing or related financing from the Bank, bilateral aid, local counterpart, and the private sector. Approximately one-fourth of the total co-financing comes from the Bank's lending and non-lending instruments.

The growing portfolio of IDB-GEF projects is helping the Bank enhance its environmental leadership position in Latin America and the Caribbean and strengthen its role as a partner during the GEF's fifth replenishment period (2010–2014). The increase in available funds provides more opportunities for the IDB to help its country members reduce poverty and inequality while promoting sustainable growth by mainstreaming the environment into their development agendas.

GEF financing for projects currently under execution are contributing US\$16.58 million to the climate change targets and US\$51.12 million to the protected areas and biodiversity conservation goals of the Bank's GCI-9.

Project Snapshot:

Indigenous Peoples Strengthen Cultural Traditions and Protect Natural Ecosystems

Integrated Ecosystem Management in Indigenous Communities Regional Project, Central America

The traditional approach to protecting natural areas begins with the premise that people living in them must move. In Central America, however, an IDB-financed project is promoting social sustainability together with biodiversity conservation by helping local people strengthen their cultural traditions for protecting natural areas.

The Integrated Ecosystem Management in Indigenous Communities project was carried out in communities located in the Mesoamerican Biological Corridor patchwork of protected areas and buffer zones. Many areas are suffering from the effects of deforestation at the same time that indigenous peoples are losing their traditional knowledge of sustainable environmental practices.

The project was financed with a US\$9 million grant from [GEF](#). The IDB administered US\$5 million of the grant for activities to foster cultural and institutional strengthening, including traditional approaches for managing ecosystems. The World Bank used the remaining US\$4 million to help communities market products and services supplied through traditional land use practices and to establish the project monitoring system. The project, which began in 2004, was carried out by the Agroforestry Coordinating Association of Indigenous Peoples and Farmers (ACICAFOC), the [Central American Indigenous Council \(CICA\)](#), and the [Central American Commission for Environment](#)

and Development. It included 607 grassroots organizations in 558 communities in Guatemala, Belize, Honduras, El Salvador, Nicaragua, Costa Rica, and Panama. After the GEF project concludes in 2011, activities will be expanded with funding from the German government.

Reaffirm cultural traditions. In the IDB portion of the project, communities organized by CICA reaffirmed cultural land use practices with the help of a cultural land use analysis methodology developed by the IDB and through a highly participatory process based on a concept from Panama's Kuna people founded on equality in political, economic, and social relationships. ACICAFOC used a similar methodology for planning land management in areas populated by indigenous peoples and small farmers.

Examples of cultural activities included protection of sacred areas, observance of lunar cycles for planting traditional crops, and planting trees to celebrate the birth of children. In many activities, elders transmitted traditional knowledge to young people.

“This project has enabled indigenous communities to organize themselves and make their own work proposals based on their own experiences,” said Carlos Batzin of the K'iche peoples in Totonicapán, Guatemala. “The plan brought our community together,” noted Batzin, whose community has organized a reforestation project using native trees.

Boost for conservation. Conservation practices were linked to cultural traditions of “receiving and giving.” For example, families clear no more than two or three hectares of secondary forest for planting; the remainder is protected. Activities administered by the IDB—workshops, forums, training, study tours, and internship exchanges—strengthened cultural and social capital, leadership, and openness to change in indigenous and small farming communities. In particular, these activities helped promote sustainable cultural land use and traditional ecosystem management to create a platform on which local people can build a sustainable future.

Ecotourism projects have included measures to improve water quality near sacred mountain sites and to protect mangroves along the coasts. Handicrafts using natural materials have demonstrated the value of native plants and their sustainable use. In nearly 290 workshops, more than 5,500 persons received training in management, marketing, legislation, and techniques such as cultural land use management and information technology. In 90 field visits, some 375 individuals gained skills in the management of cooperatives. Nearly 1,500 people participated in information exchanges among communities on subjects such as mapping techniques and land use according to indigenous traditions. By 2010, some 370,000 hectares—much more than the original goal—were being managed as areas under community conservation or culturally sustainable use.

Meeting Water and Sanitation Goals

In 2010 the IDB approved US\$1.13 billion for water and sanitation projects, making it once again the largest source of multilateral financing for this sector in Latin America and the Caribbean. Since 2007, through the Water and Sanitation Initiative, the Bank has provided nearly US\$4.9 billion in loans and more than US\$39 million in technical assistance for water and sanitation projects.

The initiative has already met and surpassed some of its goals. In addition, sector plans for water and sanitation have been completed for 26 countries. Loans and technical cooperation have promoted integrated management of water basins, stronger management capacity, greater transparency among operators of water and sanitation services, and better planning, regulation, and monitoring.

Today some 38 million people in the region still do not have a water connection to their homes, and 119 million have no access to proper sanitation. Water and sanitation thus remain a priority for the IDB in line with the sector priorities established in the GCI-9, where investment in basic infrastructure was considered critical to improve basic household welfare. IDB operations in the sector will contribute to increasing the number of households with new or upgraded

water supply and sanitary connections and thus to reducing the incidence of water-borne diseases.

This renewed emphasis on the sector also recognizes the increased demands likely in the coming years due to climate change, particularly in terms of ensuring health, food security, renewable energy sources, and export competitiveness.

Crucial Water Alliances

The **Spanish Cooperation Fund for Water and Sanitation in Latin America and the Caribbean** helped finance nine projects with grants totaling US\$227 million. In the Dominican Republic, for instance, the Fund will contribute US\$35 million in grants and the IDB another US\$35 million to extend water and sanitation services in rural and peri-urban areas. In Ecuador, US\$20 million in grants from Spain and US\$30 million in IDB loans will finance water and sanitation works in 210 rural communities.

The **AquaFund** facilitates investments in water supply and sanitation, water resources management, solid waste management, and wastewater treatment. In 2010 it financed 26 projects totaling US\$13 million;

examples include a grant that provided safe drinking water, restroom facilities, and hygiene education for more than 23,000 students in 150 rural schools in Central America and a grant to support the creation of a public-private water fund that will invest in watershed conservation in Bogotá, Colombia.

The **IDB-Netherlands Water Partnership Program** provided US\$1 million in 2010 for three projects: to support Peru in the development of integrated water resources management plans at the national and watershed levels, to help Paraguay improve the efficiency of the water supply and sanitation service, and to aid water operations throughout the region in developing plans to adapt to climate change.

The **Water Operators Partnerships** works to promote nonprofit partnerships and good practices among water operators and between operators and others. It is led in Latin America and the Caribbean by the IDB and UN-HABITAT. By 2010 there were 16 twinning arrangements among water utilities in the region. Training events included workshops on energy efficiency, non-revenue water, communications in water utilities, commercial management, and expansion of basic water services in marginal areas.

Progress Goals on Water and Sanitation 2010

Goal: 100 Cities

2009 / **112** ✓ 2010 / **146**

Goal: 3,000 Rural Communities

2009 / **1,500** 2010 / **2,600**

Goal: 20 Priority Micro-Watersheds

2009 / **21** ✓ 2010 / **31**

Technical Assistance in Efficient and Transparent Utilities Program

2009 / **62** As of 2010 / **90**

Beneficiaries (in millions)

2009 / **28.7** As of 2010 / **30**

Project Snapshot:

An Island Nation Confronts the Challenges of Climate Change

Coastal Risk Assessment and Management, Barbados

Barbados has the world's most tourism-dependent economy. The tourism sector is the island's major employer and generates annual receipts of US\$22 billion. But the beaches on which tourism depends are fragile—constantly eroding and shifting from the action of waves and currents. Climate change will only compound these problems as sea levels rise and as hurricanes and other extreme weather events become more likely.

For 30 years the IDB has worked with Barbados on coastal management issues, with each operation building local expertise and a strong institutional and regulatory environment. Today Barbados is recognized as a world leader in coastal management.

Saving beaches. In the 1990s, an IDB-funded project led to the creation of the Coastal Zone Management Unit (CZMU). This new body, the first such entity in the Caribbean, was key to carrying out a coastal infrastructure investment program with the help of an IDB loan for US\$17 million from 2002 to 2009.

The CZMU focused on vulnerable sections of the island's highly developed southern and western coasts. It gathered data, carried out technical studies, and held meetings with owners of beachfront property. At first, project staff encountered considerable opposition. Although hotels, restaurants, and home owners welcomed measures to stop beach erosion, they resisted the idea of increasing public access to what they considered their "private" beaches. Public sentiment began to change after construction of a 1.2-kilometer boardwalk between Rockley Beach and Coconut Court near the

capital, Bridgetown, the most lively tourist area on the island. Designed as a shoreline stabilization measure, it ended up doing much more. Today the boardwalk is a favorite gathering place for local people and tourists. Improved access has boosted business. The project also benefited sea turtles, which now have more beach area for nesting habitat. And it enhanced the public's perception of the CZMU.

Confronting climate change and natural disasters. The CZMU is now moving forward to address the threats of climate change and natural disasters. With a new IDB loan for US\$30 million for a Coastal Risk Assessment and Management Program approved in 2010, Barbados will continue to build coastal infrastructure that is resilient to climatic and other hazards. It will also greatly increase data collection on climate and disaster risks, sedimentation, erosion rates, water depths, and degradation of reef systems, as well as perform baseline studies.

A national integrated coastal risk information and planning platform will let the government assess climate and disaster risks based on accurate, quantitative data and predict coastal damage from sea level rise, hurricanes, storm surges, inland flooding, cliff instability, coastal erosion, and oil spills, as well as earthquakes and tsunamis. Economic and social impacts, such as effects on tourism, can also be assessed. The risk information platform will provide critical tools to help CZMU staff and strategic government partner agencies make sound risk-based decisions about development in the coastal zone. The CZMU will develop expertise for these new activities through a program of institutional strengthening that will include training and enhancement of existing coastal zone management

legislation and regulations to incorporate disaster risk management and climate change adaptation.

A communications and publications program will disseminate information on national climate and disaster risk as well as global and regional changes that will affect Barbados. The IDB is helping to share the Barbadian experience and expertise on coastal zone management in meetings with coastal authorities of other Caribbean countries. Already, members of the Organization of Eastern Caribbean States are considering using CZMU skills to help protect their own coastlines.

The CZMU's strategic partners will be critically important for making further gains in risk analysis, according to Leo F. S. Brewster, the unit's director.

"Although integrating the coastal zone management process across all levels of government has been a long and taxing process, the tangible results have strengthened our relations with other government agencies," he said. Citing stronger linkages with the Department of Emergency Management, he added: "Such moves have gone a long way to refine our ability to plan for flooding and hurricanes as well as for extraordinary events such as tsunamis."

Implementing New Initiatives: planetBanking

In addition to providing direct lending to public and private sector entities, the IDB increasingly partners with national and commercial banks, institutional investors, and other financial intermediaries to provide financing and risk management solutions. These projects must have a strong developmental impact in local economies and offer financial additionality. For private sector initiatives, the IDB offers medium- to long-term financing for small, medium, and large financial intermediaries investing in key sectors with social impact, such as housing, the corporate sector, small and medium-size enterprises, and sustainability projects.

The Bank has been working on the business case for a new way of banking on the environment. By identifying environmental opportunities and financing innovation within financial intermediaries in Latin America and the Caribbean, the Bank is making important contributions toward sustainable banking and sustainable development.

Civil society is also demanding more of private entities as environmental change provides some support for civil society's own mandates. With globalization come increased consolidation and competition; the companies that do more in terms of sustainability stand out. The changing landscape is forcing businesses to seek a triple bottom line, as stakeholders hold them accountable for financial, environmental, and social results.

This new approach is part of the win-win strategy of the *beyondBanking* program—providing much-needed financing to regional banks while promoting investment in environmentally inclusive business opportunities. The program *beyondBanking* was launched in 2009 to support financial intermediaries through financing, technical assistance, and knowledge sharing and to promote sustainable

environmental, social, and governance practices. Through six interdependent, strategic pillars, *beyondBanking* seeks to maximize the positive environmental, social, and economic contributions of banks:

- *accessBanking*: developing tailored products and services for people with limited access to the financial system.
- *clearBanking*: strengthening corporate governance and risk management.
- *connectBanking*: using new information and communication technologies.
- *equalBanking*: encouraging gender equality and diversity.
- *learnBanking*: fostering financial literacy.
- *planetBanking*: adapting and responding to the effects of climate change.

Financial markets are the engine of financial innovation, capital mobilization, global integration, and job creation. So *planetBanking* seeks to use this influence for positive environmental change. Most important, *planetBanking* recognizes that banks are agents of change. They are cost-effective channels to reach borrowers who operate along the supply chain and in high-impact sectors such as clean energy, renewable energy, infrastructure, and small and medium-size enterprises. They can help identify and reduce exposure to risks related to climate change. They cut across economies, geographies, and cultures. And, for better or worse, their business principles and practices have a demonstration effect economy-wide. Banks are key players in allocating capital, promoting competition, leading corporate change, and stimulating economic development through bank credit and economic growth.

Banks have also demonstrated policy leadership. Their participation in voluntary standards such as the Equator Principles, the Millennium Development Goals, the Global Compact, the UN Principles of Responsible Investment, and the Carbon Disclosure Project signals that banks are closely examining a broad set of issues. Adhering to sustainability standards provides long-term market incentives, strengthens reputations, and encourages revenue growth, risk management, access to capital, and cost savings. Some banks are even disclosing their work, using the Global Reporting Initiative as a framework to report best practices and to address gaps.

In line with this new strategic program, the IDB approved two transactions in 2010 focused on *planetBanking*: a US\$30 million loan to Banco Galicia in Argentina will help create an innovative sustainable facility to scale up private financing for projects with significant environmental benefits and a US\$10 million loan to Banco Ficohsa in Honduras will help develop a portfolio of environmentally sustainable loans. Through such innovative facilities, the IDB will address two main barriers in the region's financial sector: limited access to long-term funding by financial institutions and the lack of relevant expertise and capacity to analyze and structure green investments.

To stay relevant, the objectives of *beyondBanking* have to respond not only to the environmental and social challenges of the region but also to market demands and technological innovations. As the IDB builds the capacity to respond more flexibly and creatively in today's dynamic and uncertain times, it will be better equipped to promote a bank business model that balances financial with social returns, fostering an inclusive, environmentally friendly, transparent, and commercially viable banking sector.

Project Snapshot:

IDB Grant to Commercial Bank Spurs Major Carbon Credit Initiative

Bancolombia Carbon Finance Promotion, Colombia

Climate change presents both a threat to the countries of Latin America and the Caribbean and an opportunity through projects that reduce greenhouse gas emissions. Through the [Clean Development Mechanism](#) created under the [Kyoto Protocol](#), firms in industrial countries (known as Annex I countries) that are subject to carbon caps may offset some of their emissions by investing in emission reduction projects in developing countries. These same projects have the added benefit of helping developing countries promote sustainable development.

Although Latin America and the Caribbean was an early player in the field of carbon finance, in recent years it has lagged behind other regions due to limitations in financing, technical capacity, and available information. The region's participation is also complicated by uncertainties due to the lack of clarity about the global post-2012 climate regime, the economic slowdown in many Annex I countries, and the fragility of political decisions in Annex I countries to reduce emissions.

Ally in carbon finance. Despite these uncertainties, the carbon market now totals over US\$100 billion annually, and large banks and asset managers have established carbon desks for trading these assets. The IDB is working on a number of fronts to promote carbon finance. It found an enthusiastic partner in the Colombian bank [Bancolombia](#), the country's largest commercial financial institution.

Bancolombia was attracted to the carbon finance market as a new business opportunity for itself and its client firms. The bank knew it could expect support from the government, which promotes policies receptive to market-based measures to address climate change and has a staff with considerable technical expertise in the subject. Furthermore, many of Bancolombia's clients operate in sectors that could potentially yield carbon projects, including agriculture, energy, industry, and waste management.

Building a carbon portfolio. In 2009 Bancolombia received support from an IDB technical cooperation grant for US\$25,000 to lay the groundwork for its new business. Based on a portfolio analysis of promising sectors and individual clients, a consultant and several Bancolombia investment officers visited 41 firms. The result was a portfolio of investment opportunities with an approximate value of US\$200 million that could potentially yield a reduction of 2.8 million tons of GHG emissions. In December 2009 Bancolombia reached an agreement with [South Pole Carbon Asset Ltd.](#), a Zurich-based carbon project developer with operations in Colombia.

Most of Bancolombia's carbon finance projects—and the biggest in terms of emissions reduction—are in the agricultural sector, particularly sugarcane and African palm. While this total is substantial, these firms account for only an estimated 3.2 percent of all Bancolombia clients in sectors with potential for CDM projects.

IDB support also helped to strengthen Bancolombia's technical expertise by training 100 investment

officers to identify projects with potential for carbon finance. Through its agreement with South Pole, the bank is now offering bonuses to investment officers whose projects come to fruition.

Wide-ranging benefits. The bank's clients welcome CDM participation for several reasons, according to Franco Piza, Bancolombia's environmental manager.

“It enables our clients to develop clean production strategies with major gains in energy efficiency and additional income from the sale of carbon credits,” he said, “thus demonstrating that environmental and social responsibility is also economically viable.” Clients are also eager to play a role in the global discussion on climate change, he added.

Bancolombia is now taking steps to extend carbon finance facilities to its small and medium-size clients. Although many of these companies operate energy-intensive activities, processing small carbon credit projects on an individual basis is too time-intensive and costly to justify the returns. Bancolombia plans to overcome this problem by aggregating smaller projects to shepherd through the carbon finance process through the promotion of CDM's Programmes of Activities.

Investing in Knowledge and Capacity

In 2010 the IDB continued to strengthen its role as the economic and social development “knowledge bank” for the region. This role was promoted through many different actions, including the strengthening of its knowledge and capacity products and the application of its Institutional Knowledge and Learning Strategy. This strategy, approved in 2008, seeks to integrate knowledge and learning processes into the institutional strategy and Bank operations.

The strategy is based on the premise that knowledge-related activities are a way of working, rather than an additional activity. Knowledge and learning activities have always been an inherent characteristic of the Bank’s work, albeit with different modalities. This institutional strategy provides a framework for the Bank to promote and support the conditions—the policies, practices, incentives, and activities—that facilitate the acquisition, creation, sharing, diffusion, and use of knowledge in the delivery of Bank services, in order to provide client countries with relevant, timely, and high-quality assistance in meeting their needs and development challenges.

Two key objectives of the Bank’s knowledge and learning activities in 2010 were to make the Bank a reference point in policy debates on key regional development issues and to generate the type of analytical knowledge that adds value to the Bank’s lending activities. The Bank continued to improve its framework for delivering nonfinancial value through knowledge and capacity products, with a focus on making these a core business of the Bank.

In particular, the Bank has directed a large portion of these knowledge products to the area of environmental and social sustainability, reflecting the need to stay abreast of major policy developments and new technical knowledge in emerging fields. Activities in 2010 included the following:

- Contribution to the development and launch of the [A–Z Areas of Biodiversity Importance](#) website, which was [launched](#) at the 10th Conference of the Parties to the Convention on Biological Diversity in Nagoya, Japan.
- A three-day training workshop in Haiti, attended by more than 40 representatives of the public and private sector, aimed at improving implementation of environmental and social safeguards in projects and fostering knowledge transfer across sectors. *See page 70.*
- Development of a draft urban sustainability methodology and pilot city case study for the Bank’s new Sustainable Cities Initiative. *See page 72.*
- Development of a series of technical notes and the rollout of training and workshops to support the IDB Sustainable Transport and Climate Change Strategy, including a Handbook for the Estimation of GHG Emissions and Emission Reductions in Urban Transport Projects and a publication on Climate Instruments in the Transport Sector.
- A discussion paper on climate proofing and reducing vulnerability to climate change in IDB operations, taking into account the approach to climate change vulnerability of other multilateral development banks.
- A series of internal workshops to familiarize Bank participants with key issues related to climate change and the identification of best practice. Noteworthy among these were a one-day seminar on Climate Change Adaptation by leading international scientist Ian Burton during which a vulnerability assessment on operations in IDB’s portfolio was discussed and two one-day seminars given by the Earth Institute of Columbia University to educate and inform IDB Management and the Board of Directors. It focused on the linkages between climate change and development and the general interaction between science and policy.
- The launch of the [Haiti Learning Community](#), an effort for collaboration, cross-support, knowledge, and expertise exchange among Multilateral Investment Fund partners in Haiti. The community currently has 19 institutional members and 50 individual participants.

Partnering for Knowledge on Biodiversity

Identifying Important Bird Areas in the Region

The Americas is one of the world's most important regions for bird conservation, home to almost 40 percent of threatened birds. Major threats to birds stem from agriculture, the exploitation of natural resources, and the loss of habitat and invasive species.

As part of ongoing support to its regional partners, in 2010 the Bank helped launch BirdLife International's *Important Bird Areas Americas: Priority Sites for Biodiversity Conservation*. The book identifies 2,345 priority conservation areas in all 57 countries or territories in the region, totaling more than 3,250,000 square kilometers.

At the launch event, hosted by IDB President Moreno, speakers Henry Paulson (former U.S. Treasury Secretary), Andres Bosso (CEO of Aves Argentinas), Frank Gill (President of the National Audubon Society), and Margaret Atwood (Joint Honorary President of BirdLife International's Rare Bird Club) underscored the growing pressures on biodiversity and ecosystems in the region and the consequences for future development. The new book contributes to a growing base of knowledge on the importance of addressing these pressures, which threaten to undermine economic prospects and worsen the condition of the poor.

Applying this knowledge is critical for the IDB. It is taken into account by project teams and clients during the analysis of project sites for development projects.

Turning Knowledge into Action: During 2010, the Bank worked to improve the Natural Habitats Decision Support System that was developed through strategic partnerships with BirdLife International, Conservation International, NatureServe, WWF US,

The Nature Conservancy, and the UNEP World Conservation Monitoring Centre. The system provides IDB staff and clients with fine-scale biodiversity information about specific locations for proposed or existing projects, helps identify potential impacts, and enables improved quantification of the value of biodiversity and ecosystems. This improves the ability to meet the Bank's requirements for critical habitats as well as to incorporate biodiversity conservation into IDB's screening and safeguards process.

Monitoring Biodiversity in Private Sector Infrastructure Projects

One of the key sustainability benefits of the Bank's focus on funding complex infrastructure projects is the ability of the IDB and its partners to measure trends captured by biological monitoring programs and contribute to scientific knowledge creation.

In 2010, the Bank and its partners convened a workshop of 50 biodiversity specialists to discuss the adequacy and relevance of the Biodiversity Action Plan (BAP) developed and implemented for the Peru LNG project, a US\$400 million liquefied natural gas (LNG) project financed by the IDB, the International Finance Corporation, and the EximBank. The event provided a forum for discussing the technical challenges of monitoring biodiversity as part of a private sector project's environmental, social, and health and safety management systems.

The Peru LNG BAP is considered a model for the oil and gas industry. It sets a standard for including biodiversity protection and conservation measures at every stage of project development as part of the environmental impact assessment (EIA) process. Particularly noteworthy is the approach to biodiversity

conservation through an ecosystem's perspective rather than focusing only on individual species. The selection of appropriate indicators of biodiversity and ecosystem quality to help identify and monitor the project's potential impacts is a key component of a long-term strategy of protecting and conserving biodiversity. As projects evolve, monitoring and follow-up on impacts and the effectiveness of the mitigation measures, as well as identification of any threats to biodiversity outside the project, are vital for addressing uncertainties and possible long-term changes.

“Partnering with the IADB has given our organization the opportunity to share the experience and lessons of implementing a fully integrated and comprehensive biodiversity action plan in a complicated and challenging project, which we hope will continue to contribute to improving performance across our industry.”

Scott Rolseth, Vice President, Hunt Oil Company

The Bank's experience with its partners in the Peru LNG has helped build cutting-edge knowledge not only on the design of a BAP but also in specific technical and construction methods—for example, for laying pipelines through high-Andean wetlands—needed for habitat rehabilitation after construction and to avoid significant impacts or conversion of critical natural habitat.

The 2010 workshop highlighted the potential role of responsible companies implementing projects in developing countries in going beyond the “do no harm” approach to proactively take steps to invest in protecting biodiversity and enhancing a growing body of scientific knowledge.

Building Safeguard Knowledge and Capacity in Haiti

The IDB has a strong portfolio in Haiti that supports many different sectors, including water and sanitation, education, agriculture, natural resources management, transport, and social development. Following the devastating earthquake of January 2010, the Bank pledged more than US\$2.2 billion in grants over the next decade to fund Haiti's recovery efforts and long-term development plans, working closely with the government and the international community.

But the Bank does more than just lend money to Haiti. In September 2010, environmental and social safeguards specialists from the IDB and the World Bank conducted a joint safeguards training workshop in Port-au-Prince. The goals included improving implementation of environmental and social safeguards in projects across sectors and fostering more exchanges among projects. The workshop also sought to evaluate the level of understanding and application of sustainable development and safeguards concepts in Haiti and to initiate a long-term training program to strengthen the government's capacity in this area.

The workshop pioneered several novel ideas—focusing, for example, on improving the management of constraints in implementation rather than on simply reviewing safeguard policies and examining systemic as well as project-specific issues. The 44 participants included people from line ministries, the public and private sectors, and Habitat for Humanity, as well as numerous IDB and World Bank staff.

Presentations emphasized the fact that development does not have to come at the expense of the environment, natural resources, or human health and well-being—in other words, development and sustainability rather than development versus sustainability. A

presentation on the community-driven development program focused on the reality of implementing projects on the ground and the value of consultation and communication. Another presentation introduced principles, tools, management plans, and monitoring and evaluation systems for environmental impact assessments, as Haiti does not yet have such a system in place.

The workshop participants demonstrated strong environmental awareness, concern, and commitment, and they reacted favorably to the interactive and practical peer learning approach of the workshop. Over three days, they raised several issues of overarching interest:

- Denying impoverished people access to natural resources seems impractical.
- In some cases, people without formal land title may have no right to compensation when resettled.
- Lack of coordination and a unified vision—both internally (within Haitian ministries and agencies) and externally (among donors and international community)—is a key constraint, with each institution seen as having its own plans and procedures.
- Existing plans can appear to be largely donor-driven.
- The earthquake contributed to existing environmental degradation.
- The Ministry of the Environment would like to see its mandate made truly operational.
- Government agencies need tools and equipment to measure air and water quality, noise, and other environmental parameters.

Key environmental and social concerns highlighted by participants for follow-up were divided into four main areas: overall planning, communication, capacity building, and support for universities. The next step is to prepare an action plan in consultation with Haitian counterparts and based on the priorities noted during the workshop. The IDB and World Bank have already begun to implement several of the recommendations:

- A legal review of EIA, involuntary resettlement, access to information, and information sharing in terms of the environmental and social requirements of IDB and World Bank policy and Haitian law.
- Harmonization of the IDB-World Bank safeguards approaches, including sharing key environment and social instruments and information, a sector-wide approach to the development of environment and social frameworks, and the application of unified safeguard standards and requirements.
- Formation of a Community of Practice for Haitian environmental practitioners to share key documents, guidelines, and information.
- Discussions with universities on existing environmental and social programs and possible exchange programs.

Project Snapshot:

Achieving Competitiveness Through Environmental Standards

Loma Negra Cement Company, Argentina

Cement plants are known for their plumes of particulate pollution and noise and for their high energy consumption. In Argentina, however, the country's leading cement producer, Loma Negra, is dramatically reducing pollution and improving efficiency in a drive to achieve world-class standards for energy efficiency and environmental sustainability while boosting its total installed production capacity by about 20 percent. Loma Negra is carrying out the modernization program with the help of 2008 IDB financing for US\$125 million, consisting of a US\$20-million IDB private sector loan and a US\$105-million syndicated loan.

Higher production with less energy and pollution. In Loma Negra's Catamarca plant, a new vertical mill doubled production by enabling the plant to use its full kiln capacity while bringing energy consumption 30–40 percent below that of a conventional mill. In the company's Barker plant, IDB resources are being used to refurbish a mill from the 1940s. Normally, large quantities of particulate matter are emitted in the kiln's hot gases when cool air is suddenly introduced, producing clouds of dust. The installation of Argentine-produced bag filters in the plant's kiln practically eliminated these emissions. Reductions in particulate emissions were also achieved in the grinding process. Similarly, in the L'Amalí plant the latest kiln and grinding technology has reduced particulate emissions as well as energy use.

All Loma Negra plants have adopted measures to control dust in materials storage areas by containing existing areas, building new containment structures, and using water for dust suppression. Remediation of past environmental liabilities includes removing abandoned buildings and equipment, properly disposing of soil contaminated by small fuel spills and wastes, and installing contained fuel storage and handling facilities. Loma Negra is also collecting technical data to help pinpoint other opportunities to increase energy efficiency and reduce greenhouse emissions.

“As a result of the IDB's involvement in our expansion and modernization program, Loma Negra has now adopted IDB standards for dust suppression, not only for projects being financed by the Bank, but in company operations worldwide,” said Enrique Morad, Director of Corporate Affairs. “The IDB has also made a significant contribution in helping the company accelerate the process of receiving ISO certification,” he added.

Remediating quarries, aiding communities. IDB financing is also being used to remediate 8 of the company's 26 active and inactive limestone quarry sites. In active quarries, remediation is done simultaneously with exploitation. In the La Pampita quarry, near the L'Amalí plant, the company is using some 430,000 cubic meters of clay and topsoil to fill in an area of 36,000 cubic meters, which will then be planted with native trees and other vegetation. Special attention is being given to the old quarries themselves. Underground springs often turn the

pits into deep artificial lagoons. The company and local authorities are discussing how to best use these new water bodies.

Loma Negra is also strengthening its ties to the communities where it operates. The company's senior executive visits all nine plants several times a year to talk with employees about environment, health, and safety issues. Discussions are also held with community leaders, and plant managers invite local people to view operations and get briefed on new investments.

In addition, Loma Negra has signed an agreement with a local university to develop a social and educational program that will be carried out in a former company plant in Frias, in the province of Santiago del Estero. This program, which is expected to benefit not only the local community but the surrounding region as well, is another example of how “Loma Negra assumes a social responsibility with regards to its management and operational activities,” said Morad.

The Loma Negra Foundation provides financial and technical support for projects identified by local communities. It typically limits its involvement to a project's first 18 months, after which the community assumes full financial responsibility. Financing has been approved for 21 projects to benefit young people in art, music, sports, and job training.

Developing New Sustainability Initiatives and Programs

During 2010 the IDB made progress on two initiative programs: programs the Regional Environmentally Sustainable Transport Initiative and the Sustainable Cities Platform.

Environmentally Sustainable Transport

People need to get to their jobs, schools, markets, and so on in a safe, environmentally friendly, and affordable way. And countries need to consider the growing contribution of transportation to global GHG emissions. Several countries and cities are taking action to reduce GHG emissions, as shown by the mounting interest in Bus Rapid Transit schemes. The challenge now is to replicate and scale up such positive examples.

In 2010 the Bank launched the Regional Environmentally Sustainable Transport Action Plan (REST-AP) to facilitate the mainstreaming of climate change mitigation and adaptation in IDB's transport operations. Initial activities focused on building knowledge and capacity, participating in international seminars and workshops, developing studies (on climate instruments in the transport sector, for example), and training IDB staff on sustainable urban passenger and freight transport.

REST-AP expects to generate a steady stream of loans and technical cooperation non-reimbursable grants, helping member countries to develop national and local policies and investments on sustainable, low-carbon transport. In 2010 the Bank approved six loans, with a combined value of US\$650 million, on public transportation reform, expansion, and improvements, as well as 14 technical cooperation grants.

REST-AP Strategic Priorities

- Enhance the knowledge base on climate change mitigation and adaptation priorities.
- Strengthen institutions and the private and public capacity for climate change action.
- Develop guidelines, tools, and criteria for mainstreaming climate change mitigation and adaptation in IDB transport operations.
- Identify and develop lending and technical assistance potential for sustainable low-carbon transportation.
- Scale up investments, addressing financial gaps and leveraging private sector investments.

Sustainable Cities Platform

In Latin America and the Caribbean, the fastest urbanization is occurring in intermediate cities, those with up to 2 million inhabitants (depending on the size of the country). Rapid and inefficient growth over the last decades has significantly affected their physical environment, contributing to excessive internal displacements and urban congestion. The footprint of cities continues to expand rapidly, consuming natural resources and invading vulnerable areas.

Due to recent decentralization, local governments have assumed greater responsibilities for social services. Nevertheless, most municipalities depend on earmarked national transfers and do not manage their own resources adequately. They face a chronic shortage of investment resources. At the same time, there are wide asymmetries in their managerial capacities, affecting their ability to improve people's quality of life.

To address these challenges, the IDB initiated the Sustainable Latin American and Caribbean Cities for the XXI Century Initiative directed specifically at mid-size cities and using a multidisciplinary approach: integrating environmental sustainability, comprehensive urban development, fiscal sustainability, and good governance. The Initiative will provide a set of tools to help intermediate cities identify key issues that they may face in their path toward sustainability, weigh and establish priorities on problems to guide investment decisions in the sectors that may generate more positive impacts, find specific and adequate solutions according to their cost-benefit, and follow up progress in reaching goals through monitoring systems.

In late 2010, the methodology was developed and implemented in a pilot city. Trujillo, Peru, was chosen to test the priority indicators, action plans, and a monitoring system. The results of the pilot assessment showed that the three most critical issues of sustainability as defined by the metrics and citizen perception were transportation, security, and waste management. This process will be replicated in seven other intermediate cities, and in four of them the Bank will go into greater depth with three specific projects to address the main identified problems. The methodology will be introduced in 12–16 cities by the end of 2012.

Project Snapshot:

Rapid Bus Network Sets Cutting-edge Social and Environmental Standards

Integrated Mass Transit System, Cali, Colombia

Aging buses and minivans still clog the streets of many Latin American cities, emitting pollutants that cause respiratory and cardiovascular diseases while subjecting the mostly low-income passengers to grueling trips between home and work. While the problems remain serious, some municipalities have emerged as innovators and international leaders in urban transport. Among them is Cali, Colombia, where an IDB-financed rapid bus transit system is setting new standards for efficient, low-emissions transportation.

Cali's Integrated mass transit system, called MIO (from Masivo Integrado de Occidente), is being financed with the help of a [US\\$200 million IDB loan](#) approved in 2005. The project is a public-private partnership: [Metro Cali](#), a special purpose public company, was created to design, operate, and regulate the system; private sector operators provide services according to strict standards established and enforced by Metro Cali. When completed in 2014, the system will handle 880,000 riders daily.

In the new, three-tiered system, 38.6 kilometers of dedicated trunk lines are being built for use by high-capacity vehicles, including 189 articulated (accordion) buses. The trunk lines connect to 282 kilometers of secondary routes and complementary corridors. Metro Cali's operations center monitors the system with video cameras and data from GPS units installed on each vehicle.

MIO passengers on the trunk lines purchase tickets and board buses at 77 elevated stations. Transfers between feeder and trunk routes are free. Traffic signs and signals help ensure pedestrian safety. The planting of more than 15,000 trees and creation of 203,000 square meters of green areas also improves the urban environment.

Major pollution reduction. MIO's greater efficiency and the elimination of older vehicles is resulting in annual reductions of an estimated 600 tons of particulate matter emissions and 5,000 tons of nitrate oxides. Strict emission standards are enforced with the help of periodic vehicle inspections. A new system of air quality monitoring stations along trunk corridors is tracking ambient pollution over time.

Vehicle maintenance yards adhere to rigorous Metro Cali standards. Operators must keep their vehicles clean, and the water used for washing is recycled. Used motor oil is stored safely and disposed of properly. All operations meet international standards and norms.

Compensation and relocation. Procedures for addressing negative impacts are enforced by Metro Cali's 30 environmental and social specialists. Families whose homes must be demolished to accommodate road widening have received compensation based on formulas that meet IDB and Colombian government norms. Metro Cali's staff of sociologists, accountants, and lawyers helps families buy new homes by guiding them through the process of titling, registration, and certification of ownership. Similarly, businesses affected by construction activities receive compensation according to formulas set by Metro Cali.

Metro Cali is required to compensate owners of older buses and minivans that must be scrapped. Some former drivers, conductors, and mechanics are absorbed into the MIO system. Others learn new skills in Metro Cali training programs.

Construction impact mitigation. Each contractor adheres to management plans designed to minimize construction impacts on neighborhoods and protect the health and safety of workers. Environmental measures include managing water runoff with collection ponds, reducing dust through spraying, and preventing noise by refraining from working at night. Each contractor establishes an onsite public outreach center where environmental and social specialists hear complaints from local residents, resolve issues, and provide compensation when necessary.

“In a little over 10 years, Cali has created a new rapid transit system administered by an efficient institution that has implemented a culture of environmental and integrated social management with a staff of top professionals—including environmental and social specialists—under the direction of the Environmental Authority,” said Luis Eduardo Barrera, President of Metro Cali S.A. “Our environmental management process is based on effective environmental policies, community participation, belief in our mission, and the commitment of our contractors, with whom we establish a set of obligations and responsibilities from the very beginning.”

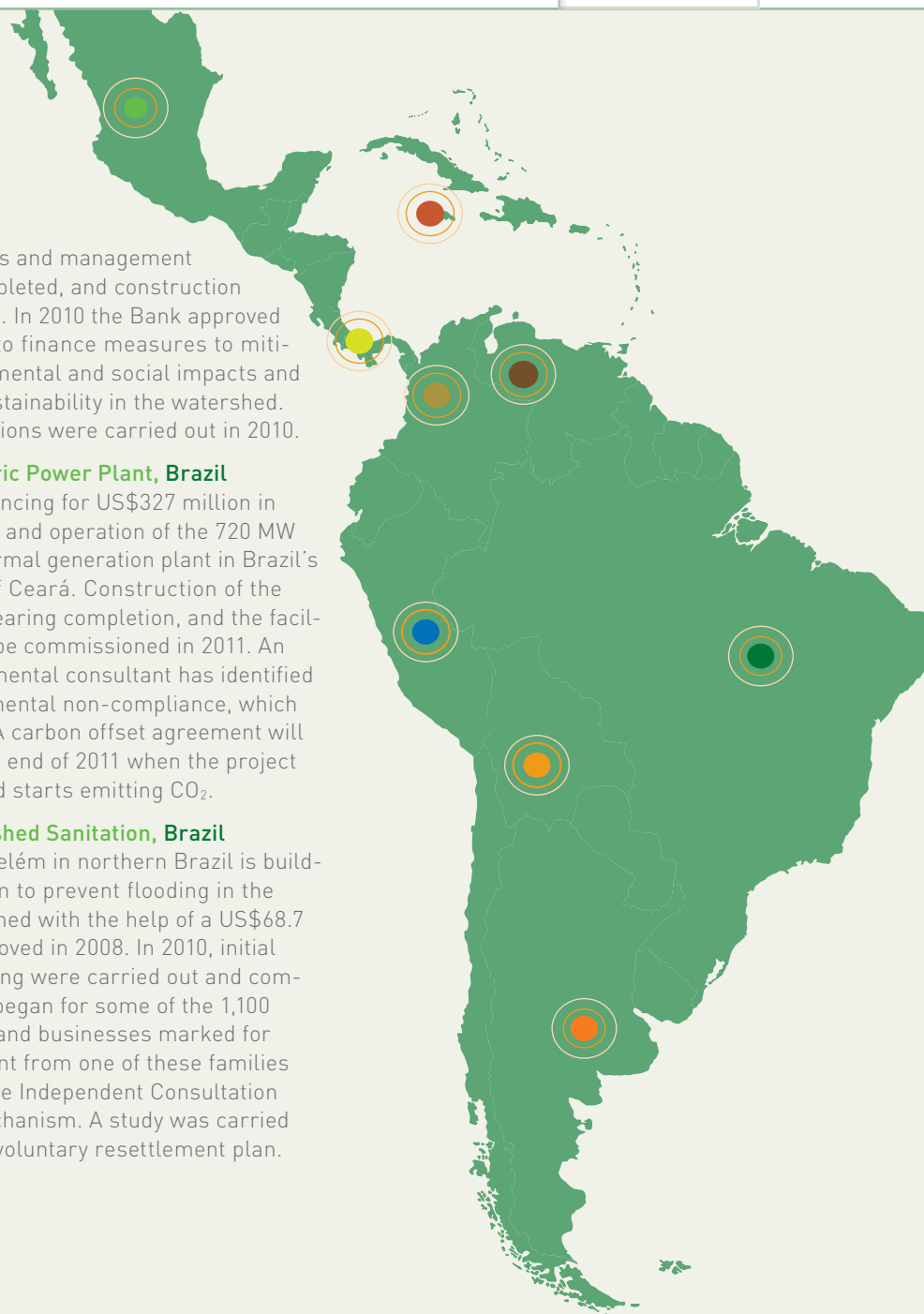
Monitoring Safeguards in Complex Projects

Since 2006, when the IDB's Environment and Safeguards Compliance Policy was initiated, the Bank has approved 15 projects designated as Category A for their size, complexity, and potential for producing negative environmental and social impacts. After a Category A project enters the implementation phase, IDB staff closely monitor its compliance with environmental and social provisions. Three of the projects were subsequently canceled: the Usiminas mining project in Brazil (2008), the Termo Marahnão Thermoelectric Power Plant in Brazil (2009), and the Baba Hydroelectric Project in Ecuador (2007). Here are the project advances in 2010 related to implementation of IDB safeguards in the other 12 projects.

- **Norte Grande Electricity Transmission, Argentina**
 Two sections of transmission lines in the Norte Grande Electricity Transmission Program in Argentina are being completed with the help of IDB financing for US\$580 million approved in 2006 and US\$300 million approved in 2009. In the Noroeste Argentino section, no socio-environmental issues have arisen, although there were some minor matters related to keeping environmental licenses up to date. One supervision mission took place in 2010.
- **Misicuni Hydroelectric and Multipurpose Project, Bolivia**
 The Misicuni Multipurpose Project will provide Bolivia's Cochabamba Valley with potable water, irrigation water, and electric power from a hydroelectric power plant being built with the help of US\$101 million in IDB financing approved in 2009.

Environmental studies and management plans have been completed, and construction of the dam has begun. In 2010 the Bank approved a US\$5 million loan to finance measures to mitigate indirect environmental and social impacts and ensure long-term sustainability in the watershed. Two supervision missions were carried out in 2010.

- **Pécem Thermoelectric Power Plant, Brazil**
 The IDB provided financing for US\$327 million in 2009 for construction and operation of the 720 MW Pécem coal-fired thermal generation plant in Brazil's northeastern state of Ceará. Construction of the plant's two units is nearing completion, and the facilities are expected to be commissioned in 2011. An independent environmental consultant has identified some minor environmental non-compliance, which has been corrected. A carbon offset agreement will enter into force at the end of 2011 when the project begins operations and starts emitting CO₂.
- **Estrada Nova Watershed Sanitation, Brazil**
 The municipality of Belém in northern Brazil is building a drainage system to prevent flooding in the Estrada Nova watershed with the help of a US\$68.7 million IDB loan approved in 2008. In 2010, initial demolition and cleaning were carried out and compensation payments began for some of the 1,100 low-income families and businesses marked for relocation. A complaint from one of these families will be reviewed by the Independent Consultation and Investigation Mechanism. A study was carried out to evaluate the involuntary resettlement plan.



Monitoring Safeguards in Complex Projects *continued*

● **Pasto-Mocoa Road Corridor, Colombia**

The Pasto-Mocoa Road Corridor project, financed with the help of an IDB loan approved in 2009, consists of a 45.6-kilometer bypass in the Putumayo Department in Colombia that will cross a forest reserve. Consultations with local people resulted in a Sustainable Environmental and Social Management Plan that was formally adopted in 2010; construction cannot begin until the plan's conditions are in place. Commitments from local authorities and monitoring by a technical advisory committee and local communities will ensure the plan's successful implementation.

● **Transjamaica Highway, Jamaica**

The Transjamaica Highway Project in Kingston, Jamaica, consists of refinancing an existing toll road and building 10 kilometers of new road. The first disbursement of IDB financing for US\$70 million approved in 2009 is anticipated for early 2011. During 2010, the IDB helped complete an action plan for resettlement issues and for environmental and social management. Two IDB technical cooperation grants totaling US\$275 thousand are financing projects to improve the social welfare of local residents and to reduce risks of flooding in the highway corridor.

● **Eurus Wind Farm, Mexico**

The Eurus Wind Farm project operates 167 wind turbines and a transmission line in Mexico's state of Oaxaca. The project was carried out with the help of US\$30 million in IDB financing approved in 2009. A system to monitor and safeguard birds during migratory seasons was reviewed by an independent ornithologist in 2010. Its effectiveness is currently being analyzed on the basis of fatalities observed during last fall's migration. No major environmental or social non-compliance has been reported for the project.

● **Pando-Monte Lirio Hydropower, Panama**

Construction of access roads has begun for the Pando and Monte Lirio hydroelectric plants in Panama's Chiriquí province. The project is being carried out with the help of US\$40 million in IDB financing approved in 2009. Some construction was temporarily halted in 2010 for environmental non-compliance by the contractor. Also in 2010, a study was initiated to validate that the project will not disrupt the river's ecological integrity; such validation is a condition for IDB's first disbursement. A complaint from local communities and NGOs about the project's impact on the river will be reviewed by the Independent Consultation and Investigation Mechanism. Monitoring has included one supervision mission in 2010.

● **Panama Canal Expansion, Panama**

The expansion of the Panama Canal project, which is being done with the help of IDB financing for US\$400 million approved in 2008, remains on track to become operational in 2014. In 2010, massive soil movement and excavations required action to control erosion, stabilize land, and protect water resources. Project monitoring is being carried out in coordination with other multilateral banks that are financing the project. Supervision activities are conducted semi-annually; four field inspections have been carried out by an independent consultant since approval of the IDB loan. Additional monitoring is being performed by the multilateral banks to ensure adherence to environmental and social requirements.

● **Liquefied Natural Gas, Peru**

The Peru Liquefied Natural Gas Project has been completed with the help of US\$400 million in IDB

financing approved in 2007 for construction of the liquefaction plant on the southern coast. In 2010, contractor camps and other facilities were closed and the sites were returned to their original state. Bioremediation and geotechnical works have been completed along the pipeline. Environmental, safety, and health system components of the project have been monitored and supervised quarterly since 2007.

● **Maple Ethanol Biofuels, Peru**

Maple Ethanol S.R.L. is constructing an ethanol plant in Peru's northern coastal province of Piura with the help of a 2009 IDB loan for US\$25 million. A 14,000-hectare sugarcane plantation will provide the plant's feedstock for alcohol and electricity cogeneration. In 2010, the company established a compensation set-aside of 2,341 hectares for dry forest conservation and implemented an advanced water-saving drip irrigation system. Monitoring has included three field inspections by an independent consultant and one IDB site visit.

● **Manuel Piar (Tocoma) Dam, Venezuela**

The Manuel Piar (Tocoma) Dam project is being constructed on Venezuela's Caroni River with the help of an IDB loan for US\$750 million approved in 2005 and a second loan for US\$800 million approved in 2009. In 2010, delays in some activities in the management plan included removal of trees from the reservoir area and the creation of new natural areas. There had been concern over the dam's impact on a recently discovered bird species, the Carrizal Seedeater, whose status was initially classified as critical by the International Union for Conservation of Nature (IUCN). New data establishing that the bird is widespread in the area will be provided to IUCN. A supervision mission was carried out in 2010.

Project Snapshot:

Biological Monitoring Program Shows Unexpected Resilience to Altered Ecosystem

Dona Francisca Hydroelectric Power Project, Brazil

The 125-megawatt hydroelectric Dona Francisca hydroelectric project on the Jacuí River in the state of Rio Grande do Sul was built with the help of IDB financing approved in 2000 (consisting of a [US\\$16 million loan](#) from the Bank's ordinary capital and a syndicated loan of US\$25 million). The project, carried out by the consortium Dona Francisca Energética, S.A., included a concrete dam 610 meters long and 51 meters high plus a reservoir with a total surface area of about 19 square kilometers. The project is being actively monitored, as it is categorized as Category A for its complexity and potential to produce significant environmental and social impacts. Despite its reputation as clean energy, hydroelectric power can have considerable environmental impacts by radically altering riverine ecosystems and flooding areas.

New scientific knowledge. Since becoming operational in 2001, the project has provided a more reliable supply of electricity at lower costs for the region's energy-intensive industries. Dona Francisca is also producing new knowledge for the scientific community through an ichthyofauna monitoring study carried out as part of the project's environmental management program. The study is providing valuable data on the long-term effects of hydroelectric projects on freshwater ecosystems—specifically on the Jacuí River and its more than 50 species of fish. The work is being carried out by former professors of the [Pontifícia Universidade Católica do Rio Grande do Sul](#) with funding from Dona Francisca Energética S.A., who began the program in 1998 in conjunction with the State

Foundation for Environmental Protection. Local fishers' associations are providing information to ensure the most effective placement of monitoring stations.

Biological monitoring began in 1998 during diversion of the river. It continued before and after the reservoir was filled and has been maintained throughout the project's operation. As a result, the scientific community has access to large longitudinal data sets that are critical for ecological research but that are often unavailable because of lack of funding for such studies.

Notable among the findings was that the Jacuí's fish populations are more resilient to environmental change than was generally believed. The long-term nature of the monitoring was critical in producing these findings, which only emerged after the ecosystem began to recover its equilibrium more than five years after the plant began operations.

Adaptation by migratory fish. These findings were particularly revealing in the case of migratory fish, which are especially vulnerable to dams that prevent access to a river's upper reaches. For many of these species, the physical activity of swimming upstream is needed to stimulate gonadal maturation. Following spawning in upstream areas, the current carries the eggs and larvae back to areas suitable for development.

In the case of Dona Francisca, migratory fish appear to have adapted. Juveniles of most species, including the *pintado* catfish (*Pseudoplatystoma coruscans*), have been observed in the monitoring campaigns, indicating that reproduction in those species has been reestablished. The *dourado* (*Salminus brasiliensis*), a more sensitive species

of particular value to local sport and subsistence fishers, is thought to need at least 100 kilometers of unobstructed river to complete the gonad development necessary for spawning. Monitoring has indicated that the *dourado* population, which initially declined with the filling of the river, remains present in the reservoir. Nevertheless, only adult individuals have been observed, so it is not yet possible to ascertain that their reproduction has been reestablished. Biologists believe that the fish now migrate in a tributary to the Jacuí River that contains a series of rapids in which the exertion of swimming a relatively short distance upstream produces a similar physiological effect as a long migration. A special monitoring campaign will be conducted in February 2011, at a time and place determined by the fishers, which will provide information on the date and location of the migration.

Enhancing the Bank's Grievance Mechanism

In September 2010, a new Independent Consultation and Investigation Mechanism (ICIM) started operations as part of IDB's efforts to increase the transparency, accountability, and effectiveness of its operations. The ICIM can address requests filed by individuals or groups who feel they are directly affected or they might be affected in the future by projects financed by the IDB that have or could have involved noncompliance with an IDB operational policy. It covers all IDB Board-approved safeguard policies as well as equality in gender and information disclosure policies. The ICIM, which was adopted in February 2010 following extensive consultation with civil society, is part of the IDB's reforms toward a Better Bank. As of its effective date, September 2010, the ICIM registered three official requests for consultation or compliance review and had five in the preliminary review stage.

The IDB held a series of public consultations about its grievance mechanism in 12 countries and via its web page during 2008–2009. Over 190 organizations participated in these meetings. This valuable process resulted in more than 470 comments and suggestions that set the stage for the ICIM.

The ICIM has two phases: a consultation or problem-solving phase and a compliance review. The Project Ombudsperson leads the consultation phase, during which claims are addressed through dialogue or

mediation. All requests are initially forwarded to the Ombudsperson in order to explore the possibility of applying flexible and consensual approaches. Following this, the Ombudsperson determines the eligibility or ineligibility of the case for the consultation phase. Cases that cannot be fully resolved by the Ombudsperson during the consultation and mediation phase can eventually pass to the compliance review phase at the complainant's request.

At that point, an Independent Review Panel of five experts appointed by the Board of Executive Directors researches and investigates complaints and submits a report to the Board on whether projects or initiatives funded by the IDB caused harm and which operational policy, if any, was in violation and how. If requested, the Panel and the Ombudsperson could also monitor implementation of any Board decisions on the case.

The biggest difference between the old Independent Mechanism of the IDB and the ICIM is the independence of the new body. The ICIM responds directly to the Board of Executive Directors and not the Administration. In addition, it includes a problem-solving phase led by the Ombudsperson, which did not exist in the old mechanism. As the ICIM's activities are reported to the public, the mechanism lays the groundwork for a more open dialogue with civil society.

Three cases are currently officially registered under the ICIM:

- Multiphase Development Infrastructure: Support Production Entre Ríos (Argentina)—Complaint that the environmental impact assessment is incomplete (for example, the project impairs the agricultural productivity of nearby lands) and that the IDB failed to supervise the borrower's legal and environmental performance.
- Program for Social-Environmental Recovery of the Serra do Mar and Sistema de Mosaicos of the Mata Atlântica (Brazil)—Complaint that disbursing the loan for the project would contravene a court decision in the State of São Paulo.
- Pando-Monte Lirio Hydroelectric Power (Panama)—Complaint about siting of the plants, water use, adverse impacts on fish and other species, destruction of forests, and high levels of sedimentation, among other concerns.

Measuring Our Contribution to the Region's Development Goals

As part of the Ninth General Capital Increase, a Results Framework (RF) has been developed to help measure and report on the Bank's progress on institutional priorities. It includes best practices adopted by other multilateral and bilateral development organizations. The RF will allow shareholders to monitor the Bank's contributions toward selected regional development goals as well as its progress on operational effectiveness and efficiency.

Monitoring Progress Toward Regional Development Goals

In response to the Bank's institutional Priority Area 5—protecting the environment, promoting renewable energy, responding to climate change, and enhancing food security—the RF identifies outputs and their contributions to regional goals, which are found in country strategies and in projects. It is important to track regional goals measured as outcomes in order to monitor longer-term development progress in the region and provide information on what the Bank's contributions and priorities should be. Tracking these goals will help identify gaps or areas where institutional priorities may need to be revised.

Priority Area 5 will help countries understand policies on environmental protection, sustainable energy, climate change, and food security better as well as

helping them design policies for the transition to a green economy and enhancing their institutional capacity to tackle these issues. It will also support the development of adequate institutional and regulatory frameworks to allow investments in sustainable transport, forestry, alternative fuels, renewable energy, and energy efficiency. *See page 79.*

Of course, meeting regional goals cannot be solely due to the Bank's interventions. So the Bank has defined a series of output indicators. Since outputs are direct products and services due to a project's activities, they are a better measure of the Bank's direct contribution and will promote transparency and accountability for the Bank's resources. Outputs will be collected at the project and country levels and will be available for IDB stakeholders.

Sectors within the Bank discussed what outputs were desirable and feasible and how best to achieve them, taking into consideration what was achieved as part of IDB-8. Although part of the discussion centered on what was achieved in the period 2004–2008, it was not possible to collect baselines for all the outputs. And even when baselines are reported they should be considered estimates. This is mostly due to the lack of systematic collection of standard indicators or even units of measure, but also because there are some areas of new engagement.

Tracking Progress on Operational Effectiveness and Efficiency

Additionally the RF sets out a series of indicators chosen for Operational Effectiveness and Efficiency, which will allow us to better monitor the Bank's development results. They will measure the Bank's efforts and serve for internal accountability. Specifically these include efficiency indicators to monitor the satisfactory implementation of environmental and social mitigation efforts in all Bank projects:

Effectiveness—loans	Goal 2015
For sovereign guaranteed operations—percent of projects with high environmental and social risks rated satisfactory in implementation of mitigation measures	85%
For non-sovereign guaranteed operations (approvals)—percent of projects with high environmental and social risks rated satisfactory in implementation of mitigation measures	85%

The Bank will report on its progress toward these goals in subsequent reports.

Measuring Our Contribution to the Region's Development Goals *continued*

Project Results Outputs			Regional Development Outcome
Project Outputs (Expected Results)	Baseline (2005–2008)	Expected Results Output	Indicators of Bank Contribution to IDB Regional Development Goals
Percentage of power generation capacity from low-carbon sources over total generation capacity funded by IDB	91 percent	93 percent	Carbon dioxide emissions per US\$1 GDP (PPP) decreased from 0.29 kilograms (baseline, 2006)
Number of people given access to improved public low-carbon transportation system (indigenous and Afro-descendant)	n/a	8.5 million	Countries with planning capacity in mitigation and adaptation of climate change increased from three (baseline, 2009) Annual reported economic damages from natural disasters decreased from US\$7.7 billion (baseline, 2007)
Climate change pilot projects in agriculture, energy, health, water and sanitation, transport, and housing	n/a	10	
National frameworks for climate change mitigation supported	n/a	5	
Number of projects with components contributing to improved management of terrestrial and marine protected areas	15	30	Proportion of terrestrial and marine areas protected to total territorial area increased from 21 percent (baseline, 2009)
Farmers given access to agricultural services and investments (women, men, indigenous, and Afro-descendants)	n/a	5 million	Annual growth rate of agricultural GDP increased from 3.5 percent (baseline, 2007)



Sustainability at Home



Overview

- The IDB recognizes that environmental and social sustainability begins in the workplace. As such, its commitment to sustainability includes efforts to minimize the environmental impact of its physical facilities and employees —its “footprint”—to maximize the potential of its employees, and to support neighboring communities.
- This section provides a snapshot of some of the key activities during 2010: the Bank’s support for the wider communities in which it operates, particularly those affected by natural disasters during the year, as well as ongoing initiatives to support local organizations; the Bank’s carbon footprint in Washington, D.C., and in its country offices; and efforts to have a diverse and inclusive staff.

Supporting Our Communities

Responding to communities in need. During 2010, Bank staff responded overwhelmingly with support for the people of Haiti, Chile, and Guatemala after unprecedented disasters affected hundreds of thousands of people. The IDB Staff Association mobilized a series of campaigns throughout the year, and IDB staff donations for relief efforts were matched by the Bank.

- **Haiti.** In response to the devastating earthquake in January 2010, the Staff Association and the Bank sent total contributions of US\$246,763.70 to two relief agencies: Doctors Without Borders and International Medical Corps. The donations helped support emergency medical care for the men, women, and children affected by the earthquake.
- **Chile.** In response to this earthquake in February 2010, staff donated over US\$22,000 to help relief efforts. This amount, doubled by a donation from the Bank, was donated to reconstruct a shelter for Fundación Las Rosas and to supply beds for children through Incal to three beneficiaries: the Children of the towns of Contitucion, Pelluhue, and Cauquenes.
- **Guatemala.** Following deadly mud slides and widespread flooding during the rainy season in September 2010, the Staff Association raised over US\$9,000 and the Bank matched the funds to send to Glasswing International to rebuild a school.

Haiti's Colors of Hope Campaign. The earthquake that struck Haiti in January 2010 not only demolished its infrastructure, it also obliterated much of the country's culture. Haiti lost thousands of paintings, many of which were historical treasures, as well as the largest collection of Haitian art in the world. In August 2010, the IDB Solidarity Program organized a week-long campaign to raise awareness of the plight of Haitian professional artists and to collect special art supplies for them. Activities included a painting ceremony (with local professional artists in both Washington, D.C. and Haiti) held simultaneously in Washington, D.C. and Haiti; a concert with Les Petits Chanteurs, a choir of Haitian young people and children who performed in appreciation of the Bank's contribution to Haitian cultural development; and a Haitian-Caribbean lunch. @

Fundraising for community organizations in the region. The Bank undertook activities during 2010 to support underserved communities in the region. For example, it sponsored the Professional Women's Network Fundraising five-kilometer run for Asmung, an association of Ngobe women (a Panamanian indigenous community) dedicated to improving the living and working conditions of women and promoting their rights and participation in society.

Working with community-based organizations in Washington, D.C. Since 2000, the Bank's Share the Magic Campaign has made significant donations of toys, food, and items for babies to community-based organizations that work with the underserved segments of the Latino and Caribbean communities in

Washington, D.C., during the holiday season. Sometimes this is the only gift these families can provide to their children during the holidays. In 2010 the IDB donated 2,962 toys, 80 boxes of food, 673 books for children, 30 boxes of diapers, 30 boxes of baby food, 76 boxes of baby cereal, and \$5,500 in cash to 22 local organizations that provide services to these communities. The donations were contributed through the Bank's local community relations program, the IDB-DC Solidarity Program. @

Learning in the workplace. Since November 2009, in a program known as La Escuelita, staff volunteers have been teaching basic finance, English, and Spanish literacy to some of the cleaning and moving staff at headquarters. Gaining these skills can have far-reaching effects on the participants, improving their job performance, opening up other job opportunities, and spilling over into their home lives. Daytime staff meet twice a week at lunchtime, and the night staff can attend classes over dinner twice a week. Students who cannot read or write receive one-on-one lessons.



Members of IDB Escuelita

Minimizing Our Footprint and Maximizing Our Social Assets

Reducing and offsetting the Bank's carbon footprint.

Since 2007 the Bank has put into place a program to reduce GHG emissions through eco-efficient measures where possible and to offset unavoidable emissions through carbon reduction programs in the region.

In 2010 the Bank's carbon emissions were calculated as 21,302 tCO₂eq. These were offset through investments in carbon credits generated from landfill gas reduction projects in Chile and Mexico and a biomass power generation project in Uruguay. Through the purchase of carbon credits, the Bank continued to achieve zero net emissions. @

Offsetting emissions is only half of the picture, however, and the IDB continues to seek ways to reduce emissions. During 2010 the Bank completed an energy audit of the headquarters facilities in Washington and approved a three-year facility improvement program that will reduce electricity consumption by approximately 13 percent and the carbon footprint by approximately 7 percent. In addition, the Bank is taking steps toward Leadership in Energy and Environmental Design certification for its headquarters, which is expected in 2011.

Over the past three years the Bank has expanded its corporate responsibility program to its country offices, in particular seeking innovations for reducing its environmental impact. The Country Carbon Competition gives awards to IDB country offices that support the commitment to become carbon-neutral by proposing new ways to reduce GHG emissions. In 2010, three projects received awards:

- Trinidad and Tobago will develop a program to conserve energy and reduce water usage.

- Costa Rica will install a recycling center to reduce the waste going to the landfill as well as provide new bicycle racks to make it easier for staff to bike to work.
- El Salvador will install low-flow toilets and sinks in common bathrooms, start a recycling center, and implement an outreach and awareness program for staff.

The winning entries will receive additional financing to implement these projects.

Since 1998, the IDB-DC Solidarity Program has built strategic partnerships with local community based organizations to promote community development initiatives aimed at the Latino and Caribbean communities in the Washington, D.C. area. The Solidarity Program supports these organizations through grant making, volunteerism, special initiatives, and surplus equipment donation. To promote volunteerism among Bank staff, families and retirees, the program organizes activities and drives during the year including, the Share the Magic campaign.

Ensuring diversity and inclusion. There is an important connection between an organization's sustainability and how it manages its human resources. IDB employees are the Bank's greatest resource, representing the organization and the region. Ensuring diversity and an inclusive environment is an integral part of the effort to build social capital.

In 2010 the Bank focused on responding to 10 key recommendations from the 2009 conference called Leadership in Diversity—Setting the Tone from the Top. Endeavors also supported the staff gender targets

set for 2015 in connection with the General Capital Increase. In particular, these efforts focused on:

- Establishment of a disability accommodation fund.
- Launch of a diversity self-identification program for employees to obtain baseline information and develop policy to fill any gaps.
- Creation of an affinity group for Afro-descendants and indigenous peoples to provide advice on recruitment, advancement, and retention.
- A series of meetings with international scholarship programs and professional organizations of Afro-descendants, indigenous peoples, and persons with disabilities to identify and attract candidates from currently underrepresented groups.
- Creation of a GLOBE club for members and friends of the lesbian, gay, bisexual, and transgender community, with awareness-raising meetings about these issues in the workplace.
- A panel discussion on telework with experts from the private sector and the U.S. government, as the Human Resources Department works with supervisors to promote telecommuting and other possible work schedule alternatives.
- A series of diversity and inclusion awareness-raising seminars and training for managers.
- Support for a requirement for supplier diversity in country offices by developing definitions, conducting an inventory of current contracts, and developing a strategy for actions in 2011 and beyond.
- Promotion of diverse nationalities and technical backgrounds on hiring panels and an effort to have half of the panel members be women.

IDB Footprint at a Glance

In-house Environmental Performance (Headquarters)	2008*	2009*	2010
Total CO ₂ emissions (tons CO ₂ eq)	19,961	21,074	21,302
Direct	258	195	184
Indirect	11,696	11,356	10,264
Optional	8,007	9,524	10,854
Renewable energy use (through purchase of RECs)	100%	100%	100%
Paper use (tons)	89	75	71
Recycling—paper, cardboard, aluminum, plastics and glass (tons)	92	178	106
Waste generation (tons)	412	425	516
Utilities use			
Electricity (MWh)	22,510	21,864	21,124
Gas (ccf)	29,751	27,725	27,754
Water (thousands of gallons)	15,336	15,218	16,505
In-house Environmental Performance (Country Offices)	2008*	2009*	2010
Total CO ₂ emissions (tons of CO ₂ eq)	4,257	3,810	6,335

In-house Social Performance	2008	2009	2010
Total number of staff	1,815	1,837	1,881
Male/female staff (%)	49/51	49/51	49/51
Male/female executive staff (%)	85/15	82/18	76/24
Male/female managerial staff (%)	N/A	N/A	72/28
Male/female technical staff (%)	56/44	55/45	54/46
Male/female support staff (%)	13/87	15/85	14/86
Borrowing country/nonborrowing country	1,251/564	1,248/589	1,277/604
Headquarters/country offices (%)	65/35	69/31	68/32
Total consultants (full-time employee equivalent)	832	981	1,097
Community Investment	2008	2009	2010
Donations in cash—IDB-DC Solidarity Program (US\$ thousand)	457	465	395
Donated items of surplus equipment—IDB-DC Solidarity Program (no.)	5,729	9,293	8,119
Number of volunteers—IDB-DC Solidarity Program	208	247	308

*Data corrections made in 2010.

The Bank's Corporate Environmental and Social Responsibility (CSR) Report is available online. The report describes the actions the Bank has taken as an organization through its internal CSR Program to improve the environmental footprint of its operations and to address social responsibility issues at the corporate level. Institutionally, key impacts are found in energy and water consumption, business travel, waste generation, and paper use. The Bank is tracking its impacts in these areas in order to create a road map to reduce the overall environmental footprint of the entire organization and to increase the awareness of staff and constituents.

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The IBD welcomes opinions on the content of this report as well as the Bank's overall performance in the field of sustainability. Should you have any comments or opinion to share, please contact the Managing Editor by e-mail: sustain@iadb.org

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