



Development and Climate Change

The World Bank Group at Work



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INTRODUCTION

In October 2008, the World Bank Group (WBG) adopted the Strategic Framework on Development and Climate Change (SFDCC).¹ The document was developed in consultation with, and endorsed by, governments of 185 member countries.

The World Bank Group's Approach to Climate Action is founded on its core mission of supporting economic growth and poverty reduction in developing countries. While climate change is an added cost and risk to development, a successful global climate policy can and should open new economic opportunities to developing countries.

The Strategic Framework guides the Bank Group's operational response to new development challenges posed by climate change within the principles, policies, and directions of the UNFCCC process. Since the framework was adopted, the WBG, building on significant previous experience, has rapidly expanded its climate change related work and collaborative partnerships with developing country governments and other stakeholders. This paper highlights several new initiatives and trends; a comprehensive progress report on the implementation of the framework will be prepared early in 2010.

As a development institution, the WBG's role is to help accelerate or maintain robust economic growth in developing countries while recognizing the added costs and risks of climate change and an evolving global climate policy. Financing for adaptation and mitigation must

1. This document as well as the technical background document can be accessed on the following link: www.worldbank.org/climatechange

not divert resources from the core development needs and actions towards achieving the Millennium Development Goals.

The framework guides various entities and institutions of the WBG, including the International Finance Corporation (IFC), the Multilateral Development Agency (MIGA), and the World Bank in effectively supporting sustainable development and poverty reduction in developing countries as climate risks and climate-related economic opportunities arise. It further encourages the WBG to facilitate global action, with an emphasis on leadership by developed countries in reducing their emissions and transferring finance and technology to developing countries.

The framework contains six action areas that are aligned with the Bali Action Plan and aim to:

- Support climate action in country-led development processes
- Mobilize additional concessional and innovative finance
- Facilitate the development of market-based financing mechanisms
- Leverage private sector resources
- Support accelerated development and deployment of new technologies
- Step up policy research, knowledge and capacity building.

Each action area supports both adaptation and measures with mitigation co-benefits, with particular attention to increasing the availability of analytical tools and financial resources for adaptation.

The focus is on improving knowledge and capacity—including learning by doing—through actions whose ben-

efforts to developing countries are robust under significant uncertainties about future climate policies and impacts; that is, actions that have “no regrets.”

PARTNERSHIPS

Given the magnitude of potential impacts, climate change responses require concerted efforts by the development community to ensure adequate and effective adaptation and mitigation measures. Global cooperation is particularly important for developing countries, which in some cases are already impacted by climate change at a time when they are addressing many other major development challenges. Having contributed the least to the current increase in Green House Gas (GHG) concentrations, the developing countries must be able to count on extraordinary commitment by developed countries to help enable and finance adaptation measures and lower emission growth trajectories.

No one institution or group of stakeholders can address the climate challenge alone. The Bank Group is therefore working to broaden and deepen a large suite of partnerships with governments, sister agencies, the private sector, and civil society in all aspects of climate action.

The World Bank Group adheres to the principles, policies and directions of the UNFCCC process, and is guided by the Bali Action Plan. It remains neutral to the negotiating positions of UNFCCC parties and does not prejudice the outcomes of ongoing negotiations, while sharing analytical and practical knowledge and supporting developing countries' needs.



Partnering with Governments

The WBG works with developing country partners and provides them customized demand-driven support through its various instruments—from financing to technical assistance to policy advice. Over the past year, a new level of partnership has been established, with developing country governments participating in governing innovative climate finance vehicles such as the Climate Investment Funds (CIF), the Forest Carbon Partnership Facility (FCPF), and the Carbon Partnership Facility (CPF). In addition, a number of partnerships with national and subnational (state, city) governments on various issues in the development-climate change nexus have been built by different sector, region, and country teams.

To advance the international dialogue on development and climate change, Bank Group President Robert Zoellick launched the “Bali Dialogue Series,” which seeks to engage ministers of finance, economy, and development from both developed and developing countries in discussions about climate finance solutions.² This dialogue allows some 40 to 50 ministers and heads of multilateral agencies to meet twice annually in an informal setting to discuss selected aspects of the climate change agenda and its links to the development needs of developing countries. The first three events addressed adaptation and development (spring 2008), the carbon market (autumn 2008), and most recently in April 2009, climate finance.³

2. The Bali Dialogue Series was initiated in response to call by the Governments of Indonesia, Poland, and Denmark—hosts of UNFCCC Conferences of Parties number 13, 14, and 15, respectively—and is hosted by the World Bank Group President and the Chairman of the World Bank Group Development Committee.

3. Power point Presentations by Mr. Robert Zoellick can be found on the following link: www.worldbank.org/climatechange

Partnering with the UN, GEF, and MDBs

Collaboration with the UN family on climate change has also intensified substantially—through both numerous programmatic activities in developing countries and in pursuing a coherent strategic approach to climate change. The WBG is part of the UN Secretary General’s Climate Change Team and is partnering with the UN family within the collective framework of “Acting on Climate Change: The UN Delivering as One.” As a co-convening agency with UNDP on climate finance within the UN system, the World Bank Group and UNDP are spearheading the establishment of a collective platform for UN agencies that would support access to finance for climate action by developing countries.⁴ Several specific partnerships with individual UN agencies are currently being developed. For example, the Bank Group is working with UN-HABITAT and UNEP to prepare citywide vulnerability assessments and a pilot GHG emissions index for the world’s 40 largest cities. The WBG has continued its strategic partnership with GEF and supported its move to programmatic approaches, as well as entered into new partnerships to deliver scaled-up financial resources for developing countries.

Collaborative efforts with the multilateral development banks (MDBs) on climate action have been further strengthened in recent months through jointly implementing the Climate Investment Funds (CIF), which were approved by the World Bank Group’s Board of Directors in July 2008. The funds, encompassing the Clean Technology Fund (CTF) and the Strategic Climate Fund (SCF), are built upon the principle of utilizing the skills and capabilities of the MDBs to raise and deliver new and additional resources at significant scale. The

4. Additional information on the scope of this collaboration can be found on the following link: www.un.org/climatechange

five MDBs—the African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development, Inter-American Development Bank, and the World Bank Group—are now working together to provide coherent support to country-driven programs and allow countries to select support from each MDB based on comparative advantages.⁵

Partnering with Civil Society, Nongovernmental Organizations, and the Private Sector

WBG's commitment to an inclusive approach toward civil society and nongovernmental organizations has been evident from extensive global consultations during the preparation of the SFDCC. Face-to-face and video consultations reached about 2,000 stakeholders in over 70 countries, and many more stakeholders provided inputs through web-based consultations. Following SFDCC endorsement, the WBG maintained its dialogue with NGOs through discussions at the UNFCCC meetings in Poznan in December 2008 and Bonn in April 2009. The CIF Partnership Forum, which is being convened annually, was established as a forum for dialogue on the strategic directions, results, and impacts of the programs within the CIF, as well as lessons learned from CIF operations and other relevant programs and projects. The Partnership Forum is a broad-based meeting of stakeholders, including donor and eligible recipient countries, MDBs, UN and UN agencies, GEF, UNFCCC Secretariat, the Adaptation Fund, bilateral development agencies, NGOs, private sector entities, and scientific and technical experts.⁶

5. More information about the collaborative efforts by the WBG and the MDBs on CIF can be found in the finance chapter of this document, and on the following website: www.worldbank.org/climatechange

6. Additional information about the Partnership Forum can be found on www.worldbank.org/cif

Another example is supporting climate change adaptation initiatives through the Development Marketplace (DM) 2009, a competitive grant program administered by the World Bank Group and supported by various partners for early-stage projects with high potential for development impact. DM competitions—held at the global, regional and country level—attract ideas from a range of innovators, including civil society groups, social entrepreneurs, academia, and business.⁷

STRATEGY

At the strategy level, the overall principles and priorities of the SFDCC are customized by World Bank regional operations, IFC, and MIGA to the specific needs of their clients. Reflecting the diversity of WBG clients, the focus of these operational strategies or business plans ranges from energy efficiency, clean production and promotion of clean technology in private sector operations by IFC to the need for strengthening climate resilience and capacity to manage climate risks in Africa (see box 1).

Country-led approaches, articulated in country assistance or country partnership strategies (CAS or CPS)

7. DM has awarded more than \$54 million in grants, supporting projects through their proof-of-concept phase. Using DM funding as a launching pad, projects often go on to scale up or replicate elsewhere, winning prestigious awards within the sphere of social entrepreneurship. In 2009, the theme for the grant program is climate change. The competition on climate adaptation focuses on three sub-themes: (1) Resilience of Indigenous Peoples Communities to Climate Risks; (2) Climate Risk Management with Multiple Benefits; and (3) Climate Adaptation and Disaster Risk Management. More information about the Development Marketplace can be found on the following link: www.developmentmarketplace.org

Box 1 Making development climate resilient—World Bank Group support for Sub-Saharan Africa

Climate change is a major development challenge for Sub-Saharan Africa. As global warming progresses, dry areas will become drier and wet areas wetter, posing an additional challenge to natural-resource-dependent livelihoods and economic activities. Present development strategies in Africa already include important adaptations to climate risk by the poor, including investments in water storage, flood control, irrigation infrastructure, and diversification of water supply sources. Nevertheless, climate change, by increasing climate variability and incidence of extreme weather events, introduces a new set of risks and challenges, particularly in agriculture, water management, and infrastructure. Long-term projections forecast that Africa's agricultural output could fall by about 16 percent by 2080—more than any other region. This has serious implications for food security. Africa has the lowest electrification rate of all regions with only about a quarter of households having access to electricity; improving access to affordable energy is a top priority. While there is significant potential for energy efficiency in South Africa and urban centers of several other countries, 70 percent of carbon emissions come from land use degradation. Improving long term land productivity, better land and water management, reducing the loss of vegetative cover, and deforestation and forest degradation are all important priorities for Africa that can bring synergistic development, adaptation and mitigation benefits.

The World Bank Group response to climate change in Sub-Saharan Africa is designed to support its overall development and business plan for the continent, known as the Africa Action Plan, along the following four pillars:

Pillar 1. Make adaptation and climate risk management a core component of development. While adaptation is essentially a risk management strategy, it is fundamentally about sound, resilient development and the need to ensure that disaster risk reduction and adaptation are fully integrated into growth and poverty reduction strategies. Key areas on which the WBG will focus include energy; disaster risk reduction; sustainable land, water, and forest management; coastal and urban development; increased agricultural productivity; and health and social issues.

Pillar 2. Take advantage of development opportunities with mitigation cobenefits. Given the huge energy deficit in the region and the heavy reliance on fuelwood, most of Sub-Saharan Africa's mitigation opportunities are linked to more sustainable land and forest management, energy use and development, and urban transport systems. By taking advantage of opportunities and new technologies in these areas, African countries can further development while providing clean energy access to their populations.

Pillar 3. Focus on knowledge and capacity development. Uncertainties regarding the impacts of climate change on different subregions and sectors make policy decisions more complex and magnify trade-offs and opportunity costs. To ensure that Africa has access to appropriate information and technologies, as well as adequate capacity to plan and prepare for projected changes in climate, the Bank Group will invest in improving weather forecasting,



water resources monitoring, land use information, disaster preparedness, appropriate technology development, and strengthening capacity for risk management, planning, and coordination.

Pillar 4. Scale up financing opportunities. Because climate change is one of the fundamental problems facing poor people, development assistance (such as IDA financing) will remain the main platform for helping African countries strengthen the resilience of development process to both current and future climate risks. Additional support is critical to build the knowledge base, strengthen institutions, and “climate-proof” investments. It must come from both existing sources of climate finance and new instruments, such as UNFCCC’s Adaptation Fund and the Pilot Program for Climate Resilience under the Climate Investment Funds. The World Bank Group will also work to help Africa access additional resources from its funds and facilities for activities with mitigation cobenefits.

The WBG is already at work helping several countries in a number of action areas. For example, the Bank Group is supporting the Ethiopian government in reducing the vulnerability of its population to extreme weather events; promoting community-driven sustainable land and watershed management that help use soil and water more efficiently and increase the intensity of production where appropriate; and preparing an integrated framework for addressing climate variability and change. The Kenyan authorities are also pursuing a spatially differentiated approach to addressing climate risks, with a focus on drought management in the arid north, flood management in the west, and watershed management in the southwest and center. And the South African authorities have prepared a framework for addressing climate mitigation with the long-term objective of moving to a low-carbon growth path while supporting equitable growth and access to key services for citizens.

prepared in close consultation with developing country governments and other stakeholders, are the foundation of the Bank Group’s support for climate actions. The past year witnessed a significant increase in the number of client countries identifying climate issues as development priorities and working with the WBG to have them reflected in the agreed country partnership or assistance strategies. The main focus is on climate risks, particularly linked to natural disasters and sustainable natural resource management, as well as lower emission growth opportunities, energy efficiency, renewable energy and scaled-up access to climate finance (see box 2 for select examples). Just this year, the list of such countries for which strategies were prepared or are at an advanced stage of preparation included Bolivia, Brazil, Burkina Faso, Cameroon, Guyana, Haiti, India, Lesotho, Maldives, Mexico, Morocco, Nepal, Philippines, Serbia, Tunisia, Vietnam, and Yemen, or

40 percent of all country assistance/partnership strategies planned for the year, reflecting a steady growing trend (up from 15 percent in 2000–05 and 32 percent in 2007).

FINANCE

The World Bank Group is using a variety of instruments—grants, concessional credits, different types of loans and guarantees, equity, carbon finance, and structured financing packages—to support the investment needs of its clients. Over the past years, it has increased financing for climate risk management and adaptation in development programs and for less GHG-intensive projects within national economic plans and priorities.

Box 2 Climate issues in Country Assistance/Partnership Strategies

Guyana. Guyana is a coastal country with about half its population living below sea level. About 85 percent of the country is forested but the pressures on forests are rising. The new CAS stresses (a) the need for climate change adaptation, and (b) the opportunity to contribute globally to climate change mitigation by reducing emissions from deforestation and to get economic benefits in return for such eco-services. The CAS provides for an IDA Forest, Climate Change, and Communities project that will complement the upcoming FCPF grant (Guyana was among the first group of countries to apply and get selected into the FCPF in July 2008).

Cameroon. The CAS incorporates climate change as a new area of focus to be addressed over time. While detailed sectoral interventions have not been identified yet, a “vulnerability assessment and adaptation strategy” is included in the CAS. In addition, the CAS program will focus on incorporating hydrologic risk in hydro development, including through the Lom Pangar Reservoir.

India. The India CAS for 2009-12 identifies the following areas of engagement on climate change issues:

- (i) Climate Change Adaptation: Priorities focus on enhancing knowledge of sectoral vulnerabilities; increased investments in climate resilient infrastructure and livelihood; focus on high vulnerabilities particularly relating to water resources agricultural yields and coastal areas.
- (ii) Climate Change Mitigation: enhanced knowledge of mitigation options; increased investments in low carbon growth; programmatic carbon finance; and the use of carbon finance mainstreamed across Bank Group operations.

Morocco. The Country Partnership Strategy (CPS), currently under preparation, is considering climate change and sustainable development as one of its pillars and World Bank support to the government to develop a multisector strategy to address climate change.

Extending Support to Climate-Resilient Development and Adaptation

Given the priority of adaptation for developing countries—and the central focus on adaptation in the Strategic Framework—the WBG has moved to explore and apply different instruments and products to support the needs of its clients.

As a long-term partner with GEF, the World Bank has increased its focus on programmatic projects that cut across several focal areas and increasingly involve climate action, both in terms of adaptation and mitigation. This support involves partnering with many countries,

agencies, and stakeholders, as well as raising cofinancing in the context of the program. The programmatic approaches at the country level provide an excellent opportunity for coherent cross-sectoral actions. For example, within the Pacific Alliance for Sustainability Program, \$100 million⁸ is allocated to the Pacific Island countries from a number of GEF focal areas such as International Waters, Biodiversity, Climate Change mitigation, and adaptation. The overall program is complemented by ADB, UNDP, and the World Bank. The India Sustainable Land and Ecosystem Management Project (SLEM) includes adaptation funding of \$5 million (through the

8. All dollar amounts are U.S. dollars unless otherwise indicated.

Strategic Priority on Adaptation) with a total project funding of \$30 million. It supports activities such as an analysis of the impact of climate change on mountain ecosystems and related livelihoods and working at the village level to develop adaptation measures in dryland as well as flood-prone areas.

Through the Special Climate Change Fund (SCCF) and the Least Developed Country Fund (LDCF), the Bank supports a number of projects and programs, such as the regional project to pilot Climate Change Adaptation Measures in the Andean Region to meet the anticipated impacts from climate change in the Andean highlands, including impacts of glacial melt (see box 3). Under the LDCF, the Bank has supported the preparation of National Adaptation Programs of Action (NAPA) in Madagascar and Sao Tome and Principe. The Bank is also aiming to support a number of NAPA implementation projects, such as a project in Vanuatu on increasing resilience to climate change and natural hazards.

Another important partnership of the World Bank, the United Nations International Strategy for Disaster Reduction (UNISDR), and an expanding group of donor governments is the Global Facility for Disaster Reduction and Recovery (GFDRR). In the past several years, it has evolved into a global partnership for advancing the reduction of vulnerabilities to natural hazards and extreme events, based on ex ante support to high-risk countries. Presently, donor pledges stand at \$83 million. Disaster risk reduction is an essential part of climate change adaptation and GFDRR is actively pursuing climate risk management. The current investment of GFDRR in its 35 climate change adaptation programs is \$15 million (see box 4 for examples).

A major advantage of the Bank Group is its expertise in packaging specialized adaptation assistance with other development finance, leveraging private sector resources, and increasing the overall impact and sustainability of supported programs. Without being comprehensive, box 3 illustrates some recent activities and financing packages to support more climate-resilient development tailored to different climate risks and the needs of specific countries.

An important new feature is a move from individual operations addressing climate variability and extremes to a comprehensive approach to strengthening climate resilience and climate risk management that spans across a range of projects within the context of regional priorities and country assistance strategies. Box 5 illustrates this approach in action in providing assistance to countries in the Middle East and North Africa region.

Enabling insurance schemes in support of climate adaptation

The Bank Group is pursuing ways to further develop insurance schemes as a way to assist governments in their management of risks associated with climate change and climate variability. Such weather risk-management transactions can be adapted to a country's specific needs, depending on the type of weather hazard, level of protection, and the estimated financial loss associated with a severe and catastrophic event. The potential application of this product spans diverse sectors, including agriculture, energy production, and tourism.

Since June 2008, the World Bank has been able to act as an agent for weather derivatives to facilitate IDA and IBRD countries' access to the weather derivative markets. In October 2008, the WBG mediated a weather risk

Box 3 A range of activities and instruments to support climate resilience and adaptation***China: Climate Change Adaptation in Irrigated Agriculture Project (Ongoing)***

The development objective of this project is to enhance adaptation to climate change in agriculture and irrigation water management practices through awareness-raising, institutional and capacity strengthening, and demonstration activities in the Huang-Huai-Hai river plain (3H Basin) in China. The project is linked to an ongoing Irrigated Agriculture Intensification project. The project's cost, estimated at \$55.5 million, has been divided into two parts: (a) \$50.5 million is covered under the ongoing IBRD-financed project to increase resilience to climate change for those activities that are potentially most affected by climate change; and (b) \$5 million is funded by the Special Climate Change Fund (SCCF) to support additional adaptation activities not directly linked to the baseline project, namely:

- Identification and prioritization of adaptation options
- Demonstration and implementation of adaptation measures
- Adaptation into national CAD program and institutional strengthening.

Kenya: Adaptation to Climate Change in Arid and Semi-Arid Lands (Pipeline)

Livelihoods and economic activities in Kenya are highly vulnerable to climatic fluctuations. About 80 percent of the country is arid or semi-arid, where the main sources of sustenance are pastoral and subsistence agriculture. Given the dramatic impacts of climate variability on Kenya's economic performance and the livelihoods of the poor, the super-imposed effects of climate change pose severe threats to sustainable economic development and poverty reduction by introducing another layer of uncertainty in the sustainability of livelihoods. The project aims to (a) strengthen climate risk management and natural resource base related knowledge; (b) build institutional and technical capacity for improved planning and coordination to manage current and future climate risks at the district and national levels; and (c) invest in communities' priorities in sustainable land and water management and alternative livelihoods that help communities adapt to climate risk. Project costs amount to \$46 billion. An estimated IDA contribution of \$40 million is expected to strengthen national institutions and district-level capacities; support CDD micro-projects for service delivery and drought rehabilitation; and address immediate needs and provide the baseline for the KACCAL project. An incremental SCCF grant for joint implementation by UNDP and the World Bank, as well as contributions from the government and beneficiary communities, will support the integration of a longer-term perspective in national and district-level planning and a variety of local interventions to adapt to climate variability and change that result in the overall mitigation of that risk.

Adaptation to the Impact of Rapid Glacier Retreat in the Tropical Andes Project (Ongoing)

The broad development objective of this project is to contribute to strengthening the resilience of local ecosystems and economies to the impacts of glacier retreat in the Tropical Andes through the implementation of specific pilot adaptation activities that illustrate the costs and benefits of adaptation. The specific objectives of the project in support of this broad objective are (a) in glacierized basins, the effective integration of the implications of glacier retreat into regional and local planning; (b) the inclusion of glacier retreat impacts in local and sector development projects; and (c) the generation of data on glacier dynamics. The project finances planning (design of at least six strategic adaptation measures), investments in specific adaptation measures addressing the most pressing priorities in each country (on a pilot basis), and scientific support for monitoring glacier retreat in the region in order to enable better long-term planning. The total project cost is \$32.72 million; about 30 percent is financed by the SCCF, 43 percent by the participating governments (Bolivia, Ecuador and Peru) and the remainder by bilateral agencies and NGOs.



Box 4 Reducing vulnerability to natural disasters and strengthening climate resilience: the Global Facility for Disaster Reduction and Recovery (GFDRR)

A \$145,000.00 GFDRR grant supported the development of a primer for city managers on reducing disaster vulnerabilities. A step-by-step self-assessment challenges policymakers to think about the resources needed to combat natural disasters through an innovative hot spot risk and vulnerability identification tool. The primer generated considerable interest and it is now being implemented in cities in the Philippines, Indonesia, Vietnam, and others in Africa and the Middle East.

A \$250,000 grant helps city governments in Casablanca, Tunis, and Alexandria to increase their resilience toward climate change and disasters by formulating action plans. The program manages the disaster risk reduction and climate change adaptation components largely as one integrated agenda. The resulting climate risk management approach generates social and economic impacts in the short term, while reducing vulnerability to long-term changes in the climate.

In West Africa, a \$900,000 grant is supporting the development of local policies and strategies to help communities in Senegal, Sierra Leone, and Mauritania acquire stronger management of their own coastal and marine resources.

In Madagascar, a \$1.3 million grant is strengthening the country's capacity to deal effectively with climate change by facilitating the modeling of present and future cyclone risks, the development of cyclone-proof building codes, and the improvement of emergency capacity.

A \$75,000 grant is helping the government of Bangladesh determine how climate change may impact the depth, extent, duration, frequency, and timing of future floods and the resulting risks to agriculture and food security.

management derivative that was designed to help Malawi protect itself against the risk of severe drought. Malawi suffers from chronic drought that cuts agricultural yields, depresses farmer incomes, and creates contingent liabilities for the government. The weather derivative is an option on a rainfall index which links rainfall and national maize production. If precipitation falls below a certain level during the coverage period (October to May), the index will reflect the value of the projected loss

in maize production. The maximum on the contract is \$5 million. During the 2008/09 season, about 2,600 farmers have been covered with a sum insured at \$2.5 million.

Examples of other weather-based crop insurance include the Central American Weather Risk Management Program which has been developed in Honduras, Guatemala, and Nicaragua. The program is currently only operating in Nicaragua, where 2,500 hectares of

Box 5 Scaling up support for adaptation in Middle East and North Africa

Tunisia: second water sector investment project (2009): The project will address the threat of climate change-induced increased water scarcity by improving modernizing irrigation, investing in monitoring of water (surface and ground, quantity and quality), linking soil and water quality monitoring, promoting community self-regulation of groundwater consumption.

Morocco: Oum er Rbia Irrigated Agriculture Modernization Project (2010): The project development objective is for participating farmers in the Oum Er Rbia basin to overcome current and future water deficits by making their water use more productive and environmentally sustainable. The project is designed to address the two types of risk that farmers face — hydrological and commercial. The project will be implemented in irrigation sectors of Tadla, Doukkala and Haouz in the Oum er Rbia basin, selected through project feasibility studies based on technical, socio-economic and farmers' demand criteria. The project will focus on an area of approximately 20,000 ha benefiting 8,000 farmers. The project includes 3 components: (1) improving the irrigation water service; (2) supporting farmers' access to technology, financing and markets; and (3) assisting implementing agencies in project management and monitoring.

Morocco: Integrating Climate Change in Development Planning and Disaster Prevention to Increase Resilience of Agricultural and Water Sectors (2010): The project will assist the Government of Morocco in mainstreaming climate change in the national development planning process. The specific objectives are to a) improve the understanding of climate change implications for high-level strategic development planning; and b) enhance resilience to climate change of key development sectors — agriculture and water — through strengthened institutional capacity, knowledge management, and piloting innovative climate change adaptation and disaster management options to reduce rural poor's vulnerability.

Yemen: Adaptation to Climate Change Using Agrobiodiversity Resources in the Rainfed Highlands (2010): Enhance coping strategies for adaptation to climate change for farmers who rely on rainfed agriculture in Yemen highlands, through the conservation and utilization of biodiversity important to agriculture (particularly local land races and their wild relatives) and associated traditional knowledge.

Yemen: Integrated Coastal Zone Management (2011): To help coastal communities adapt to impacts of climate change through institution strengthening, knowledge management, and demonstrated implementation of the National Decree of the Integrated Coastal Zone Management approach at national and local levels.

export crops, with a value of \$41.6 million, were insured in 2008. In Thailand, weather-based crop insurance is offered on a pilot basis to 400 farmers for a total sum insured of \$300,000. Other excess/deficit rainfall projects are under development in Kenya, Ethiopia, and Senegal. The feasibility of other applications of index-based insurance is being assessed in Indonesia, Burkina Faso, Bangladesh, and Jamaica. These weather-based crop insurance pilots are linked to agricultural lending and aim to strengthen agricultural finance, agricultural supply chains, and profitability in agriculture.

Using Insurance to reduce climate risks. The WBG has assisted the government of India in the development of the Weather Based Crop Insurance Scheme (WBCIS). This scheme protects farmers against specific adverse natural events—such as rainfall deficiency, excess rainfall, or low temperature—through weather-based insurance. More than 600,000 farmers purchased weather-based crop insurance in 2007 in India. This program draws on small-scale weather-based insurance pilots conducted in India with the Bank's technical assistance since 2003.

Supporting new instruments for adaptation finance

Recognizing the critical importance of adaptation for developing countries, the World Bank Group was honored by the request of the 13th Conference of Parties to the UNFCCC to become the trustee for the Adaptation Fund. The World Bank Group and the Conference of the Parties—serving as the meeting of the Parties to the Kyoto Protocol (CMP)—recently concluded the legal arrangements for the Bank Group to serve as the financial

trustee, under which the WBG will monetize certified emission reductions (CERs) allocated to the fund.

The establishment of the Pilot Program for Climate Resilience under the Climate Investment Funds (see below), in consultation with and support from the board of the Adaptation Fund, has already given further momentum to the dialogue with developing countries about supporting their adaptation plans and initiatives and is expected to significantly increase and deepen Bank Group support for these activities.

Exploring new partnerships and mechanisms to sustain forests and climate

Forests provide critical sources of livelihood in developing countries and important carbon sinks; yet international incentives maintaining these sinks have been lacking. The Bank Group has given significant attention to exploring opportunities and partnerships to provide incentives and enabling investment finance for activities that reduce emissions from deforestation and forest degradation (REDD). A wide range of partners, such as UN-REDD, The Nature Conservancy and others are working together to understand the potential for REDD, as well as the challenges and the needed actions. The Forest Investment Program and the Forest Carbon Partnership Facility described in box 6, are major complementary initiatives that intend to strengthen linkages among sustainable forest management, improved livelihoods and climate.

The World Bank Group is also supporting, in partnership with the International Union for Conservation of Nature (IUCN), Food and Agricultural Organization (FAO) and International Institute for Environment and

Development (IIED), the development of the Growing Forest Partnerships which will provide a platform to link the international dialogue on forests with local priorities and needs by building on existing partnerships and forest management and funding mechanisms. This partnership process, currently being piloted in Ghana, Guatemala and Mozambique, would create networks through which national climate change policies and strategies could be discussed and developed in a participatory (and therefore more sustainable) way, and eventually help national-level processes link into international-level debates.

Growing portfolio of energy efficiency and renewable energy projects

Since 2003, financing for renewable energy and energy efficiency projects has grown considerably. In fiscal year 2008, RE/EE project financing (including large hydro-

power) was over \$2.6 billion (figure 1), constituting around 30 percent of the entire WBG energy portfolio. New renewable energy and energy efficiency investments have grown at a rate of over 20 percent per year; growth over the next three years is expected to be 30 percent annually.

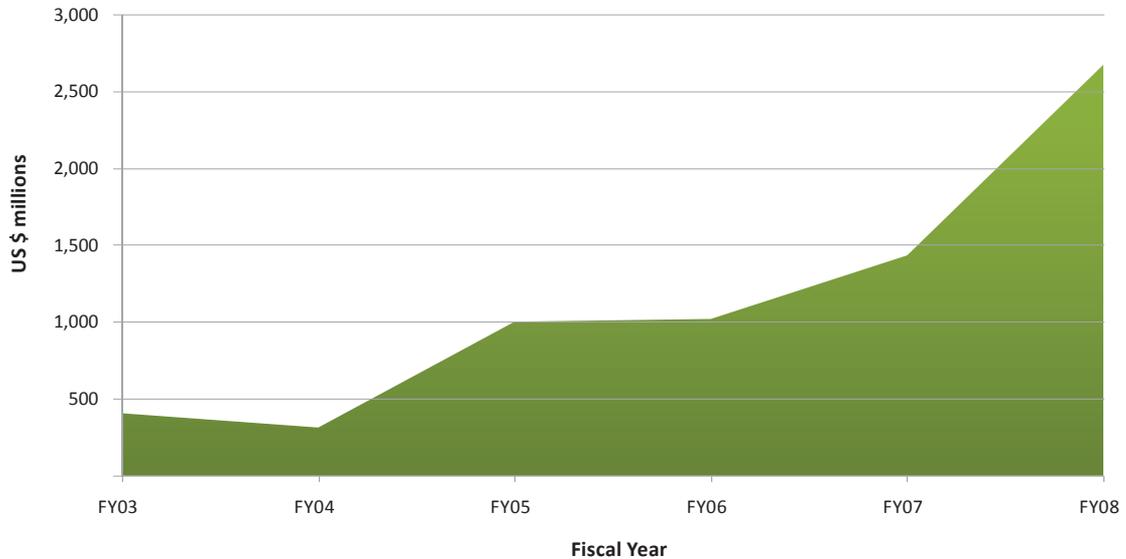
The results for this fiscal year (ending June 30 2009) are not yet complete. In the first half of the fiscal year, the International Finance Corporation (IFC) has had a record pace of investments in renewable energy and energy efficiency: 11 projects valued at more than \$1.6 billion were approved with more than \$260 million in IFC financing, including the first large wind farm in Bulgaria. This fiscal year included the first examples of IFC's solar investment strategy, which recognizes the potential for investments across the value chain, as reflected in solar materials and manufacturing projects in Russia and China (see box 7).

Box 6 Working to recognize and protect the value of forests for people and the planet

Forest Investment Program (FIP), a proposed program under the Climate Investment Funds, aims to finance transformational investments that address the drivers of deforestation and degradation with an emphasis on sustainable forest management (SFM). The interventions could include developing incentives for sustainable forest management to local communities and indigenous groups such as for certification, improving institutional capacity, strengthening forest governance and information, and complementary investments in non-forest sector programs (agriculture, infrastructure, etc.) to include provisions for forest protection. The FIP has had three multi-stakeholder design meetings and the design process is close to completion, at which point it will be ready to receive funding pledges.

The Forest Carbon Partnership Facility (FCPF) was announced at CoP13 in Bali in December 2007 and became operational in June 2008. The FCPF builds the capacity of developing countries in tropical and subtropical regions to reduce emissions from deforestation and forest degradation and to tap into any future system of positive incentives for REDD. In some of these countries, the FCPF will also help reduce the rate of deforestation and forest degradation by providing an incentive per ton of carbon dioxide of emissions reduced through specific Emission Reductions Programs targeting the drivers of deforestation and forest degradation. 25 countries —10 in Africa, 10 in Latin America and 5 in Asia and the South Pacific — were initially selected to be a part of the FCPF, but due to high demand, another 12 countries were selected at the March 2009 meeting held in Panama. The partnership now consists of 37 developing countries, with 13 financial contributors having firmly committed \$158 million. Six observers are from forest-dependent people, NGOs and international organizations, while the Bank Group is acting as overall convener and trustee, providing secretariat services and chairing the Participants Committee.

Figure 1 World Bank Group renewable energy and energy efficiency financing FY2003–08



Box 7 IFC highlights in fiscal year 2009

During 2009, IFC has been on a record pace for renewable energy investments, all financed on its own balance sheet without donor subsidy. Projects include:

- First ever project-financed wind farm in Chile, \$61.5 million for 46 MW
- \$45 million for thin film solar in China, to produce about 60 MW annually
- \$82 million for a geothermal company in the Philippines, to allow increasing production and improve efficiency of operations
- 55 m euro for 135 MW wind farm in Turkey
- An investment in Russia for materials for solar cells

In addition, IFC has been working with donor funds to develop riskier, pre-commercial projects, such as

- A wind energy commercialization program in Mexico, with support from the Clean Technology Fund
- A grid-connected photovoltaic (PV) power project in India

IFC has also partnered with GEF in strengthening financial intermediaries and markets to support a more robust investment capability for sustainable energy. Such programs are now operational in eight countries with commitments of more than \$400 million in IFC funds. IFC seeks to expand this business with financial intermediaries to the level of \$500 million in new commitments per year, supporting more than twice that level of lending by other partner banks.

The World Bank has actively supported renewable energy/energy efficiency projects in a number of sectors through its IBRD/IDA financing, carbon finance operations (see a separate section below), and in partnership with GEF. Four new renewable energy projects amounting to over \$135 million were started in Argentina, Mali, Uganda, and the Philippines. IDA financing for energy efficiency was around \$40 million, with six projects approved in the Arica, Eastern Europe and Central Asia, and the Latin America regions. The Jiangxi Shihutang Navigation and Hydropower Complex Project in China alone contributed over \$90 million to the use of renewable hydropower. The Eco-farming Project in China's agriculture sector also provided mitigation cobenefits in excess of \$100 million by means of using waste biogas as household fuel. Within the urban sector, a municipal development project was approved in Macedonia, aiming to improve energy efficiency in this country's municipalities.

The World Bank has closely collaborated with UNIDO, UNDP, and the GEF Secretariat in the preparation of the West African Energy Program. Under this program, the Bank Group has taken the lead in developing and implementing sustainable transport projects in Nigeria and Burkina Faso, and energy efficient lighting projects

in Togo, Benin, and Burundi. In Uganda, the World Bank Group has collaborated with GEF in financing a new renewable energy project in the amount of \$76 million, which at the same time aimed to increase energy access in rural areas.

The Energy Efficient Cities Initiative was launched in October 2008 by the Joint UNDP-World Bank Energy Sector Management Assistance Programme (ESMAP) to promote energy-efficient programs and sustainable energy planning among developing country cities. It is a flexible, cross-cutting, demand-driven program that identifies and pursues innovative ways to improve energy efficiency in the delivery of city services and reduce the costs and environmental impact of energy use. The program supports city level capacity in identifying and prioritizing energy efficiency interventions by developing and sharing analytical and planning tools; spur city energy efficiency activities by providing small grants to cities to test new approaches and by sharing good practices; and help develop large scale city energy efficiency investments by assisting World Bank operational units to design, package and finance urban energy efficiency.

Several new WBG initiatives to support technology innovation and commercialization are described in box 8.

Deepening the reach of carbon markets

The World Bank's carbon finance operations offer a means of leveraging new private and public investment into projects that serve to mitigate climate change by reducing greenhouse gas emissions, while promoting sustainable development. Currently, the Bank is managing 10 carbon funds amounting to over \$2 billion. Despite uncertainties over the future of international

Box 8 Supporting innovation in technology

With support from the Global Environment Facility, the IFC organized the first meeting of the Earth Fund, a new facility for innovative projects with climate change and other global environmental benefits. The Fund begins with \$60 million.

The IFC has announced it will commit its resources for investments in early-stage clean technologies; operational guidelines and eligibility criteria are now under development.

Based on the analysis of barriers and gaps in the commercialization of advanced energy technologies (AETs) in developing countries, three targeted instruments—at the respective levels of policies and regulation, markets and technologies, and companies—are being proposed and are under discussion with GEF:

1. Technology Policy Support Program (TPSP), which will respond to client country demand by providing policy support to advance the commercialization and deployment of AETs for local conditions.
2. Advanced Energy Innovation Program (AEIP), which will provide funds for developing countries to advance the commercialization infrastructure to profitably partake in energy technology evolution.
3. Energy Technology Innovation Facility (ETIF), which will enable business advisory and incubation services and early capital to support enterprises involved in the AET innovation.

Through increased allocation of CGIAR funding and financing of agricultural innovation projects, the Bank Group also is scaling up support to new agricultural technologies aimed at improving agricultural productivity under water stress and adverse climate conditions.

offset markets, nine carbon finance projects valued in excess of \$100 million have been signed over the last 10 months. Projects span a number of sectors, including energy efficiency, solid waste management, and wetland restoration, as well as several countries, including Brazil, China, Indonesia, Jordan, Pakistan, the Philippines, Russia, Senegal, and Trinidad and Tobago. The Wetland Restoration and Carbon Sequestration Project in Trinidad and Tobago has a component supporting afforestation and reforestation activities.

IFC has committed \$135 million on behalf of the government of the Netherlands to purchase emission reduction credits from projects eligible under the CDM/JI. So far, it has concluded 12 transactions to purchase emissions reductions from more than 40 RE projects

(wind farms, small hydros), as well as landfill and coal-bed methane, and industrial gas operations.

Considerable progress has been made in implementing two new carbon facilities, which are piloting new approaches and expanding the boundaries of the current carbon markets (see table 1).

Helping address climate change through supporting development policy

A highlight of the World Bank operations using traditional (IBRD/IDA) lending instruments has been an increased use of its development policy (budget support) operations—as a means to scale up financing to

Table 1 New carbon partnerships

<i>Forest Carbon Partnership Facility (FCPF)</i> Reducing emissions from deforestation and forest degradation (REDD)	<i>Carbon Partnership Facility (CPF)</i> Programmatic and sector-wide carbon finance intervention
<ul style="list-style-type: none"> • Operational in June 2008 • Objectives: Build capacity and catalyze private sector investment to enable scaling up • Features: <ul style="list-style-type: none"> – 37 REDD Country Participants (12 submitted Readiness Plan Idea Notes) – Target size of Readiness Fund: \$185 million – Currently pledged by donors: \$107 million – Financial assistance available to approximately 20 countries – Guyana, Indonesia, Panama: first three countries to present draft Readiness-Plans 	<ul style="list-style-type: none"> • Objectives <ul style="list-style-type: none"> – Target long-term emissions – Scale up finance to lower carbon investments – Support strategic, transformational interventions in power sector development, energy efficiency, gas flaring, transport, urban development, etc. • Features <ul style="list-style-type: none"> – Programs, away from individual projects – Partnership between buyers and sellers – Fostering both demand and supply in uncertain market – Target size: first tranche €350 million • First developing country participant is in Morocco; discussions are with entities in Indonesia, Vietnam, and China

countries (or states) for their climate-change-related priorities. Two pioneering operations were the Morocco Energy Sector loan (fiscal year 2007) and the Himachal Pradesh (HP) DPL in northern India (fiscal year 2008). Both contained components that promote greater use of renewable energy sources. The Himachal Pradesh operation further assisted the state government in building its capacity to adopt adaptation strategies for glacial melting in the Himalayan ecosystems due to impacts of climate change. By simultaneously targeting agricultural productivity and environmental resilience, the Agriculture development policy operation in Ghana (2008) set an example of a developing country's effort to integrate climate risk management and adaptation into the broader economic growth and poverty reduction agenda.

The first dedicated climate change development policy loan of \$500 million was requested by and delivered to Mexico in May 2008. In addition, two environment sector DPLs approved for Mexico in 2008–09 have a strong focus on policy and institutional measures related to climate change, with lending specifically for these components amounting to more than \$325 million.

Among recent examples, the programmatic development policy operation for Sustainable Environmental Management in Brazil approved in March 2009 sets a record lending amount of \$2 billion while addressing climate change actions both at the inter-sectoral level and within the targeted sectors, including natu-

ral resources, water, sanitation, and energy. Another example of environmentally driven innovation in the use of traditional Bank products is the Solid Waste Management development policy loan in Morocco, which was approved in March 2009. Amounting to €100 million, the loan seeks to improve the sector's governance as well as its financial sustainability through performance-based incentives for municipalities. It also aims to strengthen social and environmental considerations and set a framework to sell to 7-10 million tCo₂eq of carbon credits with a local aggregator (Fonds de l'Équipement Communal). This is the first World Bank policy-based lending that supports enabling access to the carbon market.

This series of loans represents a new generation of sustainable development finance instruments that are able to deliver significant financing on a “wholesale” scale to help developing countries with their policy, institutional, and investment priorities.

Raising finance on capital markets

Another innovative application of World Bank resources to support climate action are “green bonds,” which the Bank launched to raise additional funding in the capital markets for projects or programs that support lower-carbon and climate-resilient activities in client countries. The first issue of green bonds was in November 2008; it was denominated in Swedish kronor (SEK) for a total amount of SEK 2.325 billion and a maturity of 6 years. The second issue of green bonds took place in April 2009 to the state of California which raised \$300 million.

Scaling-up support to country-led efforts with the Climate Investment Funds

Approved in July 2008, the Climate Investment Funds are a collaborative effort among the multilateral development banks and countries to bridge the financing and learning gap between now and a new global climate change agreement. The CIF—governed by balanced representation of donors and recipient countries—are comprised of the Clean Technology Fund (CTF) and the Strategic Climate Fund (SCF), with total pledges in excess of \$6 billion of highly concessional funding (equivalent to about \$3 billion in grants). Over several months, MDBs, with partner countries, made rapid progress in establishing these new instruments. CTF investment plans of over \$1 billion were endorsed for three countries—Egypt, Mexico, and Turkey—and two projects were approved in Turkey and Mexico (see figure 2). The concept note for the first regional program—supporting 1 megawatt of concentrated solar power in eight countries of the MNA region, West Bank and Gaza—has been recommended for further preparation. Several more countries are preparing investment plans.

With respect to the Strategic Climate Fund (SCF), information about its programs is summarized (see box 9). Nine pilot countries were selected and invited to participate in the PPCR, with eight having already accepted the invitation.

Figure 2 Clean Technology Fund gets a quick start

Clean Technology Fund (CTF) at work:

Three investment plans endorsed with a total funding envelope of over \$1 billion leveraging over \$10 billion

Mexico

Energy Efficiency—Program to replace inefficient lighting and appliances with expected emissions reductions of 4 million tons of CO₂ per year

Urban Transport—20 bus rapid transit corridors with low-carbon bus technologies

Renewable Energy

Proposed CTF \$500 million » leverages » \$6.2 billion

Turkey

Renewable Energy—Implementing “intelligent” grid management and control systems to support large-scale integration of wind power

Renewable Energy and Energy Efficiency—Promoting private sector development through credit lines to local development banks

Proposed CTF \$250 million » leverages » 2.1 billion

Egypt

Wind Power—From <1,000 MW to 2,500 MW of electricity from wind

Urban Transport—Six bus rapid transit corridors and five light rail routes

Proposed CTF \$300 million » leverages » \$1.9 billion

Box 9 Strategic Climate Fund

Pilot Program for Climate Resilience (PPCR). The program helps the most vulnerable developing countries explore practical ways to increase climate resilience in core development planning and budgeting. It builds on National Adaptation Programs of Action, and provides lessons for wider replication. Grants are the main instrument. The selection of nine countries and two regions is based on advice by an independent expert group that considered (a) transparent vulnerability criteria; (b) preparedness and ability to move toward climate resilient development plans; and (c) distribution across regions and types of hazards. Countries that accepted the invitation are Bangladesh, Bolivia, Cambodia, Mozambique, Nepal, Niger, Tajikistan, and Zambia. Yemen has been invited to participate. Two regional programs are in the Caribbean and South Pacific regions.

Forest Investment Program (FIP). FIP finances investments in developing countries to reduce GHG emissions from deforestation and forest degradation. This program is in the final stages of design.

Scaling Up Renewable Energy in Low Income Countries (SREP). SREP demonstrates the economic, social, and environmental viability of low-carbon development pathways in the energy sector by creating new economic opportunities and increasing energy access through the use of renewable energy. This program was approved by the Trust Fund Committee in May 2009.

KNOWLEDGE & CAPACITY

Given the increased levels of uncertainty regarding impacts and adequate responses to climate change and climate variability, there is a fundamental need to strengthen the knowledge base for climate action at all relevant levels and to translate such insights into informed decision making. The Bank Group has rapidly stepped up its analytical work across sectors, issues, and countries and regions, and at the global level with a significant focus on adaptation, where knowledge gaps are particularly large. Out of a rich body of effort to support client countries in assessing climate change and development linkages and to inform the process of international negotiations, several highlights are provided below.

Strengthening the knowledge base

The 2010 edition of the Bank Group's leading publication—the World Development Report—is about “Development in a Changing Climate.” It focuses on the implications of climate change for development and the need for climate-smart development policies to tackle the challenges of adaptation and mitigation and to exploit the new competitive landscapes created by a changing climate. A key tenet is the imperative of an adequate, achievable, and equitable solution to climate change that meets the needs and concerns of developing countries.

Another major research project is on the Economics of Adaptation. This flagship report is expected to identify global cost levels for adaptation action, which will be further validated and detailed by country-specific case studies. Global estimated adaptation costs will be avail-



able by July 2009; and a consultation about early findings is planned during the Bonn talks in June 2009.

The importance of adaptation in the World Bank programs is reflected by a series of major sector-specific and regional studies. A report on “Adaptation in Agriculture” was completed earlier this year, and a study on “Water and Adaptation to Climate Change: Implications on Investment and Project Design” is in final draft. The ongoing effort is looking into developing a state-of-the-art assessment of agricultural carbon sequestration knowledge, evolved methodologies, and emerging technologies that overcome the soil carbon trade constraints of high variability, poor traceability, and lack of permanence. It also looks at developing an Agro-Eco Zone (AEZ) model with an economic interface for assessing climate change impacts on agricultural systems. The World Bank launched a new publication at the IUCN Congress entitled Biodiversity, Climate Change and Adaptation. The report reviews of the entire Bank’s biodiversity portfolio, emphasizing how activities primary contributing to biodiversity can also contribute to climate change adaptation and mitigation.

A study on “Financial and Institutional Adaptation to Climate Change in the Forest Sector” is undertaken in four countries where forests are (or could be) an important part of rural adaptation strategies. The objective is to identify financial and institutional arrangements that would facilitate the use and management of forests to adapt to climate change, by examining the role of forests in adaptation to climate change and with an emphasis on improvement of livelihood of affected rural communities. An-going program on Social Dimensions of Climate Change includes studies on equity and vulnerability, workshops to bring together different views

and perspectives, and a series of targeted dissemination events. Highlights of regional work are in box 10.

On the mitigation side, analytical work is focusing on accelerating clean technology innovation, transport and climate change, economics, social and distribution impacts of policy responses and helping countries assess low-carbon growth opportunities and strategies. Low-carbon-growth studies are under way for Mexico, South Africa, Brazil, China, India and Indonesia, and most recently Poland. The studies are undertaken in close collaboration with the respective governments, agencies, and local stakeholders, and are targeted to specific needs and priorities of each country. Across studies, analysis covers energy efficiency in end-use applications, power sector, transport, land use, and bio-energy, complemented by advice for priority implementation options. Key results and dissemination activities are expected to start in the second half of 2009. For several years, the Bank Group has issued a widely recognized report on the “State and Trends of the Carbon Market.” The 2009 Report is to be released at the CarbonExpo event at the end of May.

Building new tools and capacity

The WBG uses a wide range of analytical approaches and instruments to inform its policy dialogue and lending at the project, sector, and country level. In addition, the Bank Group works closely with client countries to inform and support national, sectoral, and local development policy and planning, and to extend similar support to its private sector clients.

These efforts cater to different audiences, and include, for example, a series of “Policy Notes on Climate

Change” intended to summarize good practice and key policy findings on economic policy, gender, governance and public sector reform, poverty, and trade. For project practitioners, a series of guidance notes is being produced that addresses climate proofing and adaptation at the project level. The notes are focused on the agricultural and natural resources management sectors, summarizing lessons learned from World Bank Group experience in adaptation projects thus far.

The WBG is also establishing a specific management tool for its own operations—the Screening Tool (ADAPT). This is a software-based tool for assessing development projects for potential sensitivities to climate change. To support dissemination of gained knowledge and tools, a number of efforts are under way. A “Climate Change Portal” containing climate-related and socioeconomic data is being developed in collaboration with UNDP and other UN agencies.

Box 10 WBG regional studies on climate impacts and strategies

The World Bank is working, in collaboration with developing country governments and research institutions, on a vast suite of regional studies on climate impacts and strategies for building resilience of which a few can be mentioned here:

- For **Africa**, analytical work entitled “Climate Change and Africa’s Water: What are the Operational Implications?” is focusing on the economic impact of climate change and costs and benefits of adaptation in Ethiopia, Sudan, Mozambique, South Africa and Ghana; the impact of climate change on smallholder agriculture in Kenya and potential for carbon sequestration from agriculture, and; the impact of climate change on coastal erosion and CZM with a particular focus on Senegal.
 - For **Europe and Central Asia**, the Bank Group has completed a major study on “Adaptation to Climate Change in Europe and Central Asia” and launched the follow-up “Pilot Program on National Adaptation to Climate Change,” which aims to assist countries understand the range and likely impacts of climate variability and change on vulnerable subsectors in sensitive subregions, and to develop candidate adaptation approaches to mitigate impacts in a cost-effective manner.
 - The **Latin America and Caribbean Region** has produced a flagship report, “Low Carbon, High Growth, Mitigating and Dealing with Climate Change in Latin America and Caribbean,” as well as a pioneering study on the social impacts of climate change.
 - In the **East Asia and the Pacific Region**, a regional study on “Climate Impact and Adaptation in Asian Coastal Cities” is under way with the Asian Development Bank (ADB).
 - The **South Asia Region** has recently completed a study on “Climate Change Impacts in Drought and Flood Affected Areas in India;” is undertaking a study on the implications of climate change for food security and adaptation strategies for Bangladesh; and is participating in a regional study on adaptation in coastal cities.
 - In the **Middle East and North Africa Region**, a series of studies have been initiated, covering a range of countries and issues. For example, “The Economic and Social Impacts of Climate Change on Agriculture in Middle East and North Africa: A Regional Analysis” aims to improve the understanding of the regional impacts of climate change on agriculture as a way to improve the design of adaptation initiatives and promote their integration into sector policies and programs.
-

Further highlights include the development and application of tools for GHG accounting and analysis, coordinated with other multilateral financial institutions. Building on the methodologies and tools already developed by other agencies, IFC has initiated GHG accounting for several of its real sector investment projects since February 2009. In coordination with the IFC, the World Bank Group is focusing on undertaking GHG analysis of selected projects in the three sectors. In the forestry sector, methodologies and tools have been developed for afforestation/reforestation and sustainable forest management projects, and are ready to be field tested; in the energy sector, the work has focused on off-grid projects and is now extending to grid-connected projects; and in the transport sector, studies and pilots are under way with an initial focus on urban transport.

An important recent development was the launch of the “Infrastructure Recovery and Assets Platform” (INFRA) in April 2009 to bridge infrastructure financing, project preparation, and capacity gaps resulting from the global financial crisis (www.worldbank.org/infra). The World Bank Group is preparing guidance notes for its staff to assist with the design and implementation of infrastructure investments (developed as part of the INFRA Platform), including guidance on identifying projects and opportunities within projects that reduce local pollution and GHG emissions and/or increase the resilience of infrastructure investments to climate variability and change.

In the “Global City Indicators Program” and “Metro-Match,” the WBG is featuring internet-based environmental indicators and knowledge exchange and capacity building assistance among cities. It has also established the “Cities and Climate Change – Global Network” to

provide information and facilitation services for city-based climate change activities, with a focus on adaptation in developing country cities and actions with adaptation-mitigation synergies, such as well-insulated, energy efficient buildings. A “Climate Change Adaptation Handbook for Mayors” is also being produced.

The WBG is also assisting client countries in meeting the evolving needs of the global carbon market regime (including programmatic approaches, urban areas, sectoral focus) through the development of a second generation “Carbon Finance Assist” program, which was created to ensure that developing countries and economies in transition are able to fully participate in the flexible mechanisms defined under the Kyoto Protocol, and benefit from the sustainable development gains associated with such projects.⁹ The WBG also organizes—jointly with the International Emissions Trading Association (IETA), Fira Barcelona, and Koelnmesse GmbH—annual Carbon Expos, which are global carbon trade specialist trade fairs. The most recent was on May 28, 2009.

With the view to build climate change competencies within the World Bank Group, a training program—“Climate Change for Development Professionals”—and the “Sustainable Development Leadership Program” were launched. In these programs, a large number of staff and a growing number of external participants—including NGOs and developing country governments and other institutions—are engaged in discussions and learning about development and climate change link-

9. For more information about the Carbon Finance Assist Program, please visit the following link: <http://go.worldbank.org/climatechange>

ages. The WBG is also focusing on enhancing capacity for climate risk management in key countries, organizations and sectors, especially agriculture-water, disaster risk management, and climate change through knowledge exchange and use of learning products. A network of practitioners to enhance capacity for implementation of climate risk management activities is also being developed, including for those in Pilot Program on Climate Resilience (PPCR) countries. Related to this are efforts to explore the creation of a network of the capacity building arms of the regional development banks and UNDP to capture and disseminate practical lessons from Climate Investment Funds (CIF) operations, initially focusing on the PPCR.

CONCLUSIONS

The World Bank Group's mandate is sustainable development and poverty reduction. This means bringing power to the people in every meaning of this word—to light their homes, to withstand difficult weather, and

to make the right choices that open new opportunities to their families. The development efforts can no longer ignore the risks of climate change or the local and global benefits of sustainable solutions. New knowledge, technology, and finance are fundamental to increasing the competitive landscape for sustainable innovations. Recognizing these challenges, the WBG has rapidly stepped up its resource mobilization efforts and assistance to public and private sector clients to meet the diversity of national priorities and needs in the areas of adaptation, climate resilience, and sustainable low-carbon emission growth. One of the earliest—and by now the most comprehensive—climate change-related programs was developed for Latin America and Caribbean islands, in strong partnership with the countries requesting the Bank Group's support (see box 11). As this brief report shows, the World Bank and IFC operations in other regions are gearing up. The World Bank group is utilizing its capabilities in knowledge and innovation combined with extensive experience in development and finance to build partnerships that deliver the requested support and results to developing countries.

**Box 11 Addressing climate change in Latin America and the Caribbean region:
Supporting new development challenges through partnerships, knowledge, and finance**

The countries of Latin America and the Caribbean (LCR) were among the first to partner with the World Bank Group in addressing climate change. Starting with analytical work to better understand the physical nature of the impacts, the Bank Group's assistance has grown to a strategic compact that aims to use the full suite of WBG products, instruments, capabilities, and experiences to help with a new and complex development challenge. The LCR climate change portfolio includes approximately 130 activities totaling \$2.5 billion and includes regional studies, country assessments, and IBRD lending. Other products include innovative catastrophic insurance schemes; GEF grants and carbon finance; and technical assistance and new concessional finance, such as the Clean Technology Fund.

Building knowledge at the country and regional levels — approximately \$5.5million:

- Regional Flagship study on dealing with the impacts and mitigating climate change
- Low-carbon growth studies for Brazil and Mexico
- Program of analytical work on clean energy and climate change
- Regional study on social impacts of climate change
- Country and sector studies on the impacts of climate change on fisheries, agriculture, tourism, and hydropower
- Modeling the impact of climate change on the Amazon basin, agriculture, and ecosystems

Supporting policy development:

- Mexico Climate Change DPL (\$500 million) is supporting the government's commitments under the UNFCCC outlined in their 3rd National Communication, and the Special Climate Change Program.
- Assistance to the government of Argentina to formulate its Third National Communication to the UNFCCC

Investments in adaptation total \$28 million for six projects, mostly financed by the Special Climate Change Fund, as well as by IBRD for disaster risk management in the Caribbean. The projects support activities such as:

- Hurricane-proofing public buildings—schools, hospitals, other essential services—in the Eastern Caribbean
- Improving dike systems to handle sea level rise and saltwater intrusion (Guyana)
- Watershed stabilization and reforestation (Haiti)
- Using wetlands as tool to combat sea level rise (Mexico)
- Managing coastal zones through land use planning (Mexico) and pollution management (Argentina)
- Training and equipping health providers to deal with increased incidence of vector-borne diseases (Colombia, Brazil)

Financing for mitigation activities in the region amounts to over \$2 billion in IBRD/IDA operations and includes a wide range of activities across sectors:

- Sustainable Transport:
 - Regional Air Quality and Sustainable Transport (Mexico, Brazil, Argentina)
 - Urban transport projects in most large cities — Rio, Sao Paulo, Buenos Aires, Lima, Santiago, Federal District of Mexico
- Energy Efficiency:
 - Supporting introduction of compact fluorescent lighting, appliances, air conditioning, new building codes (Argentina, Mexico, Brazil)
 - Reducing losses in transmission (Honduras, Uruguay)
 - Technical Assistance to reform policy and regulatory framework to encourage energy efficiency (Nicaragua, Honduras, Dominican Republic, Ecuador, Uruguay, Argentina, Guatemala)
- Renewable Energy:
 - Mini-hydro power plants, off-grid rural electrification throughout Central America, Peru, and the entire region; wind power in Colombia

FURTHER ACTIVITIES IN LATIN AMERICA AND THE CARIBBEAN REGION:

Leveraging private sector investments in renewable energy and energy efficiency:

Between fiscal year 2005 and December 2008, IFC net investments in the region to renewable energy and energy efficiency projects (including large hydropower) amounted to over US\$500 million. More than 20 percent of these commitments (around US\$107 million) were provided in the first half of 2009, marking a clear increase in IFC's engagement over the last five years. IFC projects include 2 renewable energy projects in Colombia and Nicaragua, and 3 energy efficiency projects in Paraguay, Colombia, and Mexico. Additionally, there was a dedicated carbon mitigation project approved for Nicaragua

Carbon Finance:

the region is also benefiting from opportunities for emission reductions and has 36 agreements signed to a value of \$126.3 million for a total reduction 20.3 million tCO₂.

Forest Carbon Partnership Facility:

Out of 37 participating countries, 15 are from LCR.

Clean Technology Fund:

One of the first three investment plans endorsed in January 2009 was for Mexico. At \$500 million, it focuses on renewable energy and urban transport. In May 2008, Mexico became the first country with a private sector (wind farm) project prepared by IFC approved for CTF financing of \$15 million.



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