

INTER-AMERICAN DEVELOPMENT BANK

# *Sustainability Report 2012*



## Who We Are and What We Do

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\$219 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.** Approvals of loans, guarantees, and operations of the IDB Grant Facility in 2012 totaled US\$11.42 billion, and Bank disbursements on approved loans amounted to US\$7.4 billion.

## How We Are Governed

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 non-borrowing members 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 Board of Governors. The IDB's highest authority is its Board of Governors. Most of its members are finance ministers or central bank presidents. The Board holds an annual meeting to approve the Bank's financial statements and review major policy decisions. The Board delegates oversight of day-to-day Bank operations to the Board of Executive Directors—14 individuals representing the 48 member countries—which approves country and sector strategies, operational policies, and loans. The Board also sets conditions for Bank loans, authorizes borrowings in the capital markets, and approves the institution's administrative budget. The IDB president, elected by the Board of Governors for a five-year term, manages the Bank's operations and administration together with an 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.

## Sustainability at the IDB

The IDB's priorities and structure are aligned to meet the needs of the region and to serve as a catalyst for development in Latin America and the Caribbean. Recognizing the challenges of ensuring that this development be environmentally and socially sustainable, and in order to fulfill our mission to reduce poverty and inequality, **the Bank places an increasingly strong focus on environmental protection, sustainable energy, climate change, and food security.** The Bank also helps design policies that support the transition to sustainable economies, enhance institutional capacities, and ensure the protection of vulnerable populations.

## IDB People and Locations

The IDB's 1,986 employees are located at its Washington, D.C., headquarters, in country offices throughout Latin America and the Caribbean, and in offices in Tokyo and Madrid. Some 68 percent of IDB staff are nationals of the Bank's borrowing countries. Women account for nearly 48 percent of the Bank's total staff, 35 percent of the senior staff, 32 percent of middle management, and 20 percent of upper management.

## About This Report

This Sustainability Report covers sustainability progress and performance in the 2012 fiscal year for the Inter-American Development Bank. This document is available in electronic format at [www.iadb.org/sustainability](http://www.iadb.org/sustainability) in English and Spanish. Printed copies may be ordered. A bilingual summary brochure of the report is available in both digital and print format.

**The “@” signifies that there is additional available information.**

## Global Reporting Initiative

This Sustainability Report is accompanied by a Global Reporting Initiative (GRI) report. The goal of the IDB GRI report is to capture and disclose valuable environmental, social, and economic information and data from this Sustainability Report—as well as from other flagship Bank reports (The Annual Report, Development Effectiveness Report), the IDB website, and the Bank's Corporate Environmental and Social Program—in a comprehensive manner. [GRI@iadb.org](mailto:GRI@iadb.org) and [www.iadb.org/sustainability/gri](http://www.iadb.org/sustainability/gri)

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To read more online or to join the conversation, visit our website:  
[www.iadb.org/sustainability](http://www.iadb.org/sustainability)

## A Message from Our President



Today, Latin America and the Caribbean are more globally connected than ever. Our economies and cities are growing. Farms are more productive, investment in industries of all types is increasing, and tourism to the region continues to rise. This means that the region needs new roads, more-efficient ports, and better telecommunications

facilities and power grids, among other needs. The Bank is committed to helping the region address these challenges while enhancing and protecting its social and natural capital.

This annual publication shares IDB's contributions to sustainability during 2012. It also engages stakeholders on the critical emerging sustainability issue of water resources management. To advance the dialogue on the links between water and well-being, we invited well-known specialists and experts with real-world experience to explore the topic through technical papers and commentaries. Recognizing the complexities of climate change and integrated water resources management, last year we launched an action plan to help our clients begin to address the issue. During the year we supported pilot projects to explore innovative management solutions and developed new planning tools that will help our clients better manage this vital natural resource.

The report also outlines our commitment to environmental and social sustainability and safeguards in our operations. For example, in 2012 the IDB financed loans for the 305 MW Reventazón Hydroelectric Project in Costa Rica. In addition to improving electricity generation, transmission and capacity, the project features the development of the first river offset in an IDB-financed project, to compensate for impacts on the Reventazón River. We are also working with

the borrower and an international environmental partner to facilitate the conservation of a critical jaguar habitat affected by the project. Our Biodiversity and Ecosystem Services Program will act as a catalyst for client projects like this that ensure conservation of the natural capital necessary to support future economic growth.

Sustainability at the IDB takes into consideration projects' social impacts on vulnerable populations as well as gender equality and the empowerment of women. We were the first multilateral development institution to adopt gender safeguards as part of a Gender Policy. Throughout 2012 we placed a strong emphasis on training and support to implement the Gender Policy and Gender Action Plan we approved in 2011.

We know that our clients value us not only for our lending capacity but also for the support and know-how of our experts. To that end, in 2012 the Bank continued to strengthen its knowledge and learning activities in climate change, sustainability, and biodiversity. Training extended beyond the Bank to the region to facilitate a better understanding of the challenges and to build and support projects that will effectively promote economic, social, and environmental development in the region.

I would like to acknowledge those who have made possible the strides we describe in these pages: our 48 member countries, the people in the field we are lucky to meet along the way, our many partners in projects throughout the region, and the IDB staff who work hard every day to ensure that together we are supporting long-term sustainability in the region.

**Luis Alberto Moreno**  
*President*



	2010	2011	2012
<b>The Bank's Operations</b>			
Number of projects in portfolio	646	669	712
Volume of projects approved (US\$ billion)*	12.7	10.9	11.4
Total number of projects approved	170	167	169
Total Disbursements (US\$ billion)	10.9	8.4	7.4
<b>Sustainability Investments</b>			
Value of approved loans that target environmental sustainability, climate change mitigation and adaptation, and sustainable energy (US\$ billion, %)	3.62 (29%)	4.97 (46%)*	3.75 (33%)
<b>Environmental and Social Safeguards</b>			
Approved loan by environmental and social safeguard category (number)**			
Category A	6	7	8
Category B	67	56	72
Category C	57	35	29
Other (B.13)	38	67	59
No Category	1	2	1
Projects declined for noncompliance with IDB Environment and Safeguards Compliance Policy	0	0	0
Approved loan with an environmental and social safeguard (ESG) specialist assigned during preparation*			
Category A	6	7	8
Category B	44	32	39
Category C	4	1	0
Other (B.13)	18	22	21
Non-sovereign guaranteed projects in supervision*			
Projects with an IDB ESG specialist assigned	126	148	127
Projects with conducted site visit	28	15+ ***	30+***
Projects with high environmental and social risks rated satisfactory in the implementation of safeguard mitigation measures	N/A	79%	98%
Sovereign guaranteed projects in supervision*			
Projects with an IDB ESG specialist assigned	162	187	210
Projects with conducted site visit	29	50	60
Projects with high environmental and social risks rated satisfactory in the implementation of safeguard mitigation measures	N/A	73%	75%

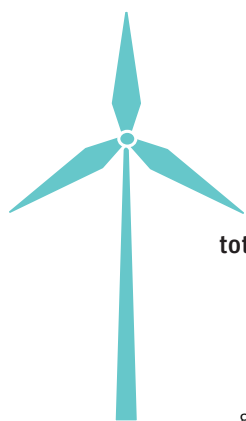
\* Adjustments made in 2012.

\*\* Includes all approved loans.

\*\*\* Does not include non-sovereign guaranteed operations monitored by consultants through environmental and social monitoring agreements.

# Sustainability at the IDB

The IDB takes its commitment to responsible development in Latin America and the Caribbean seriously. Our approach to sustainability is twofold. We maximize positive environmental and social impacts, while minimizing risks to natural and human capital.



## Maximizing Opportunities:

**total lending** focused on climate change, clean energy, and environment

as of 2012 33%  
goal for 2015 25%

## Minimizing Risks:

**six**

number of **safeguard policies** to address sustainability, including environment and social impacts

**81%**

of projects with high environmental and social risks **rated satisfactory**, putting us on target to meet our goal of 85% by 2015

## And It's Working...

In 2012, the IDB's sustainability efforts produced measurable results for the region and its people.

**five**

number of **climate change pilot projects** IDB supported



**1.6 million**

more people gained access to **improved public low-carbon transportation systems** this past year, up from 830,000 people in 2011

**73%**

of IDB-supported power generation capacity is from **low-carbon sources**, which puts us on track to meet the IDB's 2015 goal of 93%

**two**

national frameworks for **climate change mitigation** created



**2.4 million**

**farmers gained access to agricultural services** and investments, almost halfway to the 2015 target of 5 million

**five**

number of projects with components that contribute to **improved management of terrestrial and marine protected areas**, with a goal of 30 projects by 2015

## Gender and Social Inclusion

**\$45.5  
million**

grant investment to address issues related to **indigenous people and Afro-descendants**

**\$23.5  
million**



grant investment in **women's empowerment and gender equality**

**17**



number of sector-specific **gender learning events**

## We Take on Emerging Challenges

### Integrated Water Resources Management

The IDB is taking steps to understand the interplay of water resources and climate adaptation, and the related challenges for development. If you follow the water trail, you will find it leads into every aspect of environmental sustainability—from biodiversity, conservation, and ecosystem services to agriculture and food security, water supply and sanitation, and energy. The key is **integrated water resources management**.

In 2012, the IDB took steps to explore water resources management solutions and to develop new tools that empower our clients to manage this important natural resource.



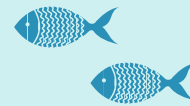
### Biodiversity and Ecosystem Services

The IDB began work on a new Biodiversity and Ecosystem Services program in 2012, work which will continue into 2013 and beyond

**\$17.7  
million**

invested through the Global Environmental Facility and Multilateral Investment Fund

**\$15.5  
million**



through targeted components in IDB infrastructure loans



2012 Sustainability Report | March 2013

To read the full report, or join the conversation, go to [www.iadb.org/sustainability](http://www.iadb.org/sustainability)



Part I

# Sustainability





# in Our Region

## Water resources and sustainability in Latin America and the Caribbean

- This section of the report presents critical thinking on major environmental and social sustainability issues relevant to the use of water resources in the region. The effective management of water is critical to human well-being and yet is challenged by climate change, competing uses, and contamination. This year's focus on water follows last year's focus on agriculture, which drew attention to the interconnections between water, energy, and food production.
- Technical papers from four specialists— Elizabeth Anderson, Adrian Cashman, Mathias Vuille, and David Hammond and colleagues—examine water resources from four different perspectives: water resources management in the Caribbean, climate change impacts on water in the tropical Andes, the relationship between hydroelectric development and waterways in Central America, and the effect of gold mining on waterways, with a particular emphasis on northern South America.
- In addition, commentaries from four people with long and substantive experience at the forefront of ensuring sustainability— Rene Castro, Indra Nooyi, Ignacio Rodriguez, and Santiago Levy—raise critical issues related to ensuring the sustainability of water resources in Latin America and the Caribbean.
- Together, the technical papers and commentaries provide the reader with a broader context within which to consider the day-to-day work of the Bank that is described in Part II of the Sustainability Report. All the contributors draw attention to the need to fully understand the relationships between water and human well-being, water and business productivity, water and energy production, water and food production, and the way climate change is changing these relationships.
- A critical conclusion is the need for a fully integrated approach to water resources management.

*The opinions presented here by named authors do not necessarily reflect the views of the IDB.*

# Hydropower Development and Ecosystem Services in Central America

—ELIZABETH P. ANDERSON

*Elizabeth P. Anderson is at the Global Water for Sustainability Program in the Department of Earth and Environment at Florida International University in Miami.*

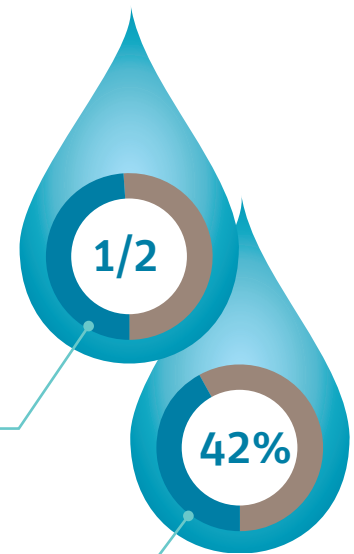
Central American rivers provide numerous benefits to people while supporting much of the region's rich biodiversity. They contain hundreds of species of fishes and shrimps, including many migratory species that depend on a natural flow regime and upstream-downstream connectivity for survival. People in the region derive most of their drinking water from surface waters, and rivers provide a source of food and income, serve as transportation routes, and have strong linkages to the cultural identity of rural people. In addition, hydropower provides a reliable source of domestically produced electricity for Central America, and much of the region's hydropower potential remains untapped. Since hydropower is likely to be a cornerstone of Central America's energy future, it is important to learn from the challenges of the past and to share innovations for conservation and management as related to freshwater resources at a regional scale.

## RIVERS OF CENTRAL AMERICA AND ECOSYSTEM SERVICES

Tropical rivers in Central America are highly heterogeneous systems, ranging from fast-flowing mountain torrents in areas of high relief to slow-moving rivers that meander through lowland environments. Compared with rivers in North and South America, Central American rivers are shorter, carry a substantially lower volume of water as they drain smaller basins, and generally are closely connected to marine environments.

Many Central American freshwater species, particularly fishes and shrimps, are diadromous, meaning that they exhibit some form of migratory behavior or need access to saltwater at some stage in their life cycle. The survival of migratory species depends on unimpeded movement along river channels between upland freshwater habitats and coastal areas. Central American rivers also have high socioeconomic importance, although information that quantifies this importance is limited. Examples of the provisioning services they provide include water supply for domestic, industrial,

*Regionally, hydropower accounts for about half of net electricity generation and 42 percent of total installed generation capacity.*



and agricultural uses; fisheries; and aquatic plants and bed sediments that provide building materials. Supporting and regulating services include transportation, flood control, and waste assimilation. The cultural services linked to Central American rivers include recreation, cultural identity, and rivers as historical reference points.

Since the early 1980s, hydropower has emerged as one of the most important ecosystem services provided by Central American rivers. Regionally, hydropower accounts for about half of net electricity generation and 42 percent of total installed generation capacity, although the relative importance of hydropower varies by country. Because hydropower generation results in alteration of rivers and the natural flow regime, this energy source often compromises the availability or quality of other freshwater ecosystem services.

Central America is considered a potential "climate change hotspot" on the basis of the magnitude of projected changes in temperature and precipitation. Climate-related changes are likely to affect the availability of water for hydropower



generation, especially in basins where reductions in precipitation are projected, and may even affect the safety of hydropower projects, particularly in basins with predicted changes to flooding regimes in the future. Thus climate change and its associated impacts on river flows are likely to affect dams in the future. At the same time, policies to address climate change may emphasize dams as a component of future energy strategies, since hydropower is often viewed as a clean source of electricity.

### UNDERSTANDING THE CONSEQUENCES OF FLOW ALTERATION

Flow acts as a master variable in rivers, shaping physical habitat and providing connectivity, influencing the composition of species that inhabit fluvial systems, and selecting for life histories of aquatic species. The variability inherent in a river's natural flow regime is ecologically very relevant. Base flows or low flows often provide habitat stability over long periods. Pulse flows or high flows flush sediment from interstitial spaces, creating or maintaining habitat for fluvial species like macroinvertebrates. Flood flows form river channels and can act as a kind of reset event that eradicates exotic species or connects river channels to floodplains. And flow events can serve as cues for migratory species to move upstream or downstream to spawn or feed. Freshwater inflows—and the sediments, nutrients, and organic matter they transport—are critical to coastal and marine ecosystems.

Alterations to river flow and losses in riverine connectivity as a result of hydropower development or other factors disrupt flow-ecology linkages, often with negative consequences for freshwater ecosystems. Attempts to predict the consequences of flow alteration and dams as barriers have suggested that dams proposed for the La Amistad region between Costa Rica and Panama will result in a near-total extirpation of migratory fishes and shrimps upstream.

Flow alterations have potentially wide-ranging consequences for people as well. By affecting the persistence of freshwater fish species, dams and associated flow alterations decrease access to fisheries resources. Flow alterations, particularly reductions in flow, can compromise river navigation downstream from dams and therefore alter people's ability to rely on rivers as primary transportation routes or sources of environmental tourism-related income. Flow alteration is the focus of this paper, but it is important to recognize that reservoir flooding may cause significant impacts including displacement of people and may result in social conflict.

### FINDING A BALANCE BETWEEN HYDROPOWER DEVELOPMENT AND ECOSYSTEM SERVICES

Several good examples of best practices are available in Central America in response to the challenge of balancing hydropower development and the protection of other freshwater ecosystem services.

- Consider and implement international criteria for site selection and operation of hydropower**

Syntheses of information on impacts of dams in tropical regions have led to the development of criteria for good and bad dams or to specific guides of best practices for hydropower projects. The criteria are designed to identify where the potential for environmental and social impacts could be so unfavorable as to undermine the electricity benefit of a hydropower project or could be extremely difficult or impossible to mitigate. For many projects the single most important measure toward more environmentally and socially sustainable hydropower is good site selection.
- Develop Central American datasets and frameworks for environmental flow assessment and implement recommended flows**

An environmental flow refers to the quantity, quality, and timing of freshwater needed to sustain aquatic and terrestrial ecosystems and the related ecosystem services people

*Central American rivers contain hundreds of characteristic aquatic species, including many migratory species that depend on a natural flow regime and riverine connectivity for survival. At the same time, rivers provide human populations with a source of water, food, and energy, serve as transportation routes, and have strong linkages to cultural identity.*

depend on. Environmental flow assessment—a process by which the flow needs of ecosystems are estimated and recommendations for water allocation to ecosystems are developed—is quickly becoming standard practice in water resources management worldwide. This trend has extended to neotropical countries in the past decade, with many countries revising water-related legislation to include guidance as related to environmental flows or engaging in environmental flow assessments for individual rivers. Given the extent of hydropower development across Central America, there is both a need to share lessons and data from current individual studies and a need to develop frameworks for environmental flow assessment and implementation specifically within a Central American context. All the assessments done so far in the region underscore the need to take a holistic approach in developing environmental flow recommendations. Ideally, dams should function in a way that can somehow mimic the natural variability of a river, and the array of freshwater ecosystem services provided by rivers should be considered explicitly in flow management plans.

- **Support riverscape-scale planning and regional communication networks**

The environmental and social consequences of most hydropower projects in Central America are evaluated on an individual basis, and impact studies often are heavily focused at a local scale. But with the concentration of multiple dams on single river basins or within key ecoregions or ichthyological provinces, there is a need to understand both the basin- or region-scale effects of individual projects and the cumulative effects of construction and operation. Regional conservation initiatives can help identify entire basins—or if not at that scale, river segments—that should be conserved on the basis of their ecological or social significance and current intact state. The Tegucigalpa Protocol, the establishment of the Central American Integration System, and development of a regional electricity grid offer examples of ways that Central American countries recently have moved toward regional collaboration on hydropower. Although focused primarily on

economic and grid integration, these networks could offer an opportunity for regional promotion of more ecologically and socially sustainable practices and protection of freshwater biodiversity and ecosystem services as well.

- **Explore linkages between hydropower and other conservation initiatives**

Central America currently is experiencing transformations of the landscape as related to changes in land use, growing human populations, and climate change. Strong interest in the conservation of natural, intact systems exists, and there may be an opportunity for hydropower development to act as a catalyst or support for these conservation efforts. There is already some experience of hydropower dam projects experimenting with conservation programs that involve a kind of offset program to compensate for rivers being altered by dams. Additionally, some hydropower dams have also contributed to watershed and forest conservation initiatives through payment for environmental services schemes in Central America.

- **Safeguard some rivers from hydropower development**

Over the last few decades, many countries set aside a substantial amount of national forests for conservation, investing in a system of protected areas that largely has been the backbone for a lucrative environment-based tourism industry. Similar conservation choices could be made to protect freshwater ecosystems, perhaps through designation systems similar to the U.S. concept of Wild and Scenic Rivers. Protection categories could be developed for river basins or individual rivers on the basis of ecological or socioeconomic importance and could allow for some uses while restricting others. The goal would be to ensure the persistence of free-flowing rivers in Central America. This recommendation is potentially the most important one for maintaining some semblance of the region's unique freshwater ecosystems and their biodiversity in the current century and beyond.

*A longer version of this article, including endnotes and a full reference list, is available at [www.iadb.org/sustainability/anderson](http://www.iadb.org/sustainability/anderson)*





Rene Castro is the Minister of Environment and Energy of Costa Rica. Dr. Castro has extensive experience in the public sector, including service in the Ministries of Governance, Transportation and Public Works, and Foreign Affairs and in the San Jose City Council. Dr. Castro led Costa Rican delegations to the international conventions on biodiversity, climate change, and the ozone layer. He is a Professor at INCAE and a frequent lecturer at Harvard University. He has written numerous books and articles on environmental evaluation, sustainable development, and environmental services and has pioneered schemes for payments for environmental services in Costa Rica, including one of the first carbon transactions, and leading debt-for-nature swap negotiations.

Today water resources throughout the world are facing a new challenge: the impact of climate change. Climate change affects the availability of water, and Latin American countries are increasingly facing extreme droughts and flooding. At the same time, countries rich in water, like my own, waste vast quantities of this vital liquid in water-intensive agriculture.

This needs to change, particularly in light of our vulnerability to climate change and increasing demands from growing and more-affluent populations.

The generation of hydroelectricity, one of the most important energy sources, is affected by climate change. Costa Rica and Colombia depend on hydroelectricity for 66 and 73 percent of their energy, respectively, and hydrological changes related to El Niño and extreme events will affect energy potentials.

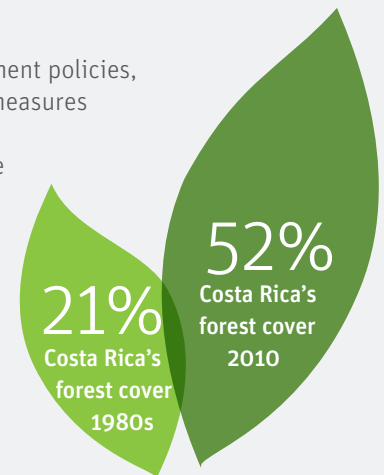
Climate change is already affecting the economies of countries, with energy production from hydroelectric infrastructure not meeting 100 percent of capacity and driving the need for more-expensive and more-polluting alternative energy generation. Costa Rica is examining how to replace a proportion of hydroelectric generation with geothermal generation from its volcanoes.

Another issue that requires considerable attention is the management of wastewater. In 2011, the use of septic tanks reached 75 percent coverage in Costa Rica, but only 3.6 percent of wastewater is treated. Costa Rica is investing hundreds of millions of dollars to address this risk, but it will take more than a decade to cover a significant proportion of wastewater—a situation shared with all Central American countries. It is clear that climate change is a threat that is little understood but that requires immediate action. It is the responsibility of governments and the public sector to

elaborate plans and to implement policies, strategies, instruments, and measures designed to impede, reduce, avoid, and control the adverse effects of climate change on people, assets, services, and the environment.

Costa Rica has developed a system of payments for environmental services (PES) to support carbon sequestration and the conservation of water sources. With an investment of nearly US\$300 million over 20 years, we have moved from 21 percent forest cover in the 1980s to 52 percent cover in 2010. Today's challenges are how to ensure financial sustainability in projects in Costa Rica and how to replicate these models elsewhere. Mexico and Ecuador have improved PES by incorporating communal and indigenous rights, and 54 countries are now promoting similar programs. Today there are efforts to improve monitoring, reporting, and verification of programs to conserve and recuperate natural forests to fix carbon and, indirectly, to preserve water sources.

Is this the correct route? I would say yes, because it is a route that provides solutions and allows us to take the first steps and concrete global activities that can be implemented by everyone in accord with their own realities. In addition, this is a response with shared but differentiated responsibilities that provides a light at the end of a very dark tunnel of inactivity. Governments and the public sector are obliged to light up this tunnel and to accelerate responses to climate change, especially those related to the adequate management of hydrological resources.



# Water Security and Services in the Caribbean

—ADRIAN CASHMAN

*Adrian Cashman is a senior lecturer on water resources management at The University of the West Indies in Barbados.*

Since the mid-twentieth century the Caribbean region has undergone a remarkable transformation away from a predominantly rural, agriculture-based economy to a situation where the majority of the population is urbanized. There are, however, likely to be challenges for Caribbean states in holding on to the gains that have been made while at the same time moving toward sustainable water resources management. Indeed, there are growing concerns about the ability of governments to ensure the good management and provision of water without jeopardizing economic growth and the maintenance of social well-being.

## THE FRAMEWORK

Four common elements provide a framework for examining the water security situation in the Caribbean: adequacy, accessibility, assurance, and affordability.

**1. Adequacy addresses conditions governing water resource availability in time and space that satisfies often competing demands, and the nature of the demands that drive exploitation.**

There are already serious gaps between available supply and demand in many Caribbean countries. The paradox is that many of these countries have sufficient water resources to meet demand but not the infrastructure or institutional frameworks to close the supply-demand gap. An increasingly urbanized population along with improvements in standards of living are likely to drive further increases in both total and per capita levels of water consumption.

**2. Adequacy is complemented by physical accessibility, ensuring that water is available when and where it is needed.**

For many countries, improved water supplies and sanitation exceed 90 percent coverage. The problems are mainly related to the quality of service and the maintenance and

operation of the existing infrastructure. The challenges include inappropriate governance arrangements, deficient legislation and regulation, aging infrastructure, high levels of unaccounted-for water, concerns over potable water quality, and poor infrastructure management. Providing infrastructure for wastewater services lags behind drinking water services. Poorly functioning sewage systems and the lack of or improper disposal of sewage are causing serious pollution of surface and groundwaters.

**3. Assurance concerns the ability to secure safe and sufficient resources to cope with potential system shocks such as extreme events, security threats, and contaminated resources.**

Both surface and groundwater resources are likely to be adversely affected by climate change and variability, with significant decreases in sustainable yields due to decreases in recharge rates. Thus the ability to assure the security of supply needs to be reassessed, although the availability, completeness, and reliability of data for such assessments present a major challenge. The ability to withstand shocks—droughts, floods, hurricanes, etc.—to water services infrastructure has received little attention; the ability to cope with shocks is as much a governance issue as it is an infrastructure issue. Numerous reports from across the region suggest that water management practices are sub-optimal.

**4. Affordability applies to providers of water services and those who have to obtain those services and is related to how water management and services are to be paid for as well as the financial position of state agencies and of businesses and citizens.**

Of greatest concern is the ability of low-income people to afford access to sufficient water to meet their needs. The suggested lack of affordability, combined with water being a basic need, provides a powerful argument to keep water tariffs low. Ensuring that service providers can afford to provide the



services they offer involves finding a balance between not having too heavy an impact on household incomes through tariffs, the need to reduce dependence on public budgets (subsidies), and the need to encourage utilities to adopt a long-term approach to setting revenue requirements.

## THE GOOD NEWS

Fortunately, there is some good news about water security and services in the Caribbean. Compared with 50 years ago, the situation has improved enormously, and the achievements are all the more impressive given where the region has come from socially, politically, and economically.

- **Increased investment.** There is ongoing investment in infrastructure such as production wells, water treatment works, pumping installations, leakage reduction initiatives, and mains replacement programs. Some of the successful models of service delivery involving private sector provision in Jamaica and Haiti may well find application elsewhere.
- **Climate change adaptation and regional coordination.** The Implementation Plan for the Regional Framework for Achieving Development Resilient to Climate Change provides a sound, well-formulated plan of action that addresses water-related needs and forms the basis for attracting investment. Regional cooperation is strengthened through the CARICOM Consortium of Water Institutions and the implementation of a common water framework in 2008. And contacts between water professionals across the region are facilitated by several mechanisms, including the High Level Ministerial Forum.
- **Successful interventions.** The Global Environment Facility's project on Integrating Watershed and Coastal Area Management in the Small Island Development States of the Caribbean raised the profile of integrated water resources management (IWRM) throughout the region

through demonstration projects, specific interventions, and engagement with national and regional stakeholders. The Organisation of Eastern Caribbean States is developing model water legislation based on IWRM principles and good practice.

- **Data gathering.** The development and improvement of the Caribbean Drought Monitoring and Precipitation Network continues to make a positive contribution to forecasting and preparedness in the region.

## THE CHALLENGES

The lack of data hampers the understanding of current water vulnerabilities and the ability to plan ahead and to identify appropriate adaptation strategies. Forward planning has been largely neglected and is symptomatic of a lack of appreciation of the need for national water policies. The reluctance to involve the private sector needs to be addressed while a conducive environment is established to facilitate its involvement. Last, the perception that welfare and water are synonymous has to be addressed. Water service providers need to be efficient, well managed, and allowed to do their job. This means that they have to be on a sound financial footing. The challenge is to find the balance between appropriate political and regulatory oversight and the autonomy of water managers and service providers.

Climate change, on its own, is not the most pressing problem—it is the macro-economic conditions that are the main concern. These determine the creation and availability of resources—natural, human, intellectual, and financial—needed for a water-secure Caribbean. Water security is realized through sustainable economic development as much as sustainable economic development depends on the achievement of water security.

- **Adequacy.** The spikes in global food prices and high food import bills have prompted the region to seriously consider food security issues and have renewed interest

*Water security is realized through sustainable economic development as much as sustainable economic development depends on the achievement of water security. The perception that welfare and water are synonymous has to be addressed. The challenge is to find the balance between appropriate political and regulatory oversight and the autonomy of water managers and service providers.*

in agriculture. The Jagdeo Initiative was designed to transform agriculture to ensure a food-secure region and a competitive agricultural sector. Since it was proposed in 2004, progress has been slow. Potentially the competition for resources could drive improvements in resource use efficiency and wastewater reuse. The appropriate treatment and use of wastewater could provide a significant source either through direct reuse or artificial recharge. However, cost constraints and public health concerns are acute.

- **Accessibility.** Metering and low water tariffs are not disincentives to water use, and aging infrastructure will continue to cause management and service problems in meeting different sectors' demands. So access in terms of reliability and continuity of supply may actually deteriorate. Climate change will impose additional design and operational conditions to be factored in when extending and upgrading infrastructure. More will need to be done to improve the managerial capabilities of service providers; at the same time, there is a need for greater accountability, incentives, and oversight to improve performance.
- **Assurance.** The existing water infrastructure was not designed to accommodate the changes in baseline conditions that, due to climate change, are likely; planning and upgrading needs to take this into consideration. Basic information and models to inform management decisions will be important when trying to account for climate change and a greater degree of uncertainty. IWRM, despite some good work, has made little progress toward providing a basis for institutional reform. Nor have the key linkages between land and

water management been incorporated into policies and planning. This is probably the second biggest challenge, after economic development, facing the region.

- **Affordability.** Governments can decide how water services are to be paid for and the relative burden between customer and taxpayer, but they are constrained by macro-economic circumstances. Affordability, a sensitive issue, will likely be used to keep tariffs low, which is problematic for the effective and efficient management of water services. The ability to invest in water infrastructure, services, and improved water management in the face of financial constraints will require creative solutions and probably involve the private sector, at a high cost. This holds potential gains as well as dangers, so whether the greater use of public-private partnerships is viable is an open question.

*A longer version of this article, including endnotes and a full reference list, is available at [www.iadb.org/sustainability/cashman](http://www.iadb.org/sustainability/cashman)*





Indra Nooyi is Chairman and Chief Executive Officer of PepsiCo, with a global food and beverage portfolio that includes 22 brands generating more than US\$65 billion in annual net revenue. Mrs. Nooyi is the chief architect of Performance with Purpose, PepsiCo's promise to do what's right for the business by doing what's right for people and the planet. In addition to being a member of the PepsiCo Board of Directors, Mrs. Nooyi serves as a member of the boards of U.S.-China Business Council, U.S.-India Business Council, The Consumer Goods Forum, Catalyst, Lincoln Center for the Performing Arts, The Peterson Institute for International Economics, and Tsinghua University. She is also a member of the Foundation Board of the World Economic Forum, is a Successor Fellow of Yale Corporation, and was appointed to the U.S.-India CEO Forum by the Obama administration.

Sustainable water management is critical to Latin America's present and future, and business has a key role to play in this area. As a global food and beverage company, PepsiCo is committed to reducing costs through innovative approaches to responsible water stewardship, whether in the fields with our growers or in the facilities where our products are manufactured. This helps us remain competitive while reducing our impact on the communities where we do business.

We have also taken a leadership role in developing public-private partnerships with governments and organizations like the Inter-American Development Bank. Through support from the PepsiCo Foundation, we are proud to be the first company to work with the IDB AquaFund to bring access to safe water to people across the region. The AquaFund provides grants

that facilitate investments in technical assistance, policy and capacity development, knowledge creation and dissemination, and community pilot projects in water supply and sanitation, water resources management, solid waste management, and wastewater treatment. The fund contributes to making these services sustainable and accessible to the poor and helps countries cope with the emerging challenges of climate change, the rapid degradation of freshwater ecosystems, and mounting water insecurity. The fund is financed through contributions from the IDB and the PepsiCo Foundation and the governments of Austria and Switzerland.

By working collaboratively in this way, we are together helping to develop effective and lasting water solutions for Latin American communities.

# Climate Change and Water Resources in the Tropical Andes

—MATHIAS VUILLE

*Mathias Vuille is an associate professor in the Department of Atmospheric & Environmental Sciences at the University at Albany, State University of New York.*

The mean climatic conditions in the tropical Andes underwent significant changes during the twentieth century. The temperature increased by about 0.7°Celsius between 1939 and 2006, although the increase varied, depending on elevation and slope. Several studies have documented similar warming trends on a more regional level. Precipitation trends are weaker and much less coherent, owing to the strong modulation of precipitation characteristics by the Andean topography.

Studies on future climate change are fairly limited and focus primarily on changes in temperature and precipitation by the end of the twenty-first century based on different scenarios. Temperature changes in the simulations show a strong elevation dependency, with the largest warming at high elevations, where glaciers are located. The tropical Andes might experience a warming on the order of 4.5–5°Celsius by the end of this century. Maybe even more disconcerting are projections of future interannual variability and the likelihood of extremely hot years. Future changes in precipitation amount or seasonality are more difficult to simulate.

## CLIMATE CHANGE'S IMPACTS ON NATURAL SYSTEMS

The observed changes in temperature have led to a rapid and accelerated retreat of tropical glaciers throughout the tropical Andes. While a decline in precipitation may have contributed to that retreat on a regional scale, the lack of a coherent negative precipitation trend across the entire range of the tropical Andes suggests that precipitation changes were not the main driver of the observed change.

Changes in glacier volume will eventually lead to significant changes in the seasonal glacier hydrology downstream, with the most significant changes in streamflow expected during the dry season, when glacier meltwater accounts

*The tropical Andes might experience a warming on the order of 4.5–5°Celsius by the end of this century.*

for a significant amount of total river flow. Glaciers play a vital role as critical buffers against seasonal precipitation and provide water during the dry season for a multitude of domestic, agricultural, or industrial uses.

The amplitude of the simulated streamflow change depends highly on the current degree of glaciation within the catchment. A currently heavily glaciated catchment will undergo a large change in its seasonal runoff behavior as glaciers become smaller. A catchment where the glacier is already small will not see a large change even if the glacier disappears entirely in the future. These results clearly highlight the importance of considering future changes and hence any adaptation measures on a case-by-case basis.

Wetlands known as *paramos*—neotropical alpine ecosystems—are a major water source for Andean highlands and provide water for a vast area of the much drier lowlands on the Pacific coast of Ecuador and northern Peru. *Paramos* are increasingly threatened by climate change, as higher temperatures will displace ecosystems upslope, coupled with biodiversity loss and increasing spatial isolation. Glacier retreat can also directly affect the species composition of ecosystems through changes in downstream water supply. Aquatic species may also be strongly affected.

The change in seasonality of streamflow and the reduction of river runoff during the dry season will have implications for water use in all its aspects, ranging from access to drinking

water to water availability for sanitation, irrigation and agriculture, mining operations, and hydropower production. The observed and projected future decreases in streamflow have already led to increased tensions between local peasants and mining companies. There are also significant social and economic impacts related to hydropower production in the high Andes. Future water scarcity may lead to increasing struggles for power to regulate and gain access to water; displacement of local populations and centuries-old water use practices may be the end result.

Struggles over access to sufficient water need to be discussed in the context of a growing Andean population, which will put additional pressure on resources. Indeed, the problems associated with climate change and impacts on water resources are of concern primarily in regions where large population pressure and significant economic activity are juxtaposed with large projected changes in water availability, thereby leading to increased competition for water rights. There is some concern that future water scarcity in some areas may lower the carrying capacity of the land and induce migration of large segments of the rural population to city centers, thereby enhancing water pressure.

## CHALLENGES AHEAD

The current problems surrounding water availability in the tropical Andes require the swift development and implementation of adaptation and mitigation strategies, which could help alleviate the conflicts surrounding access to clean water. The main goal of such adaptation efforts should be to increase the resilience and reduce the vulnerability of local indigenous populations, who will likely be most heavily affected by future climate change impacts on the hydrologic cycle.

Unfortunately, there has historically been a general disconnect between the various groups involved in these discussions.

Scientific studies, for example, have so far contributed little to improving the predictive understanding of future Andean water supply and demand and therefore have had virtually no impact on improving the livelihoods of affected populations. We still do not fully understand the varying importance of glaciers in different parts of the Andes. The same is true for ecosystems downstream of glaciers and their potential relevance for regulating water supply. Scientific studies have thus far also failed to provide useful metrics for planning purposes.

Much of this lack of progress is related to limitations imposed by an often inadequate environmental monitoring network in the region. Modeling studies also suffer from large uncertainties as far as changes in the hydrologic cycle are concerned, but there has been a general reluctance of many funding agencies to invest in impacts-related research, even though that is the only way to design and develop better downscaling techniques and scenarios.

Adaptation projects therefore often move forward without having received proper guidance from the scientific community. Some plans—such as painting mountain tops white to lower the albedo and thereby artificially induce glacier growth—go forward without adequate scientific evaluation. Similarly, projects often fail to acknowledge existing local adaptation strategies and therefore do not take advantage of traditional local knowledge. A better support framework for local and regional mechanisms, initiatives, and traditions would allow for a better integration of various actors. Up until now, adequate participation of the most vulnerable groups, the rural indigenous communities, has often been neglected.

One recent initiative, ACCION (Andean Climate Change Interamerican Observatory Network, funded by the US State Department), is working toward improved coordination and data sharing between actors and across disciplines, with the hope that it could help promote synergies, dialogue, and collaboration but also maximize the effectiveness of often rather limited financial



resources. A key aspect of this project is the recognition that real progress in the region requires better education and capacity building at all levels, promoting exchange of scientific expertise. This will be achieved through fellowships and through training and education of South American students at partner institutions in the United States and Europe.

In some instances, technical solutions may be able to alleviate some of the water stress, be it through building small reservoirs, reducing the fraction of polluted water that goes unused through construction of water treatment plants, tapping into new groundwater resources, or simply installing private water storage systems. Implementation of such measures, however, is often hampered by gaps in understanding of water availability, quality, and dynamics. Groundwater contribution, for example, has historically been considered negligible in glacierized valleys, but the real role of aquifers and their recharge rates are virtually unknown. In addition, new constructions, such as water reservoirs, would have to consider negative impacts such as loss of land, water loss due to evaporation, the potential for displacement of local populations, and the shortened lifetime of reservoirs in glacial watersheds due to high sedimentation rates. Water conservation, new irrigation methods, and sanitation projects may also provide some relief in certain regions.

Finally, it is important that the institutional standing of authorities involved in glacier research and water management be strengthened. In some instances environmental governance institutions may have to be modified or new entities may have to be created to better address changing water management

*Adequate adaptation strategies regarding glacier retreat and anticipated water shortages in the Andes can only be implemented successfully if scientific results are transformed into information that is useful and relevant to local populations and national entities involved in water management.*

requirements. Institutional arrangements, however, will have to include meaningful participation of local affected populations in watershed governance in order to avoid conflicts and water competition among economic sectors.

In the end, only a combination of various approaches will lead to reduced vulnerability and increased resilience of water users affected by climate change. Collaboration and partnership between all the actors and stakeholders involved is critically important. It is the only way forward toward a more sustainable future in the tropical Andes—a future where sufficient access to clean water is guaranteed and where water allocation addresses the concerns of all water users.

*A longer version of this article, including endnotes and a full reference list, is available at [www.iadb.org/sustainability/vuille](http://www.iadb.org/sustainability/vuille)*





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**M**anagement of water is a challenging priority as old as civilization itself. The major water issues facing the world today include more than a quarter of the world's population lacking access to clean water, a water source shortage, and pollution. The most recent addition to that list is the realization that climate change could affect significantly the distribution and availability of water resources throughout the world. These issues become more complex at the intersection of different domains—geographic, political, cultural, and socioeconomic—that do not typically fit in the spatial and temporal boundaries and scales of natural systems. Yet our approach to managing water throughout the world continues to be, for the most part, constrained by the domains we have created.

Meeting water needs in a sustainable manner has been widely recognized as a key area of need by the IDB and other organizations. Over the last two decades, it has become increasingly clear that we must adopt an interdisciplinary approach that integrates the engineering, environmental, ecological, social, health, economic, cultural, and political aspects of managing water. This has resulted in the growing field of integrated water resources management.

This integration has led to methods to manage water that are better adapted to local geographic and climate conditions, local socioeconomic situations, sanitation conditions, legal/political structures, and existing technological constraints. Despite these advances, IWRM has failed to achieve its goals in many regions. In part this is because it is hard to bring the many elements of the approach together in a functional whole, but there are other dimensions that have been little considered in IWRM to date.

Human dimensions such as ethics, culture, and spirituality are widely known to be important forces influencing decision making and human behavior. Although this effect is certainly recognized at the individual level, there is a gap in how this influence affects collective behavior—particularly in management and decision making by organizations and public entities. For decades, business management practices have incorporated human dimensions as core elements of their philosophy and implementation techniques. But this trend has yet to trickle down to the way we manage water.

In Latin America and the Caribbean, this change is starting to take hold. In Peru, for instance, a nationwide water resources management program financed by the IDB has taken a basin-by-basin approach in which decisions such as water allocation, infrastructure, and measures to improve water quality are based on the culture and values of the people who live in each basin. Basin councils are being established to provide a way to capture these human dimensions in water management. Similar efforts are starting to occur elsewhere in the region as well.

By integrating these human dimensions as key catalytic forces that can accelerate the changes needed to address water problems successfully, we will be better equipped to contribute solutions that will be more likely to achieve sustainable water solutions for future generations. IWRM already provides a tested vehicle for improved water management practices worldwide; a systematic consideration of these human dimensions will complement IWRM tools and techniques through an increased focus on the human-water connection.

# Managing the Freshwater Impacts of Surface Mining in Latin America

—DAVID S. HAMMOND, JUDITH ROSALES, and PAUL E. OUBOTER

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The high value intensity of gold, its spatial concentration in specific geological formations, and various social and economic conditions make surface mining for gold one of the most financially attractive yet damaging land use activities in Latin America and the Caribbean. Its uncontrolled spread across many lowland river basins continues to leave a record of significant environmental impacts, cultural change, social unrest, and human health concerns.

At its best the mining sector can play a significant role in the near-term development of regional economies by boosting employment, increasing public revenues, supporting business growth, and building public-purpose infrastructure. But over the long term, poorly managed and regulated mining can have significant environmental and social costs that are simply passed on to future generations. This is the case in particular when proceeds from mining are not effectively reinvested by governments in improving social and environmental conditions.

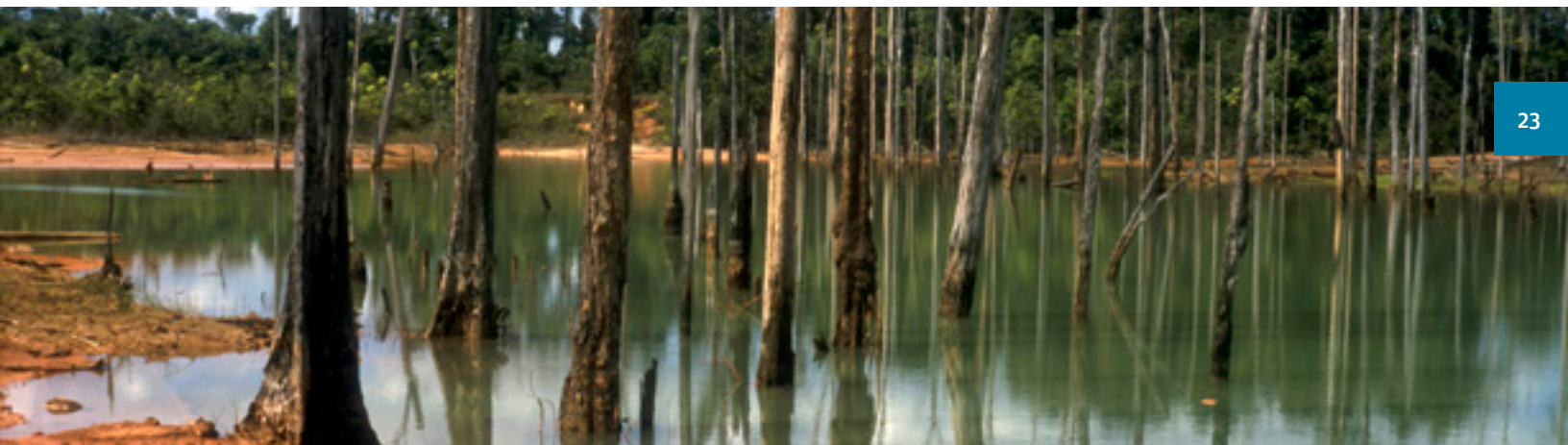
Latin America has become a major supplier to the international gold market and is set to increase its market share toward the mid-millennium. Many countries in the region derive a significant portion of their GDP from mining, and an even larger—and perhaps more important—fraction of their foreign-exchange earnings from gold exports. In addition, in major gold-producing countries in the region an estimated 20–60 percent of production comes from small (artisanal) and medium-scale mining operations. Estimates of the number of people directly involved in this sector range from 750,000 to 1.5 million, with three to four times as many involved indirectly through provision of support goods and services to the mining community.

## GOLD MINING'S IMPACTS ON FRESHWATER SYSTEMS

Gold mining is intrinsically inefficient. Compared with mining many other common metals, it produces a much greater level of processed waste for each unit of refined product. The methods used in processing and disposal of these wastes fundamentally shape the nature, intensity, and duration of the impacts of gold mining on lowland freshwater systems.

The direct environmental impacts include suspended sediments, mercury pollution, and deforestation. An abundance of studies have documented the impacts of sediments on primary production and invertebrate communities. The impacts on fish communities and other larger vertebrates, such as aquatic birds, are less clear. The role that gold mining plays in sedimentation should be set against a background of naturally occurring suspended sediment loads and the important role that these play in delivering nutrients and affecting energy delivery vital to the long-term maintenance of aquatic life. But highly active mining faithfully carried out over consecutive dry seasons can subject downstream habitats to long periods of elevated turbidity and sedimentation, disrupting normal seasonal cadences in productivity, reproduction, and growth.

Mercury is the most critical heavy metal pollutant attached to gold mining in the region. Ease of use and low cost have made mercury amalgamation the method of choice among small and medium-scale operations. The amount of mercury used for each kilogram of gold produced—the emission factor—varies but realistically ranges from one to five. Small-scale gold mining is estimated to account for 60–75 percent of mercury emissions in the region.



Studies have consistently shown elevated mercury concentrations in fish from rivers affected by gold mining. Relatively little is known, however, about the subsequent impact of heavily contaminated fisheries on birds, mammals, and reptiles that rely on fish for growth and reproduction. Mercury contamination increases with lower water pH, higher dissolved organic carbon, and lower suspended sediments—natural conditions that typify blackwater river systems. These are most prevalent in the Guiana and Brazilian Shield region of eastern Amazonia.

### *Studies have consistently shown elevated mercury concentrations in fish from rivers affected by gold mining.*

In terms of deforestation, annual forest cover losses due to mining range from 200 to 400 square kilometers a year in the Guiana Shield region alone. Riparian forests absorb a disproportionate portion of the losses, although these contribute unique value to landscape-level biodiversity and play a critical role in maintaining freshwater fish diversity and abundance. Despite these losses, early-stage forest regeneration appears robust after small-scale mining, as long as there is a significant residual source of tree seeds adjacent to the affected area. Large areas are less likely to recover quickly and may ecologically succeed toward grass and scrubland habitats.

Many of the non-operational activities attached to mining can have significant indirect impacts. Foremost among these are the impacts attached to forest road-building. Primarily developed by large mining, timber, or hydroelectric operations, roadways place enormous pressure on freshwater

systems. They also create point sources for sediments at bridge crossings, occlude drainage where inadequate culverting occurs, and encourage road-based hunting and agricultural encroachment.

The social consequences of mining include the well-known occupational health risks of malnutrition, dysentery, infection with insect-borne or sexually transmitted disease, and development of silicosis and other respiratory or skin ailments. Of overwhelming long-term importance, however, is the impact that contamination of freshwater fish resources is having on people's health. Numerous studies have documented the disconcertingly high levels of mercury in people in the region who rely on freshwater systems for their livelihoods. The development of regional and national fish markets based on commercial exploitation of freshwater catch can extend the health risks to urban consumers as well as incur economic losses from market contraction due to restrictions placed on the sale of mercury-contaminated fish.

### **WHAT CAN BE DONE TO REDUCE IMPACTS?**

Global experience with gold mining in lowland tropical systems suggests a number of opportunities to improve practices and reduce impacts on freshwater systems and the people who rely on them for their livelihoods.

- **Coordinate land use planning across natural resources and resource use sectors**

There is a critical need to support the establishment of land use planning systems that better integrate the use of terrestrial and aquatic resources across mining, agriculture, forestry, and protected areas sectors. Mining concessions, claims, and licenses variously overlap with protected areas, timber concessions, indigenous reserves,

*At its best the mining sector can play a significant role in the near-term development of regional economies....But over the long term, poorly managed and regulated mining can have significant environmental and social costs that are simply passed on to future generations.*

and agricultural leases in most countries because surface and subsurface rights are treated as distinct entities under most land laws. The lack of coherence in the laws and policies governing surface and subsurface resource use, as well as under-resourced land use planning divisions, impedes the sustainable use of lowland watershed resources.

- **Tailor gold mining regulations and standards to background environmental and land use conditions**

Some background environmental and land use conditions are inherent to the shaping influence of geology and soils on freshwater systems. Systems sourcing from the Guiana and Brazilian Shields need to account for the significant additionality of impacts delivered by alluvial gold mining operations. Standards should also reflect the cumulative impacts of all land uses in complex environments, such as the Magdalena basin, where mining accounts for a smaller fraction of the total contamination of freshwater systems or riverine habitat losses. Conditions can also differ due to vulnerabilities attached to catastrophic changes in rainfall regimes and their interaction with the effects of mining.

- **Support use of mitigation technologies to reduce sediment and mercury loading**

The technical components needed to effectively avoid and mitigate most long-term impacts of gold mining are well known. Facilitating their use could occur through various pathways: establishing equipment leasing bodies that provide the tools, practical training, and follow-up support, for example, or offering low lease rates and service support to encourage poorly educated, poorly capitalized miners toward greater use.

- **Encourage small operators to form collectives to normalize interactions and increase visibility**

Collectives of small-scale operators could improve their negotiating power when obtaining rights to extract minerals and could act as important conduits for increased use of impact mitigation technologies. Programs that specifically encourage and financially support the formation and administration of cooperatives where needed would improve the visibility of the largest part of the mining community.

- **Internalize the environmental costs of impaired water quality and biodiversity loss**

Development of a system of collective water quality rights could help mitigate the transfer of environmental costs from gold mining operations to local communities and businesses. These rights would formalize negotiations, avoid many land use conflicts, and allow communities and businesses to recoup the cost of impairment to their “normal” use of freshwater resources. This would also internalize the environmental costs of mining.

- **Examine new ways to pay for increased mitigation, monitoring, and compliance**

Revenues from mining royalties and fees have reached record amounts in most of Latin America and the Caribbean housing hotspots of gold mining activity. Contributing a small fraction of these proceeds to well-managed trust funds to support reductions in mining impacts on regional freshwater resources would help attract contributions from other national and international sources. It would also allow for better coordination of activities that are currently carried out by a wide range of supporting institutions: government agencies, nongovernmental organizations, mining companies, banks, and scientists.

*A longer version of this article, including endnotes and a full reference list, is available at [www.iadb.org/sustainability/hammond](http://www.iadb.org/sustainability/hammond)*





Santiago Levy is the Vice President for Sectors and Knowledge at the Inter-American Development Bank. Dr. Levy is a former deputy minister of finance in Mexico and was the main architect of the Progres-a-Oportunidades anti-poverty program, which focuses on economic and social policies for alleviating poverty. He is the author of at least 75 articles, monographs, and book chapters on poverty reduction, competitiveness, foreign exchange policy, export imbalances, pricing, microeconomics, and energy.

Water is essential for human well-being. Latin America and the Caribbean has over 30 percent of the world's freshwater. Some areas are water-stressed, and most countries of the Caribbean must carefully manage their water. The relationships between water resource management and sustainable development are complex and multidimensional.

Some of these relationships are obvious. Lack of access to safe drinking water and sanitation is directly related to health and poverty. There is a vicious cycle of poor water supply and bad sanitation leading to increased disease prevalence, under-nutrition and low productivity. The Bank has helped 146 cities, 2,600 rural communities, and 31 priority micro-watersheds extend adequate water and sanitation services, improve service continuity and quality, conserve water resources, minimize contamination, strengthen institutions, and improve the efficiency and transparency of service provision. Water is critical for energy production, with hydroelectric dams providing 70 percent of the energy in Latin America. Agricultural development also depends directly on freshwater: much of the agriculture in the region is rain-fed, and irrigation is one of the most rapidly expanding uses of freshwater.

Other relationships are less obvious. Amazonian forests generate rainfall that is critical for maintaining the agricultural heartlands of Latin America. Climate change is already modifying rainfall patterns and glacier distribution, as well as rising sea levels and affecting coastal freshwater resources across Latin America and the Caribbean. And climate change brings with it many future uncertainties. There are complex interconnections among climate change, water use, energy production, food production,

and the maintenance of ecosystem services. These connections are becoming increasingly complex as global demands drive growth in the extraction of non-renewable resources, agriculture, and energy production. Managing water resources in the future will require a much deeper understanding and new approaches.

Water resource management is emerging as a pivotal global challenge. Competing demands for water resources are growing, meaning that decisions that affect water and water use are more and more complex. Decisions taken independently within the water, energy, and agriculture sectors may have far-reaching consequences for each of the other sectors as well as for ecosystem services.

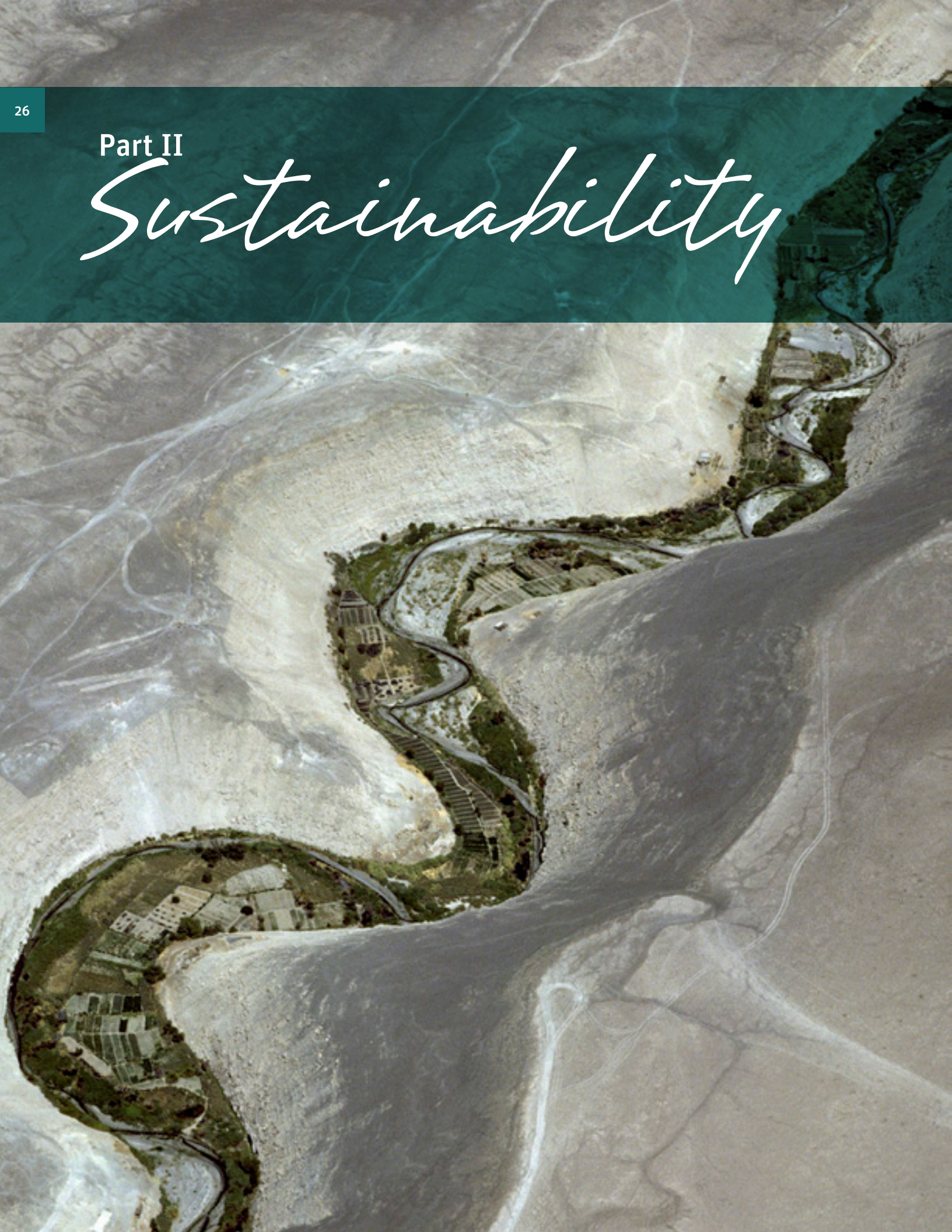
The Bank is expanding its activities in water. In addition to laying pipes and building dams it is pursuing integrated approaches for managing water resources for human well-being. Watersheds need to be understood and managed by engaging stakeholders and assessing trade-offs among competing demands while addressing impacts on ecosystems that provide vital services for people. National and regional policies in the energy, water, and agricultural sectors need to be integrated and to mainstream climate mitigation and adaptation. The need for effective water resource management is becoming progressively acute with urbanization, growing resource use, and climate change.

The Bank is committed to working in an integrated way with all its partners to provide safe drinking water, manage wastewater, make sustainable energy available, and maintain resilient productive ecosystems that will ensure water, energy, and food security as the basis of equitable and sustainable growth.



Part II

*Sustainability*





# *in Our Operations*

## **Ensuring environmental and social sustainability through IDB programs and investments in Latin America and the Caribbean**

- This section looks at how the Bank is helping the region manage its opportunities and challenges for environmental and social sustainability.
- It provides an overview of the key elements of the Bank's Framework for Sustainability, which places a continued emphasis and commitment on climate change mitigation and adaptation, sustainable energy, and environmental sustainability as well as the importance of gender equality and inclusion for long-term sustainable development in the region.
- The section provides a breakdown of our sustainability investments in 2012 along with our strategy and actions toward continued assistance to the region with respect to water resources management, climate change adaptation and mitigation, biodiversity, vulnerable populations, and gender equality and women's empowerment. We also explain how our investments and policies in these areas help meet specific development goals of the region.
- In addition, the section provides detailed information on how the IDB implements its safeguard policies from the earliest stages of preparation and how we implement and monitor safeguard performance, particularly in our most complex and high-risk operations.

# Our Framework for Sustainability

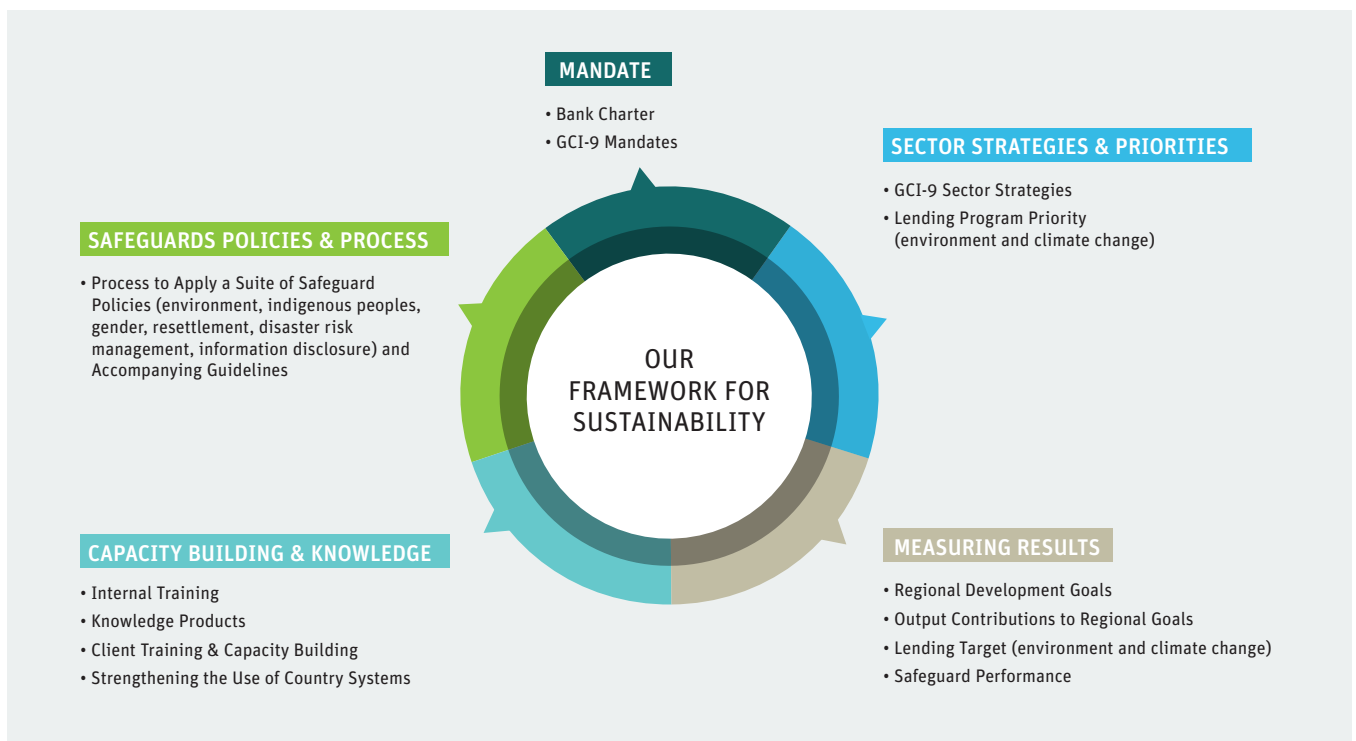
Through our institutional strategy and mandates, the IDB is committed to expanding its focus on environmental and social sustainability directed at maintaining the underpinnings of development, through the institutional priority “protection of the environment, response to climate change, promotion of sustainable energy, and ensuring food security.” The GCI-9 also recognized the importance of social inclusion for development to be truly sustainable, which means a greater focus on gender equality and empowerment as well as on vulnerable populations—indigenous peoples and Afro-descendants—potentially affected by programs the Bank supports. To meet these priorities, we have put in place sector strategies to guide our support and lending portfolio, and we are continuously working to strengthen and report on the effectiveness of IDB’s safeguards system. Combined with a robust system for tracking and measuring the Bank’s contribution to regional development goals and an emphasis on knowledge creation for sustainability, we have created an overall Framework for Sustainability at the IDB that allows us to maximize the positive environmental and social impacts of our work while minimizing the risks and negative impacts.

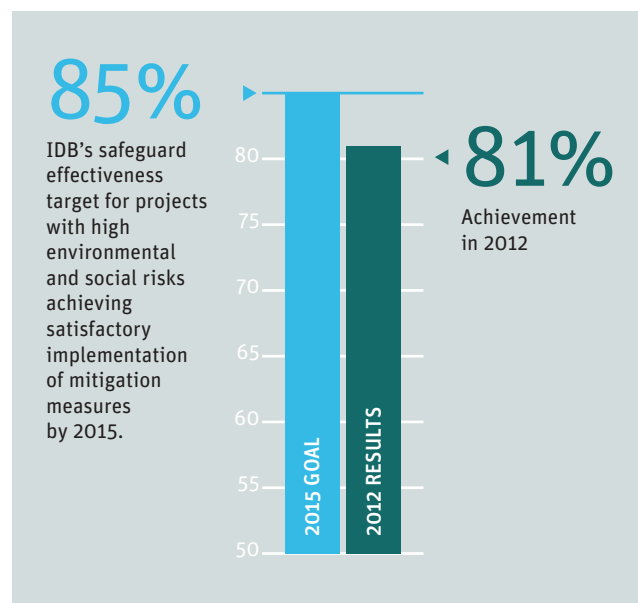
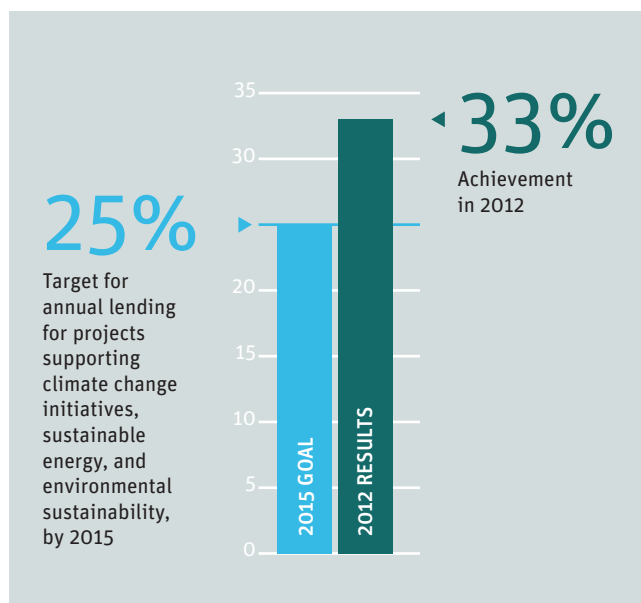
**Mandate.** The mandate of the Bank is to foster the economic and social development of the IDB’s borrowing member countries in Latin America and the Caribbean. In addition, the

*Sustainability at the IDB: we maximize the positive environmental and social impacts of our work while minimizing potential risks and negative impacts.*

Ninth General Capital Increase (GCI-9), which was approved in 2010, sets out two overarching objectives: reducing poverty and inequality and achieving sustainable growth. Alongside these objectives are two strategic goals: addressing the special needs of the less developed and smaller countries and fostering development through the private sector.

**Sector Strategies and Priorities.** The Bank has a series of sector strategies, sector policies, and sector guidelines that enable us to achieve our mandate, objectives, and goals. More specifically, the Bank has developed strategies in priority areas established under GCI-9 (four under implementation in 2012 and one under preparation in 2013). And to measure the Bank’s commitment to increasing its efforts in each of these areas, we have set ourselves a series of lending targets in each case to be met by 2015. See page 32.





In addition to these five strategies, in 2012 the Bank approved a proposal to review and streamline sectoral instruments so that they help us pursue the mandates associated with CGI-9 priorities. As part of the streamlining process, the Bank will remove outdated and obsolete sector policies over two years and will develop new sectoral documents that will seek to articulate concretely, in the context of a specific sector, the aspirational statements and directives that characterize a strategy. These include: agriculture and natural resources management, tourism, energy, food security, gender and diversity, climate change, and environment and biodiversity.

### Safeguard Policies and Processes.

Safeguard standards are important to ensure that each project is assessed, approved, and monitored with due regard to environmental, social, labor, and health and safety concerns and that all project-related impacts and risks are adequately mitigated or controlled. The IDB is committed to ensuring the implementation of safeguard policies that are equivalent to the best international practices. These policies constitute a coherent set of sustainability standards to guide our work. They cover environmental protection, resettlement, indigenous peoples, disaster risk management, gender equality, and information disclosure. In 2012 the Bank reported on its work to ensure that these policies are implemented during preparation and supervision of all projects, with a particular focus on the highest-risk projects in its portfolio. See page 47.

### PRIORITY SECTOR STRATEGIES

- Strategy on social policy for equity and productivity
- Strategy for institutions for growth and social welfare
- Strategy for regional integration
- Integrated strategy for climate change adaptation and mitigation and for sustainable and renewable energy @

**Capacity Building and Knowledge.** The Bank ensures that staff remain up-to-date on the latest developments in sustainability and safeguards, both through learning from outside sources and through the generation of knowledge and tools to gain a competitive edge or provide valuable leading insights for decision makers in the region. In addition, we work to provide knowledge and capacity to our partners so that they may better understand and implement environmental and social standards, building essential capacity and knowledge to help strengthen the country systems. See page 52.

**Measuring Results.** In 2011 the Bank set itself a series of targets, goals, and indicators to measure its sustainability impact in the region, including the share of power generation capacity from low-carbon sources funded by IDB (93 percent), 10 climate change pilot projects, and 30 projects with components contributing to improved management of terrestrial and marine protected areas. The Bank has also committed itself to disaggregating 11 regional output contribution indicators by sex, race, and/or ethnicity and is

currently establishing baselines for these indicators. And we are calculating priority lending targets and the effectiveness of our safeguards in implementation for our most complex projects. The results framework runs from 2012 to 2015. We are making advances in reaching these goals and targets. In some cases we are well on track to reach them, but in other areas there is still work to be done. See page 34.



## Signs of Progress: *Implementing the IDB Action Plan*

Our Sustainability Action Plan details a series of measures focused on mainstreaming sustainability and strengthening safeguards that the IDB committed to undertake in response to the recommendations of an Independent Advisory Group in 2011, toward which progress was made during 2012.

In 2012 our internal oversight function (the Office of Oversight and Evaluation) undertook a mid-term evaluation of the Bank's progress on meeting the commitments of GCI-9. This evaluation includes a specific background paper on environmental and social safeguards, including the Gender Policy, which contains specific recommendations for management. Management's response to these recommendations will be finalized in 2013 and will help to define actions during 2013 and beyond.

ACTION	IMPLEMENTATION PROGRESS 2012
<p>Establish a sustainability working group to oversee implementation of the Action Plan and environmental and sustainability discussions, support dialogue across sectors, improve efficiency and effectiveness in application of safeguards, and develop innovative operations.</p>	<p>IDB's Sustainability Working Group (SWG), established in 2011, continues to meet to discuss and provide guidance on sustainability issues.</p>
<p>Integrate environmental dimensions into country strategy and programming exercises and products (specifically for 2012: develop four country environmental sector notes).</p>	<p>Under a program begun in 2008, eight environmental and social safeguards issues papers (including four in 2012: Argentina, Dominican Republic, Guyana, and Honduras) have been completed as inputs to Country Strategies.</p>
<p>Undertake a review of Bank interventions to promote environmental and sustainability governance.</p>	<p>No progress.</p>
<p>Develop a biodiversity initiative.</p>	<p>The Bank launched the Biodiversity and Ecosystem Services Platform at Rio+20 and submitted a proposal to the IDB Board. <a href="#">See page 40.</a></p>
<p>Prepare a Bank-wide approach on the Rio 2012 Earth Summit covering environmental and social sustainability.</p>	<p>A comprehensive Green Economies and Institutional Frameworks for Sustainability: Rio+20 and the IDB paper was presented at the IDB Annual Meeting 2012, which included the Bank's biodiversity platform, a communication campaign with a documentary on the region's biodiversity, and an IDB position paper on the green economy.</p>

ACTION	IMPLEMENTATION PROGRESS 2012
Transform the Sustainable Energy and Climate Change Unit into a Climate Change and Sustainability Division.	Done, as of January 1, 2012.
Create knowledge management initiatives to facilitate mainstreaming of environmental and social sustainability considerations.	Ongoing. During 2012 the Knowledge and Learning Department of the Bank worked closely with the Environmental and Social Safeguard Unit and the Infrastructure and Environment Sector Department to strengthen its knowledge and learning activities in the area of climate change, sustainability, and biodiversity. <a href="#">See page 52.</a>
Increase reliance on and strengthen country systems: undertake equivalency analysis for one member country; increase support for Borrower's capacity to facilitate reliance on country systems.	A review of experience with the preparation of equivalence analyses at the World Bank and the Asian Development Bank has been completed and concluded that the IDB should focus on strengthening country systems. Tools to conduct in a consistent and reproducible manner the analysis of equivalence and acceptability with the IDB safeguards policies were developed in 2011. A desk-top equivalence analysis for Guyana was started in 2012.
Seek consistency with other multilateral development banks through a comparative analysis of standards.	A comparative analysis of the International Finance Corporation's performance standards was undertaken. IDB is continuing to monitor updates in the World Bank's safeguard policies, through participation in stakeholder discussions and policy review meetings.
Mainstream sustainability considerations in private sector operations.	In 2012, three safeguard specialists were detailed to the private sector operational department.
Improve the efficiency and effectiveness of the application of the safeguard policies.	The IDB Safeguard Unit budget resources to support the application of safeguards in operations in preparation and execution have progressively increased to manage the growing complexity and number of operations in small and vulnerable countries.
Approve and implement a gender policy.	The Gender Policy was approved in 2011 and the Gender Action Plan (GAP) provided a framework for implementation during 2011 and 2012. <a href="#">See page 42.</a>

# Our Investments in Climate Change Initiatives, Sustainable Energy, and Environmental Sustainability

The IDB invests in sustainability in a variety of different ways. It provides loans and grant funding that target environmental sustainability, climate change mitigation and adaptation, and sustainable energy. More specifically, the Bank invests in four interrelated categories that address climate change and the environment.

In 2012 the IDB approved 169 loans; 45 of these qualified as loans supporting climate change initiatives, sustainable energy (including hydro), and environmental sustainability. These totaled US\$3.75 billion, corresponding to 33 percent of total Bank investment. While this represents a decrease in the overall percentage of Bank lending in this area, it is above the Bank's commitment under its Lending Priorities to invest more than 25 percent a year in projects that target environmental sustainability, climate change mitigation and adaptation, or sustainable energy.



## CLIMATE CHANGE ADAPTATION

This category includes all activities that reduce the vulnerability or increase the resilience of human or natural systems in the face of climate change and increased climate variability.

- US\$100 million loan to support policy reforms in the context of natural disaster risk management and climate change in Panama.

Year	Amount	Share of Total Bank Lending
2012	US\$3.75 billion	33%
2011*	US\$4.97 billion	46%
2010	US\$3.62 billion	29%

*\*For the purpose of calculating this target, we count all loans, as well as special non-reimbursable grants to Haiti, whose primary objective meets one or more of the categories above. During 2011 a detailed methodology was developed to account for the GCI-9 lending targets. The methodology has been applied to the 2012 program, and adjustments have been made to 2011 data to ensure comparability. The key difference is that water supply operations have been included in these totals. The 2011 Sustainability Report reported 56 loans for a value of US\$4.6 billion. Six water supply operations have been added to this total. Further details are available online.*



## CLIMATE CHANGE MITIGATION

This category includes all activities that contribute to stabilizing greenhouse gas (GHG) concentrations in the atmosphere by reducing anthropogenic emissions of GHGs and by protecting or enhancing GHG sinks.

- US\$50 million investment in the ECO CASA Program, which seeks to help financial intermediaries in the development of financing products and services to support a transformational shift toward a low-carbon energy-efficient housing market.
- US\$60 million loan to Argentina to promote forest sustainability and competitiveness, including specific measures for adaptation and mitigation.

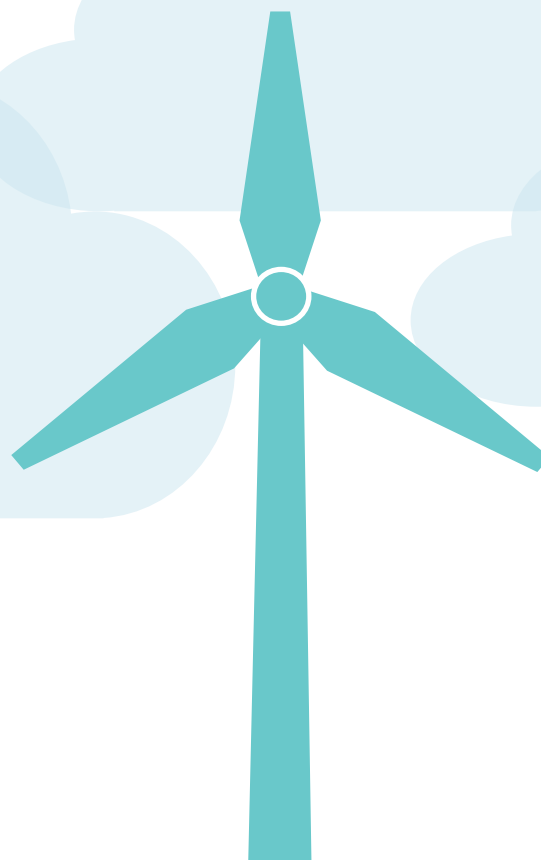
*In 2012 the IDB approved 169 loans; 45 of these qualified as loans supporting climate change initiatives, sustainable energy (including hydro), and environmental sustainability. These totaled US\$3.75 billion, corresponding to 33 percent of total Bank investment.*



## ENVIRONMENTAL SUSTAINABILITY

This category includes all activities related to the conservation and sustainable use of biodiversity and to the reduction of pollution.

- Eight sanitation operations and three water supply projects (Argentina, Colombia, and the Dominican Republic).
- Three sustainable transport operations.
- A regional investment of US\$100 for a “green line” of financing to Banco Itau through the IDB planetBanking program



## SUSTAINABLE ENERGY

This category includes all activities that contribute to increasing access to renewable energy, supporting long-term renewable energy supply and reducing price risks, and ensuring quality and economic efficiency of renewable energy services.

- US\$76 million corporate loan to support investments in solar energy in Peru and throughout the region.
- One sovereign guarantee and one non sovereign guarantee loan to the Reventazón Hydroelectric power project in Costa Rica for a combined value of US\$450 million.
- Two wind power projects in Uruguay, for a combined value of more than US\$100 million.
- Operations to support institutional strengthening and modernization of the energy sector in Haiti.




## Progress toward Our Performance Goals

The IDB tracks regional goals in order to monitor longer-term development progress in the region and provide information on what contributions and priorities should be. Tracking these goals helps identify gaps or areas where institutional priorities may need to be revised. Since meeting regional goals cannot be solely due to the Bank's interventions, we have defined a series of output indicators at the project and country level.

As 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. More specifically, the Bank is tracking its outputs toward the priority area "protecting the environment, promoting renewable energy, responding to climate change, and enhancing food security" in six areas.




Our reporting shows the IDB is well on its way to meeting—and in some instances exceeding—the 2015 goals established as part of the General Capital Increase:

Furthermore, as part of the GCI-9 the Bank committed itself to disaggregating regional output contribution indicators by sex, race, and/or ethnicity. Eight of the GCI-9 results framework indicators require disaggregation by race and ethnicity: health, targeted anti-poverty programs, water provision, sanitary connections, upgraded dwellings, civil or identification registries, public low-carbon transportation systems, and agricultural services and investments. Six of the GCI-9 results framework indicators require disaggregation by gender: students benefited by education projects, teachers trained, programs to promote higher labor market productivity, civil or identification registries, public trade officials and private entrepreneurs trained, and agricultural services and investments. During 2012 the Bank focused on developing baselines for these indicators. In 2013 the Bank will be better positioned to monitor the impacts and outcomes of its efforts as a result of its programs for women, indigenous peoples, and Afro-descendants.

PROJECT RESULTS OUTPUTS					REGIONAL DEVELOPMENT OUTCOME	
Project Outputs (Expected Results)	Baseline (2005–2008)	Expected Results Output (2012-2015)	Progress 2011	Progress 2012	Indicators of Bank Contribution to IDB Regional Development Goals	Progress (Year)
 Percentage of power generation capacity from low-carbon sources over total generation capacity funded by IDB	91%	93%	100%	73%	Carbon dioxide emissions per US\$1 GDP (PPP) (baseline 0.29 kilograms, 2006)	0.28 (2009)
 Number of people given access to improved public low-carbon transportation system	n/a	8.5 million	833,287	1,599,017		
 Climate change pilot projects in agriculture, energy, health, water and sanitation, transport, and housing	n/a	10	5	5		



The Bank is tracking its outputs toward the priority area “protecting the environment, promoting renewable energy, responding to climate change, and enhancing food security” in six areas.

PROJECT RESULTS OUTPUTS					REGIONAL DEVELOPMENT OUTCOME		
Project Outputs (Expected Results)	Baseline (2005–2008)	Expected Results Output (2012-2015)	Progress 2011	Progress 2012	Indicators of Bank Contribution to IDB Regional Development Goals	Progress (Year)	
 National frameworks for climate change mitigation supported	n/a	5	7	2	Countries with planning capacity in mitigation and adaptation of climate change (baseline: 3, 2009)	13 (2012)	
					Annual reported economic damages from natural disasters (baseline: US\$7.7 billion, 2007)	US\$5.1 billion (2011)	
 Number of projects with components contributing to improved management of terrestrial and marine protected areas	15	30	3	5	Proportion of terrestrial and marine areas protected to total territorial area (baseline: 19.3%, 2009)	19.3% (2010)	
 Farmers given access to agricultural services and investments	n/a	5 million	2.5 million	2,381,933	Annual growth rate of agricultural GDP (baseline: 3.66%, 2005–2007)	1.78% (2008–2010)	
				(a) women			214,374
				(b) men			2,167,559
				(c) indigenous			690,761
				(d) Afro-descendants			To be determined

Source: Development Effectiveness Overview Report (DEO 2012): Development that Works @

## IDB and Water Resources Management: A Focus on Climate Adaptation

The need for climate adaptation is a reality. The effect of climate change on streamflow and groundwater varies within the region and between climate scenarios, but it is significant in most cases. A consistent projection across most scenarios for Latin America and the Caribbean is for overall decreases in streamflow everywhere except downstream of the Andes. For areas in mid-latitudes (most of Brazil and Mexico), projections are of less streamflow and increasing drought conditions. Areas in the Caribbean and in coastal zones throughout the region are vulnerable to sea level rise as water expands with projected increased temperatures. Overall, the region is also likely to be subjected to the increased intensity of extreme climatic events.

A climate-adapted integrated water resources management approach requires new principles and tools for water resources allocation, operation, and support systems. Two principal lessons have been learned from recent adaptation experiences in IWRM in the region. First, hard infrastructure—dams, levees, and canals, for example—is critical for climate adaptation and to reduce the region's vulnerability to climate and weather-related events. Second, infrastructure investments need to be complemented by previously neglected investments in soft infrastructure, such as watershed management, land use planning and information, technology, and stakeholder engagement. These two components are the thrust of our ongoing work in water resources management and climate adaptation. In our ongoing work in water resources management and climate adaptation, we are investing in both hard and soft infrastructure.

### Will vanishing glaciers threaten Quito's water?

An IDB-financed study carried out in 2012 shows that the greatest climate change threat to Quito's the water supply is the loss of a spongy mat of vegetation on the flanks of nearby volcanoes. The study recommends a low-tech response to this high-stakes challenge: restrict intensive grazing. @

### OUR ACTIONS IN 2012

In 2012 the IDB launched strategic guidelines and an action plan for water resources management and climate adaptation. This strategy focuses on the main water resources problems that continue to constrain development throughout the region: supply, distribution, and sustainability of water sources; contamination and degradation of water quality; water resources management infrastructure; and governance and institutional strengthening. The strategy focuses primarily on the places where IDB practice needs to engage and improve its performance. The four coordinated strategic objectives are:

- core business.
- knowledge and capacity building.
- cross-institution integration.
- visibility raising.

The guidelines, approved in October 2012, identified a series of targeted operations that are beginning to be implemented.

### A REAL CONTRIBUTOR: IDB INVESTMENTS IN WATER RESOURCE MANAGEMENT AND ADAPTATION

In 2012 the IDB invested in 12 technical cooperation projects on water resources management (for a combined value of over US\$ 5 million). We funded pilot studies in Ecuador (on adaptation of water utility reservoirs and conveyance infrastructure to accelerated glacier melting), Uruguay (on adaptation of urban drainage and stormwater management infrastructure to increased rainfall intensity), and Trinidad and Tobago (on siting and building updated wastewater treatment plants to account for sea level rise).

The Bank also executed a national watershed management program in Peru and an integrated water resources management project in Venezuela, and it completed an innovative study to determine the economic value of surface water in the Jequetepeque watershed in Peru. The national program in Peru is particularly relevant because it is developing an IWRM template that can be used to manage basins throughout the country.

We are working with the Skoll Global Threats Foundation to develop a pilot regional drought information system for the La Plata basin (Argentina, Bolivia, Brazil, Paraguay, and Uruguay). We are also collaborating with national water agencies in several countries to help establish structures for water resources management that involve responsibilities shared with local watershed councils. To engage the private

*With Bank funding, climate change and its associated concepts are being introduced as key elements in the education of new water sector professionals.*

sector in the management of water resources, the IDB has partnered with the Water Resources Group in startup initiatives in Peru and Mexico.

To increase the sources of financing for appropriate planning and implementation of adaptation activities, the IDB is working with the [Nordic Development Fund](#) on climate adaptation activities in emerging cities in Bolivia, Honduras, and Nicaragua.

Since 2008, the Bank has administered the Spanish Cooperation Fund for Water and Sanitation for Latin America and the Caribbean (FECASALC). Its objective is to finance programs, projects, and other activities that promote water and sanitation through the IWRM approach. To date, the FECASALC portfolio managed by the Bank is US\$1.11 billion (US\$580 million from FECASALC, US\$190 million from

local contributions, and US\$340 million from IDB loans); it focuses on rural and periurban areas with less access to water and sanitation services.

Investment in the future of knowledge capital: With Bank funding, climate change and its associated concepts are being introduced as key elements in the education of new water sector professionals.

### OUR FOCUS IN 2013

A water resources strategy must integrate across sectors in order to be successful. Strengthening the linkages between water resources and the service sectors and infusing climate change–adapted principles and practices are the keys to overall resource management success and are therefore critical to the focus of our work.

Implementation of this integrative principle is a continuing challenge. Since use of water always precedes concerns with resource management, the culture and principles of the major water-using sectors have a profound influence on how countries approach the challenges of water resources management. The main challenge in the area of water resources is the integrated and adapted interaction with such sectors. In the year ahead, we will focus on the links between the activities of water-using sectors and the management of water resources.

Among the specific actions to that end are plans to expand the external technical team of experts and the high-level advisory group beyond hydrologic drivers to include economics and the environmental/social aspects of water resources and climate change adaptation. We plan to formalize partnerships with leading international, academic, and research organizations in the field of climate change in the water sector and to develop and implement programs for building capacity based on assessment of the knowledge and experience of Bank staff and identified gaps.

#### Desert city to fight climate change with better data

Peru's city of Trujillo depends on water from an arid aquifer and a surficial canal that is glacier-fed. Both sources are key for a sustainable socioeconomic development of the city, and both are highly vulnerable to potential climate change impacts. A 2012 IDB-financed study is helping local decision makers acquire a better understanding of the water balance between these two systems and outlines an adaptation plan that provides the basis for a more resilient water resources management in Trujillo. Additional studies have also underlined the crucial need to implement actions to reduce erosion in nearby watersheds, given the impact on receiving coastal areas, and to introduce flood emergency strategies—all efforts needing political engagement and further integration into municipal planning. @

## The IDB and Climate Change: *Supporting Climate-Resilient, Low-Carbon Development*

Latin America and the Caribbean are particularly vulnerable to the impacts of climate change because of their geographic location, population and infrastructure distribution, reliance on fragile natural resources, and low adaptive capacity. The projected consequences of climate change are so dire that the simultaneous need to adapt to new climate conditions and reduce the region's carbon footprint will likely be a main driving force for the global community. Unless addressed through adaptation measures, the physical impacts of climate change will have significant economic and social consequences that will likely hinder the achievement of sustainable development. Even if adaptation options are implemented, development options may be limited because access to and the availability of natural resources would be impaired.

As part of GCI-9 lending targets and goals to increase investments in projects that address climate change, environmental sustainability, and sustainable energy, the Bank has implemented an Integrated Strategy for Climate Change Adaptation and Mitigation and for Sustainable and Renewable Energy, and we established the institutional arrangements for needed actions.

In early 2012, a Plan of Action was designed to operationalize the new strategy. The plan established five lines of activities:

- Strengthen the Bank's knowledge base.
- Strengthen institutions and private and public sector capacity.
- Develop instruments to mainstream climate change mitigation and increase the resilience of Bank-funded activities.
- Identify and develop lending and technical assistance for climate action in key sectors.
- Scale up investments, address financial gaps, and leverage private sector investments.

### OUR ACTIONS IN 2012

The IDB made significant progress in 2012, approving over 30 loans addressing climate change, for a combined amount of approximately US\$2.3 billion. Among these, the Bank approved a loan to build the climate change resilience of fiscal resources, infrastructure, and the environment in El Salvador. In addition, more than US\$7.5 million from the Sustainable Energy and Climate Change Initiative (SECCI) Funds was allocated for technical assistance on climate change. SECCI Funds are the Bank's main source of technical assistance, and in 2012 this focused on renewable energy,

climate finance, energy efficiency, impact evaluation, policy options, institutional capacity, biodiversity and ecosystem services, and coastal zone management.

The IDB also consolidated and leveraged new partnerships during the year that will bolster future Bank interventions in the region. This included participation in the design of a new Green Climate Fund; becoming a key partner in a CAD\$250 million Climate Fund for the Americas, an effort to mobilize private sector investment in climate mitigation and adaptation projects; and entering into a co-financing agreement with the Japan International Cooperation Agency to provide up to US\$600 million over the next five years in financing for renewable energy and energy efficiency projects in Central America and the Caribbean.

#### El Salvador meets climate challenges with tax reforms

The increasing frequency of severe weather events in El Salvador has strained the country's ability to repair damaged infrastructure. The government is meeting this challenge by carrying out institutional and tax reforms that will strengthen its capacity for carrying out measures to adapt to the climate change threat. The program is being financed by a US\$200 million IDB loan approved in 2012. @

#### Mini-size solutions for a major climate threat

Intense storms striking Haiti send torrents of silt-laden water down barren slopes, further impoverishing the soil and increasing the risk of flooding. In one watershed, a program financed by a US\$27.1 million grant is showing how micro-dams can turn wasteland into productive garden plots. Some 50 micro-dams were built in 2012. @



## Innovators for Sustainability

In 2012, the Bank launched the Innovation in Sustainability awards to recognize the contribution of IDB-financed non-sovereign guarantee projects that demonstrate sustainability and development impact in the region. In 2012 the winners were the fruit company Subsole (for implementing energy efficiency and solar power in its Chilean plant), the IDB's *beyondBanking* program, and the Private Sector Road Safety Program.

## A REAL CONTRIBUTOR: IDB INVESTMENTS IN CLIMATE CHANGE ADAPTATION AND MITIGATION

In 2012 the noteworthy projects on climate change included projects in which the Bank helped three countries and the Caribbean region mobilize close to US\$200 million in financing from the Climate Investment Fund as well as investing in the regional track of the Caribbean Pilot Program for Climate Resilience, a US\$10.6 million investment to carry out a series of regional activities to address the impact of climate change.

The Bank helped Peru prepare and present a project for US\$6.9 million to reduce the vulnerability of coastal communities to the impacts of climate change on coastal marine ecosystems and fishery resources, to be financed by the Adaptation Fund via a national implementing entity.

In Colombia the Bank supported the preparation of an adaptation project for high-mountain ecosystems, supporting the implementation of measures that address the consequences of climate change in the water supply and hydrological regulation functions in the east-central Andean region of Colombia under the GEF Special Climate Change Fund.

The Bank also financed a project focused on reducing and avoiding carbon emissions by restoring forests, increasing incomes, and reducing poverty in rural areas of Brazil, through a UK Department for Environment, Food and Rural Affairs US\$40 million grant under the International Climate Fund.

Last, we supported a program in Guyana, Guatemala, and Peru with a US\$12 million investment under the Readiness Fund of the Forest Carbon Partnership Facility to strengthen the capacity to reduce emissions from deforestation and forest degradation through enabling framework conditions on carbon sinks.

## OUR FOCUS IN 2013

The Plan of Action identifies adaptation as the number one priority for the IDB in the climate field due to the significant physical impacts of climate change in the region and their estimated financial consequences. Expansion of adaptation activities in the Bank during 2013 is planned in the areas of water supply and quality, coastal zones and marine areas, and agriculture and forests.

The carbon footprint of the region is heavily tilted toward agriculture, forestry, and land use. When combined with emissions from the power sector and transport, just three sectors account for about 80 percent of carbon emissions in the region. The current trend of the region's emissions indicate a relatively constant contribution from agriculture, a reduction in the emissions linked to deforestation, but also a significant carbonization of the power and transport sectors. Therefore, priorities for action in 2013 include activities to support the reduction of emissions from land use change and deforestation, reduction of the carbon footprint of the energy matrix and promotion of energy efficiency, and the introduction or expansion of low-carbon transport systems.

### Limiting settlements found key to climate adaptation

Many poverty-stricken residents in Montevideo, Uruguay, suffer from severe flooding. Climate change is one cause, according to a new IDB-financed study done in 2012. But even more serious is the spread of settlements and their location. The study urges strong land management measures for climate change adaptation. @





## The IDB and Biodiversity: *Using the Region's Competitive Advantage in Biodiversity and Ecosystem Services*

With 40 percent of the world's biodiversity, Latin America and the Caribbean possess unique natural capital that provides fundamental services to the economy and human well-being and can help meet increasing demands for energy, water, land, and other natural resources. The region's economy is growing particularly in economic sectors, such as non-renewable resource extraction, agriculture, and energy production, driving increasing pressures on biodiversity and ecosystem services.

There are four main challenges to ensuring the sustainability of biodiversity and ecosystem services in the region:

- Market failures that externalize the costs of losses of biodiversity and ecosystem services.
- Increasing threats to biodiversity and ecosystems.
- Weak sector policies and governance structures for the management of biodiversity and ecosystem services.
- Unrealized business opportunities based on biodiversity and ecosystem services.
- We need to build on the comparative advantages of Latin America and the Caribbean in biodiversity and ecosystem services in such a way as to ensure sustainable and inclusive economic growth while maintaining resilient ecosystems.

### OUR ACTIONS IN 2012

The Bank began working on a Biodiversity and Ecosystem Services program in early 2012. The first step was to establish an internal working group to discuss options and oversee the development of the Initiative. The Bank financed two studies to understand its experience in financing biodiversity and mainstreaming biodiversity and ecosystem services and to assess the effectiveness of regulatory and market-based conservation policies in Latin America and the Caribbean.

This preparatory work was an important element of the Bank's program for Rio+20, where we presented an initial proposal for feedback from key stakeholders. The Bank also premiered a documentary, produced with National Geographic, on the value of the region's biodiversity and how it can become a competitive advantage in development.

Subsequent cross-sector consultations in five countries added substantive and valuable inputs to the Initiative. The final proposal focused on incorporating the economic value of biodiversity and ecosystem services into key sector policies and investments, including infrastructure and productive sectors that are the main drivers of biodiversity loss in the region and that are the most dependent on natural capital.

The program will meet its goals by:

- Assessing and integrating the economic value of biodiversity and ecosystem services in the region into infrastructure and productive sectors.
- Increasing awareness of and protecting critical and large-scale ecosystems of regional significance.
- Supporting countries in their implementation of effective policies, laws, and investments that secure and enhance biodiversity conservation and the maintenance of ecosystem services.
- Creating economic, financial, and business opportunities that contribute to sustainable development and include innovative techniques for the protection of biodiversity and ecosystem services.

The Biodiversity and Ecosystem Services Initiative responds directly to the overarching objectives of the Bank under GCI-9: reducing poverty and inequality and achieving sustainable growth. GCI-9 calls for the maintenance of key ecosystem services that the rural poor overwhelmingly depend on, and



it aims to secure the natural capital that will be needed to support future economic growth in productive sectors and infrastructure. @

### A REAL CONTRIBUTOR: IDB INVESTMENTS IN BIODIVERSITY AND ECOSYSTEM SERVICES

In 2012, the IDB invested in 10 projects (2 Global Environment Facility projects and 8 Multilateral Investment Fund (MIF) projects) specifically contributing to biodiversity and ecosystem services (for a value of US\$17.7 million). They included a project for the downscaling of the national Low Carbon Development Strategy to agricultural and tourism operators in the Rupununi region of Guyana; a project in Jamaica to rehabilitate an old cocoa plantation with sustainable agricultural practices; the provision of tools for Amazonian indigenous communities in Peru to sustainably interact with the cash economy while conserving the forests that provide their livelihoods; and a regional project to strengthen incentives and capacities for improved environmental and social performance in artisanal and small-scale mining in Andean countries through Fairtrade and Fairmined certification.

*The Biodiversity and Ecosystem Services program responds directly to the overarching objectives of the Bank under GCI-9: reducing poverty and inequality and achieving sustainable growth.*

In addition to designing projects that proactively seek to protect biodiversity and promote ecosystem services, the IDB continued to work closely with its partners to ensure that all Bank investments mitigate risks to critical and natural habitats and that, where appropriate, additional biodiversity components are built into development projects.

The Bank is developing guidance for biodiversity-inclusive environmental assessment and using decision support tools that map biodiversity values to identify and assess potential risks and impacts to habitats and to avoid, minimize, and mitigate these impacts. Examples of this work in 2012 include the creation of a biodiversity offset in a hydroelectric



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#### Jaguars safeguarded in hydroelectric project

Hydroelectric projects produce green energy, but they also have the potential to destroy habitat. However, in a new project financed with the help of a US\$200 million IDB loan approved in 2012, a power company in Costa Rica will offset loss of habitat connectivity resulting from the reservoir by enhancing the management of a critical biological corridor essential for conserving the iconic jaguar. @

project in Costa Rica and the rerouting of a transmission line in Paraguay that would have otherwise transected areas of critical natural habitat. This biodiversity decision support tool is decentralized and available so that all IDB staff can see how their projects potentially intersect with areas of biological importance.

#### OUR FOCUS IN 2013

The draft proposal for the program has been reviewed within the Bank and is scheduled for approval in early 2013, at which time the program will be formalized, and multi-donor funds will be created. With its approval, the Bank will increase and expand its technical and financial assistance to member countries as well as enhance internal technical capacity for the integration of biodiversity and ecosystem services across all our work. To track the impacts and outcomes of this, the Bank has proposed a robust Results Framework that includes key targets from 2012 to 2016.

## The IDB and Gender: *Promoting Gender Equality and Empowerment of Women*

Latin America and the Caribbean is one of the most unequal regions of the world. Among other factors, inequality is partly explained by the lack of opportunities determined at birth by race, ethnicity, and gender. The IDB has a long-standing commitment to promote equity and social inclusion in the sustainable development of the region.

The region has unquestionably made advances in gender equality, achieving gender parity in education and increased female labor force participation. However, many challenges remain. Women still have higher unemployment rates, earn 10–30 percent less than men, and are overrepresented in informal and low-productivity jobs. Maternal mortality has declined on the whole across the region, but in many countries—and for indigenous women—it remains a serious concern. In fact, overall access to education and health services is lower for indigenous and Afro-descendant women than for other groups. Women’s presence in corporate and governmental leadership positions has increased, but major gaps remain at all levels: only 11 percent of managerial positions and 20 percent of legislative seats are held by women. Addressing these issues is essential to ensuring long-term sustainability in the region.

The IDB’s *Operational Policy on Gender Equality in Development* entered into effect in May 2011, making the Bank the first multilateral development institution to adopt gender safeguards as part of a gender policy.

To translate the Gender Policy into action, the Bank approved a Gender Action Plan for Operations 2011–2012 (GAP), which outlined specific actions to implement and monitor

the Gender Policy. The GAP focuses on both the proactive (that is, direct investment and gender mainstreaming) and preventive (gender safeguards: the avoidance of any unintended negative consequences for gender equality via its operations) directives of the Gender Policy, as well as the institutional mechanisms to support policy implementation, monitoring, and reporting. In addition, the GAP advances areas of work that are likely to generate lessons learned and contribute to a more in-depth and expanded body of knowledge on good practices. @

*During 2012, the Bank made significant progress in achieving proactive and preventative directives of the Gender Policy in IDB-financed projects.*

### A REAL CONTRIBUTOR: IDB INVESTMENTS IN GENDER EMPOWERMENT AND EQUALITY

In 2012, through an emphasis on target-setting, capacity building, and direct support, the IDB made some important progress:

- The Bank invested US\$23.5 million in technical cooperation and MIF grants that directly invested in women’s empowerment and gender equality, including three Mesoamerica Investment Grants focusing on improving women’s health outcomes in Central America.
- The percentage of sovereign guarantee loans with gender-related results in their results matrices increased from 9 percent in 2011 to 30 percent in 2012. A priority for 2013 will be improving the quality of these gender-related results indicators.
- The IDB has integrated gender safeguards into its environmental and social safeguards screening system. As a result, IDB staff identified that 27 percent of operations screened during 2012 triggered potential gender-related risks and impacts, allowing Bank teams to work closely with the clients to identify appropriate management and mitigation measures to be included in the projects as they progressed through preparation and approval.
- Almost 1,000 IDB specialists and members of executing agencies and IDB counterparts attended capacity



building gender events, such as a workshop on gender mainstreaming in rural water and sanitation projects in Colombia and the Cutting-Edge Banking and Access to Finance for Women-Owned SMEs panel held during the FOROMIC in Barbados.

- Seventeen sector-specific gender learning events were held, including an international conference in Peru entitled Power: Women as Drivers of Growth and Social Inclusion, with the participation of over 400 leading figures from the public and private sectors, including Hillary Clinton, Michelle Bachelet, and Peruvian President Ollanta Humala.
- The Bank piloted three gender-focused Social Impact Assessments (SIA), a tool to implement gender safeguards in its projects. One of these determined opportunities to reduce the impacts of traffic congestion in La Paz on women street vendors. The SIA identified security, violence, and lack of access to child care services as potential issues; based on this, the Bank developed tailored management plans during the design of the project. As a result of these plans, the transportation centers developed by the project will include banking facilities, hygienic facilities, vocational training, violence prevention and attendance centers, and child care.

## OUR FOCUS IN 2013

While significant progress has been made in advancing gender equality within the Bank, it is critical that the IDB ensures the quality of gender results indicators and that mitigation plans for gender-based risks are central to projects' objectives and activities. By promoting gender equality in project design and execution, Bank projects will have more positive developmental impacts. In 2012 there were serious efforts to generate and share evidence on what works to promote gender equality, with the IDB incorporating a gender perspective in the evaluation designs of two infrastructure projects in Bolivia and one in Ecuador. The results of these evaluations will shed light on how to better tailor infrastructure interventions to women's needs and the impacts of gender-specific program components on project effectiveness. Other ongoing impact evaluations are taking place in the areas of women's leadership, violence against women, and adolescent fertility and will be further developed in 2013.

Work will also continue in 2013 to establish baselines for indicators requiring disaggregation by sex, race, and/or ethnicity as a part of our GCI-9 commitments, helping the Bank to measure its contribution to regional development goals. See page 34.



### Agents for sustainable development

The IDB proactively promotes social inclusion of indigenous peoples and African descendants as stakeholders in the sustainable development of Latin America and the Caribbean through direct investments and the application of safeguards in IDB projects. We continued to work in 2012 to ensure the inclusion of indigenous peoples and Afro-descendants, investing US\$11.7 million in 22 grants and US\$15.1 million in 13 MIF projects, as well as designing targeted components in four investment loans. In addition, the Bank invested US\$18.5 million in four large-scale donor-funded grants to improve access to health and sanitary services and to improve climate change resiliency for vulnerable racial and ethnic groups. @

## Safeguards and Sustainability: *Projects in Preparation*

In addition to designing projects that target or include sustainability outputs and outcomes, we work with our partners to ensure that all IDB investments minimize harm to people and the environment. We do this through the application of safeguards and sustainability policies, guidelines, and standards equivalent to best international practices that guide our work [link]—from initial consideration for financing of all IDB projects through preparation and implementation to completion and evaluation.

In practice, at the earliest stages of design, the Bank classifies a project according to its potential environmental and associated social impacts and risks, which determines the depth and breadth of environmental and social assessment required and identifies key potential environmental, social, health, safety, labor, and other safeguard issues. This is complemented with a risk classification that, combined with the impact classification, helps determine when a project requires specialized safeguards support. For high-risk operations, safeguards specialists then evaluate 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 in the legal agreements, according to the well-established mitigation hierarchy of avoid, minimize, mitigate, and offset.

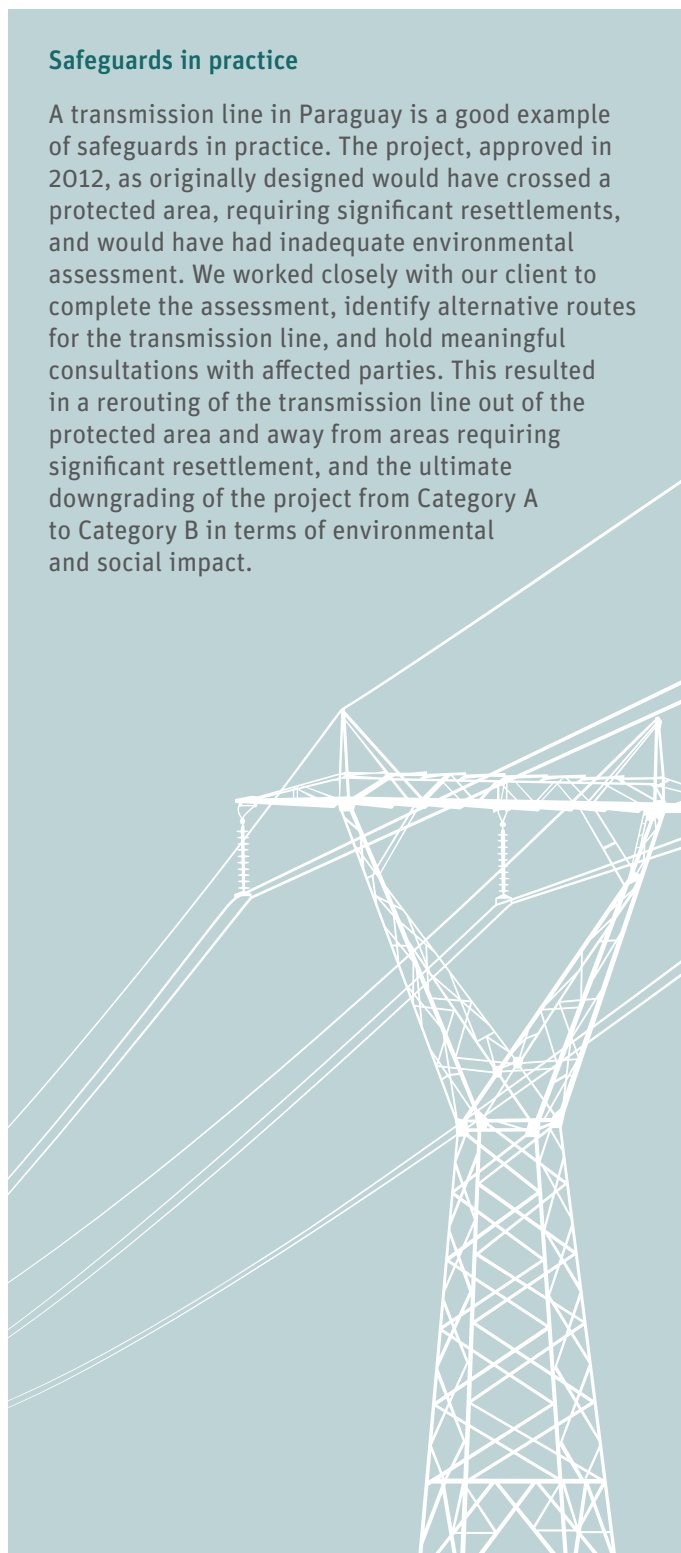
### What do IDB safeguards policies cover?

- Natural habitats
- Pollution prevention (including GHG emissions)
- Transboundary impacts
- Resettlement
- Indigenous peoples
- Disaster risk management
- Gender equality
- Information disclosure

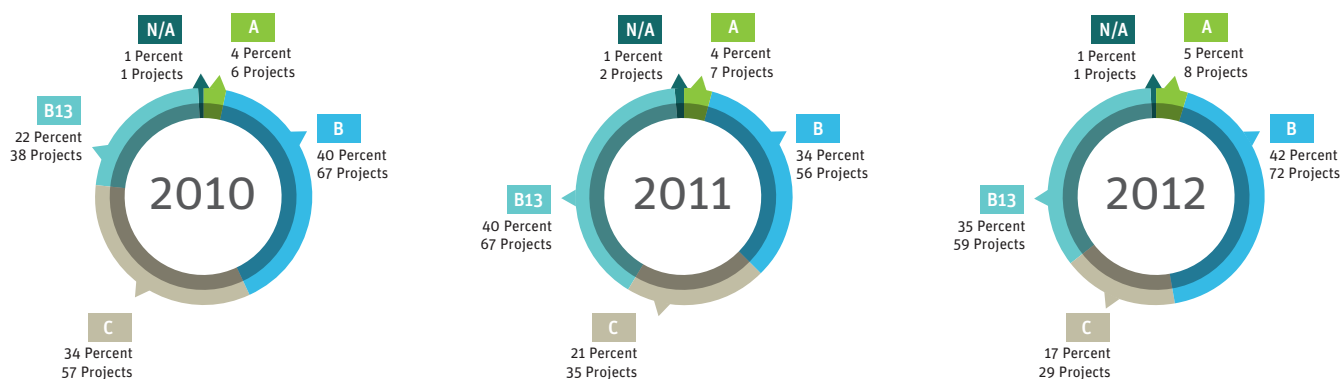
@ Our full safeguard policies are available online.

### Safeguards in practice

A transmission line in Paraguay is a good example of safeguards in practice. The project, approved in 2012, as originally designed would have crossed a protected area, requiring significant resettlements, and would have had inadequate environmental assessment. We worked closely with our client to complete the assessment, identify alternative routes for the transmission line, and hold meaningful consultations with affected parties. This resulted in a rerouting of the transmission line out of the protected area and away from areas requiring significant resettlement, and the ultimate downgrading of the project from Category A to Category B in terms of environmental and social impact.







The Bank’s analysis is summarized and made public, including any 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. In the case of uncertainties due to a current lack of information, the project may proceed to Board approval with the condition that appropriate requirements be included in contractual agreements at key milestones, such as prior to first disbursement, and be duly accepted by clients.

Once a project is approved, we work with clients to ensure effective implementation of environmental and social measures as part of project supervision. See page 50.

Sixty-eight of the 169 loans approved in 2012 were considered high-risk and benefited from support of safeguards specialists as part of the project team, including all Category A operations, 54 percent of Category Bs, and 36 percent of the flexible instruments and financial intermediary operations.

### What do we mean by complex or high-risk projects?

All IDB Projects are screened and classified as A, B, C, or B13\* according to their potential environmental and social impacts, but we also recognize the importance of addressing environmental and social risks in the projects we finance. Our analysis of these risks considers the likelihood and severity of potential issues related to lack of environmental and social management capacity, environmental and social sensitivities, a poor track record of the borrower or relevant third party, or significant reputational risks. Category A operations are always deemed high-risk operations because of the significance of their potential impacts, but we can also distinguish Category B, C, and B13 operations that may pose high risks due to one of these factors. For example:

An education project that involves reconstruction is likely to have moderate to low impacts and is deemed Category B, but the potential risks may be high in countries with lower environmental capacity, such as inappropriate construction codes in earthquake-prone areas.

A land titling project does not have immediate negative impacts as such and may be Category C, but it may have significant risks at the implementation level if not designed properly to include adequate consultation.

A Financial Intermediary may be classified as a high-risk B13 operation due to a poor track record in environmental and social management and/or a high possibility of onlending to high-impact projects. @

\*B13 operations are those for which an ex-ante impact classification may not be feasible.

## Safeguards and Sustainability: *GHG Emissions in Projects*

The IDB Environment and Safeguards Compliance Policy commits us to calculate emissions from Bank-financed projects that generate significant amounts of GHG emissions. In 2012, some 77 operations were screened using IDB's GHG methodology, and 45 of those underwent a more detailed assessment. Twenty-nine of those 45 were found to result in significant GHG emission increases or reductions (25,000 tons CO<sub>2</sub> equivalent per year threshold). The data show that investments in greenfield and expansion projects were predominant in 2012.

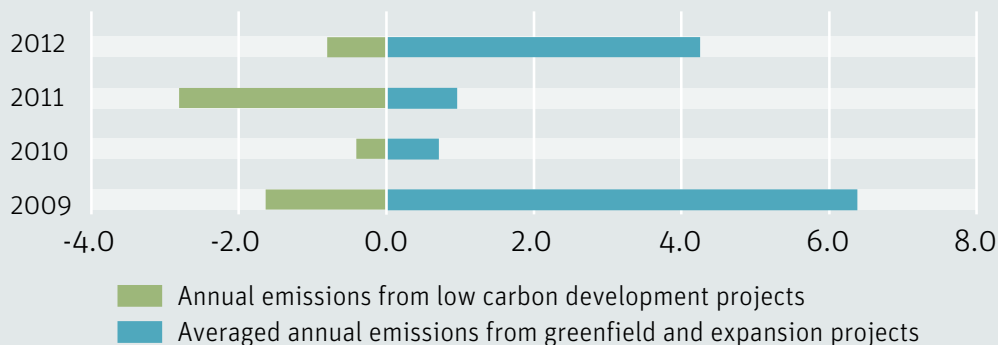
IDB's commitment to investing in renewable energy and energy efficiency projects (half of those screened), projects continued in 2012, although investments in these were lower than in 2011. Avoided GHG emissions resulting from those projects are represented below and correspond to three wind farms and two solar plants in Uruguay and Mexico.

Gross positive emissions result from construction and operation activities from greenfield and expansion projects. Gross emissions are averaged over the lifetime of the IDB loan (taken as 20 years), although they are calculated and reported in the year of approval of the project. Thus one single highly emitting project can account for a large share of the total averaged annual emissions. This needs to be kept in mind when comparing gross emissions from year to year. Variations of totaled GHG emissions are influenced by the number of projects in high-emitting sectors, even though the actual projects conform with the principles of best available appropriate technology.

Gross GHG emissions in 2012 were driven by IDB's approval of a US\$650 million loan to finance an integrated petrochemical complex in Mexico for the production of polyethylene, a key input in the plastics industry. This project accounted for 30 percent of the averaged gross annual emissions for 2012. IDB also approved a US\$200 million loan to finance a combined-cycle power generation plant in Uruguay, which accounted for 35 percent of the averaged annual emissions. This project met with the IDB's new guidelines on emissions for fossil fuel power generation, one of a suite of guidelines developed to set minimum climate change performance criteria that projects must meet to qualify for financing.

The IDB methodology for GHG calculation is available online. In addition, in 2012 the IDB became a signatory of the IFI Harmonized Framework for GHG emissions accounting.

### IDB CO<sub>2</sub>eq emissions from calculable loan investments (in million tCO<sub>2</sub>eq)



# Safeguards and Sustainability: *Managing Complex Projects*

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 2012 these projects, financed with loans totaling US\$11.42 billion, ranged from those with relatively low environmental and social impacts to potentially more complex projects. As always, principal among the latter were projects that build the infrastructure the region needs to grow and compete in a demanding global economy. 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.

In 2012, seven approved projects were designated Category A, meaning they were likely to have significant negative environmental or social impacts. (There were eight Category A loans, but two for the Reventazón Project in Costa Rica have been combined for the purpose of reporting.) The eight loans accounted for 12 percent of the year's total lending and 4.7 percent of the number of projects approved. These operations are closely monitored and supervised by safeguard specialists—from initial preparation through implementation to completion—to ensure compliance with Bank policies and guidelines.

## Environmental and Social Safeguards in Complex Projects (Category A) Approved in 2012

# eight

Category A loans (7 projects) approved in 2012.

# 12%

of total lending (total value US\$1.33 billion).

## Natural Habitats and Cultural Sites

7 projects triggered the Environment Policy Directive on Natural Habitats and Cultural Sites; 4 of these led to the conversion of 361 hectares of natural habitats and the non-significant conversion of 831 hectares of critical natural habitat, which was compensated for by a total of 42,650 hectares being offset or conserved.



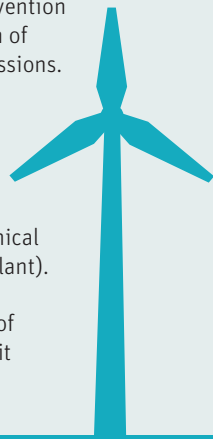
## Pollution Prevention and Abatement

7 out of 7 triggered Pollution Prevention and Abatement due to production of significant quantities of GHG emissions.

In total, the 7 projects produced 4.4 million tons of CO<sub>2</sub>eq.

2 projects accounted for 61% of emissions produced (a petrochemical project and a power generation plant).

2 projects reduced 220,148 tons of CO<sub>2</sub>eq of emissions (a mass transit project and a wind farm).



## Resettlement

6 out of 7 projects triggered the IDB Resettlement Policy.

1,518 persons resettled—a number considerably lower than in two previous years (14,250 in 2010 and 18,023 in 2011).

6 out of 7 projects required an IDB approved Resettlement Plan before loan approval.



## Indigenous Peoples

No Category A projects approved in 2012 triggered the Indigenous Peoples Policy.

## Gender

4 out of 7 Category A projects approved in 2012 triggered the Gender Policy.



## Safeguards and Sustainability: Complex Projects approved in 2012

1

**Reventazón, Costa Rica:** The Bank made two loans (one sovereign and one non-sovereign) to finance the 305 MW Reventazón Hydroelectric Project in Costa Rica. The financing will also strengthen the national power company's electric generation, transmission, and distribution capacity. The impacts are mainly related to the 130-meter-high dam that will create a 6.9-square-kilometer reservoir within the jaguar biological corridor, permanently changing the flow regime and aquatic habitat of the river. We worked with the borrower and the NGO Panthera to improve the management of the biological corridor, ensure a long-term increase in forest cover, and maintain or improve connectivity to facilitate the passage of jaguars. This project also features the development of the first river offset by the IDB, to compensate for the residual cumulative and direct impacts on the aquatic habitats of the Reventazón River. The offset will involve improving management to ensure maintenance of ecological functionality in the Parismina River, which has similar ecological characteristics. @

2

**Viadom Toll Road, Dominican Republic:** The project consists of US\$130 million in financing to rehabilitate, build, and operate the main north-south corridor, from Santo Domingo to Puerto Plata, with a total extension of 267 km. This includes the construction of a new segment around Santiago and the expansion of the segment from Navarrete to Puerto Plata. The main impacts are related to compensation and resettlement of 409 families and businesses, which required a social baseline and a Resettlement and Compensation Plan. This Plan has been prepared and agreed upon, however it is pending completion. The project has budgeted US\$20 million for compensation payments. Direct impacts to natural habitat are minimal, since approximately 60 hectares will be converted for the road expansion, mostly in urban and commercial areas. Nonetheless, the borrower did a Fauna and Flora Inventory and Rescue Plan as a management and compensation measure @

3

**Quito Metropolitan Urban Transport System, Ecuador:** The Program will finance the construction of 22 km of railway, 15 stations, rolling stock, and equipment for the metro system in Quito. This underground metro will be part of the Metropolitan Transport Integrated System, together with four BRT lines and other bus routes with which tariffs are to be integrated. The Environmental Impact Assessment is available on the IDB website, along with a notice of non-disclosure. @

4

**Isolux Corporate Loan, Peru and Brazil:** This US\$100 million corporate loan will finance the construction, operation, and maintenance of two 20 MW photovoltaic solar power plants in southern Peru and may also include financing for an approximately 250 km long 500 kV transmission line between São Paulo and Rio de Janeiro in Brazil. The solar plants are among the first in a growing trend of large-scale solar installations in Latin America. The transmission line will cross four protected areas—a key potential environmental impact. An alternatives analysis during the feasibility study identified an existing power line right-of-way that could be used to reduce land disturbance; special engineering adjustments during construction will also minimize the impacts to these sensitive areas. The main social impact will be the economic displacement and possible resettlement of families along the right-of-way, as well as change in land use. Consultations will provide the affected population with the opportunity to voice their concerns, and any resulting activities will be carried out in accordance with IDB's environment and resettlement policies. A Grievance Mechanism will be established so that affected parties can resolve any grievances that may arise during construction. @

5

**Etileno XXI, Mexico:** This project will finance construction and operation of an integrated petrochemical complex with an annual capacity of 1,050 kilotons of polyethylene—a key input for plastic manufacturing (US\$300 million). PEMEX Gas y Petroquímica Básica de Mexico will supply ethane as feedstock for the plant, which is expected to avoid 840,000 tons of CO2 emissions yearly compared with naphtha-based production. The construction involves extensive land movement and risks of accidents, whereas the operation involves complex chemical processes, with significant risks of fires and accidents, and involves transportation, handling, and use of large quantities of hazardous materials. Impacts to a critically endangered Mexican plant species on the IUCN Red List were extensively assessed before concluding that there would be no significant conversion of its habitat (79 of an existing 8,000 hectares of habitat). In addition, the project established a new private protected area of 100 hectares and protected an additional 30 hectares of its existing habitat inside its property for an endangered cycad species as an offset for the residual impacts of the project on the habitat of that species. All of the individuals of the cycad have been transferred to protected areas. The clients committed to implementing and certifying an integrated ISO 9001, ISO 14001, and OSHA 18001 management system to manage the quality, environment, and health and safety aspects of the project. @



6

**Punta del Tigre Combined Cycle Power Generation Project, Uruguay:**

A US\$200 million loan will finance the installation of a diesel/natural gas combined-cycle power plant near Montevideo, which will help reduce the vulnerability of the electricity generation matrix of Uruguay to hydrological cycles. The most significant impact of this project is the large amount of greenhouse gas emissions associated with it—between 0.8 and 1.4 megatons of CO<sub>2</sub> per year, as much carbon as is sequestered annually by over 10,000 acres of mature forest. At the earliest stages, the Bank verified the project’s compliance with its *Liquid and Gaseous Fossil Fuel Power Plant Guidelines*, ensuring the plant was highly efficient. Additionally, although a mathematical model has determined the impact of the discharge from the plant’s cooling system into the Rio de la Plata to be minimal and localized, a monitoring plan—part of a robust environmental and social management system—was developed to avoid any risks to aquatic life. @



7

**Haiti Productive Infrastructure Program:**

The Caracol Industrial Parc (PIC) is the second operation that aims to help increase economic activity in northern Haiti. An additional US\$50 million loan will provide additional infrastructure for the PIC and strengthen basic infrastructure and governance in the north and northeast departments. The environmental and social assessments of the project, including a cumulative impact assessment, identified several significant risks resulting from the project, including possible impacts on the natural resources of Caracol Bay and impacts on housing demand and natural resources from the influx of people to work in the PIC. The Bank has developed an environmental, social, and health and safety management plan to address direct impacts (including compensation or relocation of economic activities) and has worked with the U.S. Agency for International Development to develop a regional Master Plan for northern Haiti. The project will support community awareness activities and other initiatives to promote the protection of the Caracol Bay, including supporting the creation of a protected area to ensure protection of the bay’s ecosystem. @



## Safeguards and Sustainability: *Supervision and Performance*

The Bank's safeguards supervision and support activities are designed to help ensure that borrowers implement projects in accordance with and as required by our environment and social safeguard policies [Link] and with other national and international standards specific to the project. Any operation that is deemed high risk from the environmental and social standpoint is supervised by one or more safeguard specialists, including site visits, with frequencies varying depending on the status of the project and current risks and impacts.

In addition to policy requirements, our Results Framework, as detailed in GCI-9, sets out a series of indicators for operational effectiveness and efficiency that enable us to better monitor our development results. Included in these are efficiency indicators to monitor the satisfactory implementation of environmental and social management and mitigation measures by our borrowers in Bank-financed projects, particularly those with high environmental and social risks.

### SAFEGUARD PERFORMANCE 2012

During 2012 the Bank continued to streamline the way supervision findings are reported and recorded to allow the implementation of mitigation measures in high-risk operations to be rated and reported on in a consistent and aggregate way at the Bank portfolio level.

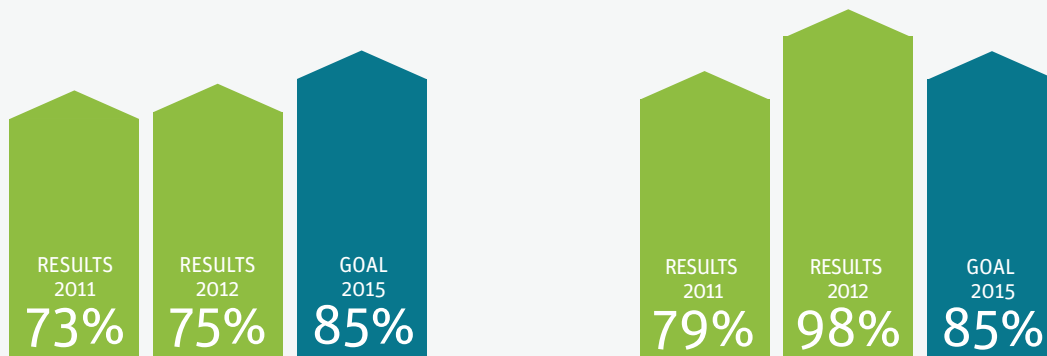
We also broadened the analysis of safeguard performance to include high-risk Category B, C, and B.13 operations and Category A operations approved before July 2006. We assessed 107 sovereign guaranteed operations for the rating and 41 non-sovereign guaranteed operations.

The results for 2012 put us close to the 2015 GCI-9 goal of 85 percent for public sector operations and beyond in the case of private sector operations.

# 81%

share of high-risk projects in 2012 rated satisfactory for safeguard performance.

*The results for 2012 put us close to the 2015 GCI-9 goal of 85 percent for public sector operations and beyond in the case of private sector operations.*



**Sovereign Guaranteed Operations**  
(percent of projects with high environmental and social risks rated satisfactory in implementation of mitigation measures)

**Non-Sovereign Guaranteed Operations**  
(percent of projects with high environmental and social risks rated satisfactory in implementation of mitigation measures)

### TAKING A CLOSER LOOK AT THE MOST COMPLEX PROJECTS

Recognizing the need to focus attention on the more complex projects in our portfolio, we disaggregate information about the Category A projects under safeguard monitoring. This shows that 70% of Category A projects currently in supervision were rated satisfactory or partially satisfactory for their safeguard mitigation measures, which

is largely consistent with the results of the pilot sample reviewed in 2011. The results show us the need for IDB to continue to focus support and attention to the clients of the most complex IDB-financed projects, with respect to environmental and social safeguard mitigation.

**70%**

share of Category A projects in 2012 rated satisfactory for safeguard performance.

*The results show us the need for IDB to continue to focus support and attention on the clients of the most complex IDB-financed projects.*

CATEGORY A SAFEGUARD PERFORMANCE, 2012			
	SG	NSG	Total
Satisfactory/partially satisfactory	5	14	19
Partially unsatisfactory/unsatisfactory	7	1	8
N/A	6	4	9
<b>Total</b>	<b>18</b>	<b>19</b>	<b>37</b>

*\*Category A projects approved since January 2006 and active in the IDB portfolio as of December 2012.*

*N/A - Supervision rating not available.*



## Safeguards and Sustainability: *Strengthening Knowledge and Capacity*

In 2012 the IDB increased and improved its efforts to deepen and strengthen the ability of Bank staff and clients to assess and manage environmental and social impacts and risks, through knowledge and learning activities in the area of climate change, sustainability, and biodiversity. These activities, both inside the Bank and in the region, enable the creation, dissemination, and reuse of critical knowledge and facilitate a better understanding of the challenges, with the final aim of promoting economic, social, and environmental development in the region. Through this approach, the Bank is adding value specifically by:

- Providing the right information and knowledge, at the right time, on how to address climate change, sustainability, and biodiversity issues
- Collecting and sharing good/best practices and tools
- Learning from project successes and failures to design or innovate and to improve climate change projects and programs

- Facilitating cross-project learning inside the Bank and among countries in the region
- Guiding the production of updated and properly packaged knowledge products to its intended audiences, internal and external to the Bank.

### STRENGTHENING USE OF COUNTRY SYSTEMS AND REGIONAL CAPACITY

The IDB is committed to strengthening its clients' national systems for safeguards, with the intent of using these systems when designing, executing, and evaluating Bank—financed operations. This is in line with the Bank's Operational Framework as well as harmonization efforts among the multilateral financial institutions to help the countries of the region reform and strengthen their environmental and social management processes and systems.

#### IN 2012 A SERIES OF TARGETED EFFORTS TOOK PLACE

*Initiation of a pilot equivalence analysis of Guyana's legal framework and IDB's environmental and safeguards compliance policy.* The study, when complete, will identify gaps between Guyana legislation and the safeguard requirements of the Bank, as well as opportunities for targeted capacity building. This work will continue in 2013 as the Bank finalizes arrangements with the government for an equivalence and acceptability analysis of safeguards related to key sectors. The expected output is an action plan prioritized to close key gaps and support institutional capacity building. These actions will contribute to sustainability in Guyana through enhanced implementation of the Low-Carbon Development Strategy.

*Strengthening the environmental and social community of practice in Haiti.* During the year the IDB provided targeted training on safeguards application to government executing agencies, private sector clients, and other stakeholders, including a workshop on occupational health and safety for the garment industry, a practical workshop for key stakeholders in the Caracol Industrial Park to raise awareness on health and safety issues and risks and to develop action plans for building a health and safety management system, and the second in a series of workshops for government agencies and other stakeholders on managing resettlement.

*Extension of the strategic environmental and social assessment (SESA) program to Peru and Guatemala, within the context of the Forest Carbon Partnership.*

The implementation of SESAs is a critical element of the REDD+ readiness plans for the Forest Carbon Partnership Facility. Bank staff has contributed to building national understanding and capacities for the implementation of these important analyses.

*IDB sponsorship of the International Hydropower Association regional workshop on sustainable hydropower in Brazil in November.* The event was also sponsored by GIZ and Odebrecht Energia, and it drew decision makers and industry leaders from the region. In particular, it showcased innovative approaches and solutions to ensure that hydropower development in Latin America and the Caribbean meets leading sustainability criteria on environmental and social issues. As a follow-up, the IDB will be developing a rapid hydropower sustainability assessment tool at the scale of a river basin and will explore opportunities to continue the dialogue on sustainable hydropower development at the regional level. @

**The IDB's Environment and Safeguards Compliance Policy allows for the use of country systems under specific circumstances. An external Independent Advisory Group (2010), an internal IDB Audit (2011), and a mid-term review on GCI-9 (2012) recommended that the Bank make greater efforts to strengthen country systems in relation to environmental and social management of IDB operations.**

To that end, the Bank bolstered its efforts during the year to build and share knowledge among its regional partners, giving a series of workshops on environmental and social safeguards in 13 member countries. In doing so, the Bank helps the region understand and implement environmental and social standards, building essential capacity and knowledge to help strengthen the country systems.

Through these activities in 2012, the Bank is establishing a measured and purposeful road map for strengthening country systems and at the same time building capacity to strengthen the way in which national, regional, and international standards—including those required by the IDB—are applied. In 2013 the focus will be on targeted workshops to help strengthen community engagement and strengthening the safeguard capacity of small and vulnerable countries, particularly with respect to biodiversity issues.

## **STAYING AHEAD ON EMERGING ISSUES AND BEST PRACTICES**

In 2012, the Bank's Knowledge Department and the Bank's environmental and social safeguards Unit, together with partners in sectoral divisions, coordinated a series of training events for operational and sectoral Bank staff on environmental and social safeguards and sustainability focusing on:

- Scientific and technical capacity and rigor (geohydrology and water availability assessment).
- Application of new models and tools (land use modeling, spatially explicit decision support system, biodiversity-inclusive environmental and strategic impact assessment, and greenhouse gas accounting methodologies and tools).
- Application of safeguards policies in IDB projects (transportation, consultation with indigenous peoples, and application of gender safeguards).

- Understanding emerging sustainability issues and application and use in Bank projects (biodiversity speaker series and cost-benefit analysis in the water and sanitation sector).

Another key focus of work in 2012 was the collection and dissemination of lessons learned from Bank-supported projects on best safeguard practice to staff, clients, and executing agencies. In particular, the work during the year focused on the role of economic analysis in capturing externalities in water and sanitation wastewater treatment projects; a spatially explicit analysis of IDB-funded roads' impact on habitat loss; and the identification and mitigation of IDB project impacts on biodiversity, habitats, and ecosystem services.

### **Biodiversity and Ecosystem Services Speaker Series**

**In 2012 the Bank launched a speaker series to bring experts to guide and advise us on how best to incorporate biodiversity and ecosystem service values into projects. Speakers included Dr. Daniel Nepstad on transportation infrastructure projects and impacts on biodiversity in the Amazon region; Dr. Jane Lubchenco, the former U.S. Under Secretary of Commerce for Oceans and Atmosphere and NOAA Administrator, on the topic of marine natural capital; Carlos Manuel Rodriguez, former Minister of the Environment in Costa Rica, on environmental governance and biodiversity; and Peter Kareiva, chief scientist at The Nature Conservancy, on how the science of ecosystem services can lead to smarter development.**

Building on this work, in 2013 the knowledge and capacity efforts will focus on enhancing sectoral specialist knowledge of good safeguard practices, with particular efforts in the area of biodiversity and ecosystem services, effective management in the wastewater treatment, and rural roads.



Part III

# Sustainability





# at Home

## Minimizing our environmental footprint and supporting our communities

- Our commitment to sustainability includes efforts to minimize the environmental impact of our physical facilities and employees (our direct “footprint”), to maximize the potential of employees, and to support neighboring communities.
- This section provides a snapshot of some of the key activities during 2012: the Bank’s support for the wider communities in which it operates 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.

## Our Communities: Expanding the Reach of “IDB Solidarity”

In an effort to increase our support of the overall community and to demonstrate our support of people from Latin America and the Caribbean who now call Washington, D.C., their home, the IDB Solidarity Program was expanded to become the IDB Solidarity Unit. In 2012 IDB Solidarity maintained strategic partnerships with more than 50 local community-based organizations to promote community development initiatives in low-income Latino communities through grant making, volunteerism, surplus equipment donation, and technical assistance. The program awarded US\$362,000 in grants to 34 local organizations that provide social services to these communities.

**Volunteerism and Awareness Campaigns.** To continue fostering community engagement among staff, retirees, and their families, IDB Solidarity also coordinated two major awareness campaigns: the Pink Campaign raised US\$13,794 to support breast cancer research and the HIV/AIDS Awareness Campaign raised US\$13,316 to support services for HIV/AIDS and terminally ill patients. IDB Solidarity also organized three major drives: a bike drive with the World Bank and the IMF to benefit *Fundación Integral Campesina* (FINCA) in Costa Rica, the Share the Magic campaign, and the Shoebox Project for the Homeless. Donations for these included 73 bikes, 2,974 toys, 80 boxes of food, 30 boxes of diapers, 80 boxes of baby cereal, US\$6,500 in mini-grants, and 256 boxes of basic essentials for the homeless and low-income families.

IDB Solidarity recognized 320 IDB staff, families, and retirees—part of the Bank’s volunteer network—for their active participation in local community service activities, and it awarded three IDB Solidarity Awards and two honorable mentions for outstanding community service.

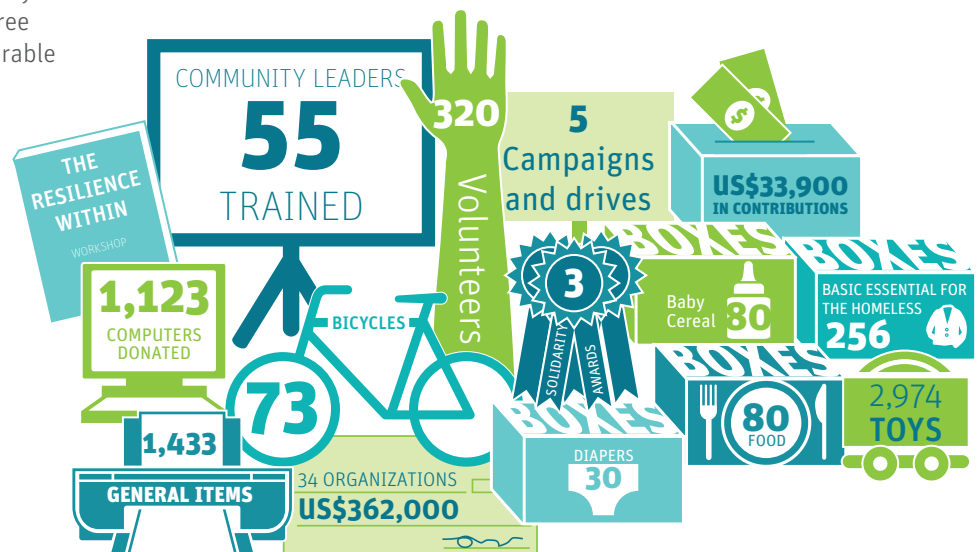
### Surplus Equipment Donation.

From the 2012 IDB Computer Replacement Program, we donated 1,433 items of surplus equipment (office supplies, furniture, etc.) and 1,123 computers to the local community to help equip schools, offices, and training facilities.

**Community Training.** As part of its technical assistance support, the IDB and its sister organization, the Inter-American Investment Corporation (IIC), co-sponsored training for local and international community-based organizations. A workshop entitled “The Resilience Within” provided self-health and other support tools to 55 community leaders, social workers and counselors, outreach specialists, and practitioners who support at-risk populations in their communities. The workshop ended with a Social Innovation Conference, where renowned entrepreneurs and prominent leaders from Washington, El Salvador, Colombia, Mexico, and England discussed the role of the private, public, and nonprofit sectors in identifying, supporting, evaluating, and scaling up innovative models of interventions for at-risk populations.

**Country Offices.** Over the last two years, IDB Solidarity has expanded its work to the Bank’s country offices, which have become strong supporters of corporate social responsibility. Thirteen offices participated in the three main IDB campaigns, raising US\$2,431 for organizations in their communities.

**Complejo SACUDE – Casavalle, Montevideo.** In 2012, IDB Solidarity coordinated the community project in the Bank’s Annual Meeting in Montevideo with 13 corporate, government, and local partners. We rehabilitated a soccer field, established a computer center, expanded and equipped the community theater, and provided equipment to a health center. Two sports celebrities participated in the community event, with a special presentation by the Uruguayan popular music singers María Elena Melo and Pablo “Pinocho” Routin. @



## Our Social Assets: A Focus on Diversity and Inclusion

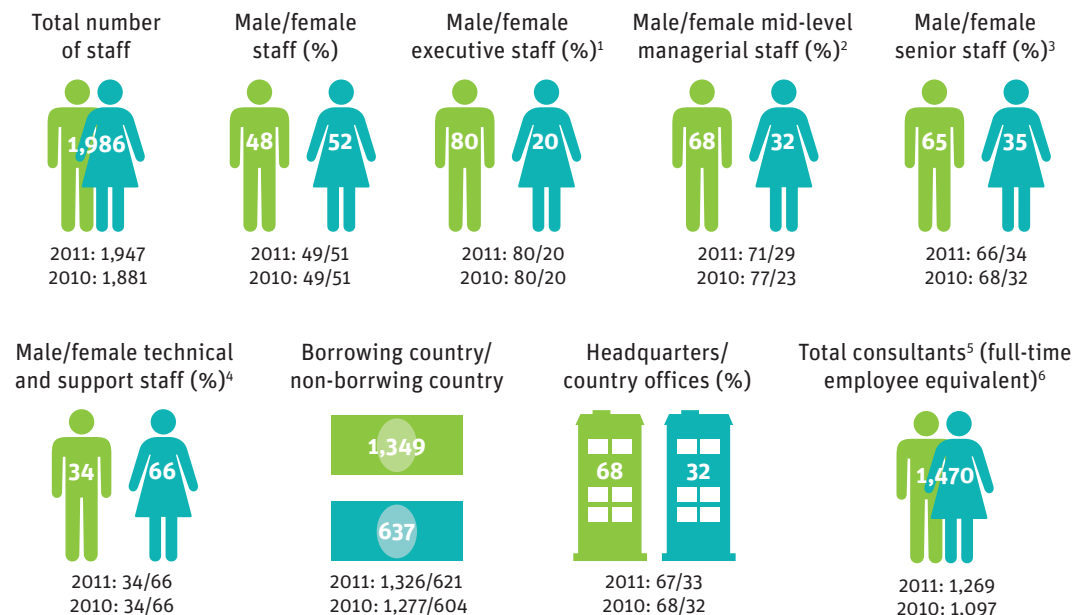
There is increasing recognition across the globe within the private sector, governments, and international institutions that diversity and inclusion (D&I) contribute to innovation and sustainability. As part of the IDB's GCI-9 commitments, the Bank moved in 2010 to a firm institutional mandate to increase the diversity of its staff and foster an inclusive work environment.

In 2012 the IDB made significant progress in institutionalizing its commitments to diversity and inclusion internally. The standout accomplishment of the year was the approval by the Bank's Senior Management Committee of the first diversity and inclusion framework: *Mainstreaming Diversity and Inclusion for a Better Bank: A D&I Framework for the IDB: 2012–2017*. Accompanying this framework was a companion D&I Action Plan and institutional Maturity Model, which are the key building blocks for guiding progress and measuring results. Additional monitoring tools and targets will be established in early 2013, including a D&I Scorecard.

Other actions undertaken and results achieved in 2012 in support of IDB diversity and inclusion included the following:

- More than 1,100 Bank staff, consultants, and clients participated in D&I awareness raising and training events at headquarters and in the El Salvador and Barbados country offices. These included, among others, well-attended seminars on *Mind Bugs: The Science of Ordinary Bias*, *Managing across the Generations*, and *Innovate the Way You Innovate*, as well as *Working Mama* support sessions.
- The Diversity and Inclusion Advisory Group was formed to serve as the principal advisory body to the executive vice president and the Human Resources Department to help ensure progress toward meeting our D&I commitments.
- A policy review was conducted to strengthen the Bank's work-life balance initiative, specifically focused on existing staff rules and policies concerning flexible work scheduling for international employees and on developing a new policy in the same area for local staff.
- Country Office Diversity and Inclusion Action Plans were prepared and launched by 14 country offices and the IDB's regional office in Asia.
- The Bank's first country office internship program (Catedra-BID in Peru) expanded its outreach to benefit diverse candidates.
- There has been increased staff use of the professionally equipped lactation room (which was inaugurated in 2011).

## OUR 2012 HUMAN RESOURCES NUMBERS



<sup>1</sup> Executive Vice President and Vice Presidents

<sup>2</sup> Executives and Representatives

<sup>3</sup> Grades 1–4

<sup>4</sup> Grades 5–12

<sup>5</sup> Includes all Contractual Categories (Individual Consultants, Research Fellows, Temporary Help, and Trust Fund appointees)

<sup>6</sup> Full-time equivalent based on 260 days

## Our Footprint: *Achievements for Green Buildings*

The Bank has maintained carbon neutrality for its corporate operations at both the headquarters and in country offices since 2007. Through a number of programs and projects to increase awareness, staff members learn how they affect the institution's carbon footprint. The Bank measures and reports on its 2012 emissions will be reported in the Bank's Annual CSR Report in April 2013.

We have undertaken major projects in recent years to improve the efficiency of building systems in order to reduce environmental impact. In 2012, the second year of a three-year US\$12-million Facilities Improvement Program, we replaced older air conditioning and other system controls, and we continue to receive the U.S. Environmental Protection Agency's Energy Star rating for the headquarters in Washington, D.C. Fully 100 percent of power to operate these facilities is purchased from renewable sources; to offset GHG emissions that cannot be further reduced, the Bank invests in carefully selected projects in Latin America and the Caribbean in order to maintain net zero emissions.

A major achievement in 2012 was Leadership in Energy and Environmental Design (LEED) certifications from the US Green Building Council for our two buildings in Washington and for the country office in Costa Rica. This important recognition demonstrates our commitment to preserve the environment through energy efficiency and sustainable operations by submitting to a rigorous assessment, application, and measurement process. The certification was the culmination of a rigorous two-year comprehensive assessment of building operating systems and related



management practices, collection of extensive data on building equipment performance, and implementation of LEED-compliant procedures to manage various building operations. The Bank then underwent a six-month performance measurement period to demonstrate that each element of the program deserved certification.

The headquarters facilities were certified under the Existing Buildings category, awarded to only 1,800 buildings worldwide to date. Energy efficiency was a notable achievement, particularly at the 1300 New York Avenue building, which earned the maximum number of points in that category. The office in Costa Rica was certified under the Commercial Interiors category for design and construction, only the ninth LEED-certified space in that country. This effort began with the design of a high-performance green interior that incorporated energy-efficient equipment and careful selection of environmentally friendly materials. During construction, an intensive project management effort ensured that LEED standards were adhered to through implementation of a construction management plan that addressed recycling and indoor air quality.

By earning these certifications, the IDB adds its facilities to the select group of buildings in the world known as high-performance green buildings. In addition, it acknowledges the ongoing efforts it has made as an institution to focus on environmental stewardship and provide its staff with a healthy working environment. To continue these efforts, in 2013 the Bank will conduct a study to establish a long-term strategy for space planning and management that will incorporate the design of energy-efficient, high-performance work spaces in all Bank facilities. @

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Annual Report 2012



Development Effectiveness Report 2012

The Sustainability Report 2012 was produced by the Environmental and Social Safeguards Unit, with close collaboration with the Infrastructure and Environment Department of the Bank. A peer review process was undertaken by an inter-departmental Editorial Committee.

The IDB welcomes opinions and comments on the content and format of this report, as well as on the Bank's overall sustainability performance. Should you have any questions or comments to share, please contact the Managing Editors by email: [sustain@iadb.org](mailto:sustain@iadb.org)





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