

**TOWARDS A STRATEGIC FRAMEWORK ON
CLIMATE CHANGE AND DEVELOPMENT FOR THE
WORLD BANK GROUP**

CONCEPT AND ISSUES PAPER

CONSULTATION DRAFT

March 27, 2008

ABBREVIATIONS AND ACRONYMS

AAA	Analytical and Advisory Assistance	MDG	Millennium Development Goals
AfDB	African Development Bank	MENA	Middle East and North Africa Region
AFR	Africa Region	MER	Market Exchange Rate
BNPP	Bank Netherlands Partnership Program	MFI	Multinational Financial Institution
C02	Carbon Dioxide	MIGA	Multilateral Investment Guarantee Agency
CCRIF	Caribbean Catastrophe Risk Insurance Facility	NAPA	National Adaptation Programs of Action
CDM	Clean Development Mechanism	NGO	Non-governmental Organization
CEA	Country Environmental Analysis	ODA	Overseas Development Assistance
CEB	Briefing to UN System Chief Executives Board for Coordination	OECD	Organization for Economic Co-operation and Development
CEIF	Clean Energy for Development Investment Framework	OVP	Operational Vice President
CF	Carbon Finance	PHRD	Policy and Human Resources Development
CFL	Compact Fluorescent Lamps	PPP	Purchasing Power Parity
CFU	Carbon Finance Unit	PREM	Poverty Reduction and Economic Management Network
CIF	Climate Investment Fund	PROFOR	Program on Forests
CODE	Committee on Development Effectiveness	PSIA	Poverty and Social Impact Analysis
COP	Conference of the Parties	RDB	Regional Development Bank
CPF	Carbon Partnership Facility	RE	Renewable Energy
CSD	UN Commission on Sustainable Development	RE/EE	Renewable Energy and Energy Efficiency
DEC	Development Economics Department	REDD	Reduced Emissions from Deforestation and Degradation
EAP	East Asia and Pacific Region	SAR	South Asia Region
ECA	Europe and Central Asia Region	SCCF	Special Climate Change Fund
EE	Energy Efficiency	SDN	Sustainable Development Network
ESMAP	Energy Sector Management Assistance Programme	SEA	Strategic Environmental Assessment
FCPF	Forest Carbon Partnership Facility	SFCC	Strategic Framework on Climate Change
FLEG	Forest Law Enforcement and Governance	SPA	Strategic Priority to Pilot an Operational Approach on Adaptation
GDP	Gross Domestic Product	SSA	Sub-Saharan Africa Region
GEF	Global Environment Facility	TA	Technical Assistance
GFDRR	Global Facility for Disaster Reduction and Recovery	TFESSD	Trust Fund for Environmentally and Socially Sustainable Development
GHG	Greenhouse Gas	UNDP	United Nations Development Programme
GPG	Global Public Goods	UNEP	United Nations Environment Programme
IBRD	International Bank for Reconstruction and Development	UNFCCC	United Nations Framework Convention on Climate Change
IDA	International Development Association	UNISDR	United Nation International Strategy for Disaster Reduction
IEA	International Energy Agency	WB	World Bank
IEG	Independent Evaluation Group	WBG	World Bank Group
IFC	International Finance Corporation	WDR	World Development Report
IFI	International Financial Institution	WEF	World Economic Forum
IGCC	Integrated Gasification Combined Cycle	WRI	World Resources Institute
IPCC	Intergovernmental Panel on Climate Change	WTO	World Trade Organization
ISDR	International Strategy for Disaster Reduction		
KAP	Kiribati Adaptation Program		
LAC	Latin America and the Caribbean Region		
LDCF	Least Developed Countries Fund		
MDB	Multilateral Development Bank		

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TOWARDS A STRATEGIC FRAMEWORK ON CLIMATE CHANGE AND DEVELOPMENT FOR THE WORLD BANK GROUP

EXECUTIVE SUMMARY

1. **Addressing climate change is central to the development and poverty reduction agenda.** In its Fourth Assessment (2007), the Intergovernmental Panel on Climate Change (IPCC) makes clear that warming of the climate system is unequivocal and that a delay in reducing greenhouse gas (GHG) emissions significantly constrains opportunities to achieve lower stabilization levels and is likely to increase the risk of more severe climate change impacts. With increasing climate variability and risks, the poorest countries and communities are likely to suffer the earliest and most. Climate change has the potential to reverse the development gains that have been hard-earned by developing countries over the past decades and progress towards achieving the Millennium Development Goals (MDGs), such as eradicating poverty, combating communicable diseases and environmental sustainability. An effective response to climate change must combine both mitigation—to avoid the unmanageable—and adaptation—to manage the unavoidable.

2. **The past year witnessed impressive consensus building on the importance of addressing climate change** that culminated in an agreement at the United Nations Framework Convention on Climate Change (UNFCCC) Conference of the Parties (COP)13 in Bali to launch negotiations towards long-term cooperative action by all countries. The framework for negotiations embraces mitigation of climate change (including, for the first time, consideration of reducing emissions from deforestation and land degradation), adaptation, technology development and transfer, and provision of financial resources in support of developing countries' actions. Because of their lower historical contribution to GHG concentrations, much lower *per capita* energy use, and higher vulnerability to the impacts of changing climate, developing countries expect a cooperative arrangement to finance their transition to low-carbon growth in a manner that does not compromise their energy access, growth agenda and adaptation efforts, in accordance with the principle of common but differentiated responsibilities. Importantly, financial resources are required in addition to the present level of Overseas Development Assistance (ODA) finance so as not to compete with achieving the MDGs.

3. The World Bank Group (WBG) has accumulated substantial experience in addressing climate change in the context of development and poverty reduction, most recently through the Clean Energy for Development Investment Framework (CEIF) (See Annex 1). The CEIF achieved commendable results: lending to energy access and low-carbon energy projects, and the Carbon Finance (CF) business have increased significantly. Increased awareness of the impacts of climate change found their reflection in the Country Assistance Strategies (CASs) and a growing program of analytical work and pilots. Work has begun on additional innovative mechanisms for climate financing, both for mitigation and adaptation. The WBG is an implementing agency of the Global Environment Facility (GEF), a major lender to renewable energy and energy efficiency (RE/EE), a pioneer in the carbon market, and a facilitator of energy sector reforms that provide incentives for efficiency, energy savings and better environmental practices.

4. **Progress on the CEIF resulted in a mandate to develop a comprehensive Strategic Framework on climate change for the WBG engagement.** The CEIF has been an important step in accelerating investments in low-carbon energy, while advancing the WBG knowledge on climate action, both mitigation and adaptation. At the 2007 Annual Meeting, the Development Committee welcomed the progress made in implementing the CEIF, recognized the critical importance of energy access for growth, and called on management to develop a comprehensive strategic framework for Bank Group engagement, including support for developing countries' efforts to adapt to climate change and achieve low-carbon energy growth while reducing poverty. It also called for enhanced cooperation and harmonization with other development partners, and for catalyzing substantial additional resources from both public and private sources.

5. The *Strategic Framework on Climate Change and Development (SFCCD) for the World Bank Group* will be proposed for endorsement by the Board in September 2008 and subsequently discussed at the 2008 Annual Meetings. This early draft, which outlines objectives, principles, approaches and key issues, will be distributed at the 2008 Spring Meetings, together with the attached *Clean Energy for Development Investment Framework—Implementation Report on the World Bank Group Action Plan*, which served as a platform to launch a more comprehensive and multi-sectoral SFCCD.

6. **The proposed SFCCD will be a way to articulate the WBG's vision on how to integrate climate change and development challenges,** without compromising growth and poverty reduction efforts through country operations, including policy dialogue, lending, and analytical work in client countries, and through regional and global operations. The SFCCD will include a results framework, priorities, operational approaches and a roadmap of actions, including addressing internal constraints, for achieving the results.

7. Scaling-up WBG action on climate change rests on the understanding that (a) economic growth, poverty reduction and achieving MDGs in developing countries is a continued priority, (b) access to energy services and increased energy use by developing countries are fundamental to these goals, and (c) adaptation to climate variability and change is critical to sustaining and furthering development gains in the majority of developing countries. Addressing climate change must not divert resources from core development needs. The WBG attaches the utmost importance—and has demonstrated its commitment by providing its own funds—to increasing International Development Association (IDA) resources.

8. **The WBG will continue scaling-up its engagement in energy access** through its Sustainable Infrastructure Action Plan (forthcoming) and the Africa Action Plan. The SFCCD will help explore opportunities to link energy access programs to carbon finance and provide cost-effective and reliable solutions through renewable energy and energy efficient devices.

9. **Reflecting the multi-sectoral and multidimensional nature of the challenge, the SFCCD will encompass activities in many sectors,** covering energy, transport, urban development, water, agriculture, forestry, industry, economic policy, and social and human development. The SFCCD acknowledges and will address multiple dimensions through which changing climate affects development: economic, financial, social, gender and environmental, including impacts on other global environmental goods such as biodiversity.

10. The development of the SFCCD is also guided by the principles of: (a) supporting the UNFCCC process; (b) being neutral to any negotiating party position; (c) helping developing countries manage the challenges of climate change and realize opportunities of climate action; (d) considering climate change an overarching development and economic issue, not only an environmental issue, which requires involvement and leadership by the ministries of development and finance, in addition to environment ministries; (e) recognizing the importance of partnerships given the many actors on the international arena with different mandates on the issue; and (f) building the SFCCD as an integral part of the Bank's strategy on inclusive and sustainable globalization.

11. **Climate change is a global challenge of unprecedented scale that requires collaboration among a large number of development partners**, including the UN system, the GEF, regional development banks, bilateral donors, the private sector, research institutions and civil society groups. The SFCCD will detail the roles and mandates of the key actors on the international arena, identify a particular niche that the WBG is well-positioned to fill, and propose specific steps towards strengthening collaboration with key actors in terms of both joining efforts and dividing responsibilities. Significant focus will be given to further strengthening collaboration with GEF in the area of climate change financing.

12. To exploit comparative advantages, the WBG will adopt an action framework based upon the following six pillars: (a) scaling-up operational approaches to integrate adaptation and mitigation in development strategies; (b) consolidating efforts to mobilize and deliver finance; (c) expanding the WBG's role in developing new markets; (d) tapping private sector resources for climate friendly development; (e) clarifying the WBG's role in accelerating technology development and deployment; and (f) stepping-up policy research, knowledge management and capacity building.

13. **The SFCCD recognizes distinct needs and demands of different country groups** based on multiple criteria: income (differentiated approaches to IDA and IBRD countries), institutional capacity and social stress (for example, fragile and conflict states might need a special strategy), vulnerability to climate risks (particularly relevant for many African countries, small island states, and countries with long coastal lines, acute water stress, or exposure to glacier melting); GHG emission profile (for example, dominance of energy vis-à-vis forestry sources of GHG emissions), and economy structure and dependence on energy sectors. Country ownership built on demonstrated development opportunities and multiple benefits from a low carbon, climate resilient strategy tailored to specific country circumstance is the key for the SFCCD. Importantly, development opportunities have to accrue to all groups of developing countries, including those whose economies are dependent on energy exports, such as oil producing economies.

14. **The SFCCD will outline how synergies within the WBG can be exploited to address climate change.** The work to articulate a specific strategy for each institution within a common framework has already started, and will be expanded during the preparation process. It is important to emphasize that the SFCCD is envisaged as a framework that sets directions and principles, and proposes tools, incentives, global products, and measures to track progress, with an agreement on the key messages to convey to our clients and external stakeholders. It is not a substitute for the International Finance Corporation (IFC), Multilateral Investment Guarantee

Agency (MIGA), sectoral and regional business strategies, which will be much more specific and detailed about integrating climate actions in their operations and deliverables.

15. **The need for further mobilizing and innovating finance for climate change emerged as a critical lesson from the CEIF implementation, and is amplified by the SFCCD's focus on scaling-up climate action.** In consultation with interested parties, the WBG and Regional Development Banks (RDBs) are joining efforts to establish a portfolio of strategic Climate Investment Funds (CIF). The funds aim to complement, build upon and enhance the activities of other existing instruments, like the GEF, IDA, International Bank for Reconstruction and Development (IBRD) and the IFC. In further developing the proposal for climate investment funds, the WBG will engage in extensive consultations with all key stakeholders to expand the donor base, seek the views of potential recipient countries and other interested parties and advance the design of funds and financial instruments. Other initiatives to increase financing for climate action are underway. Having pioneered and made significant progress in carbon finance, the WBG is continuing to facilitate the development and innovation of the carbon market.

16. **Going forward, the SFCCD will take stock and articulate complementarities among an increasing number of instruments and outline a plan of actions** that will serve to: (a) promote more effective and innovative use of existing and emerging financing instruments (IBRD, IDA, IFC, MIGA, GEF, CF funds, innovative climate insurance schemes, etc.) in WBG operations; (b) facilitate applications of new instruments at the target scale; (c) identify gaps and needs for developing new products, giving particular attention to public-private partnerships in adaptation financing; and (d) strengthen developing countries' capacity to avail these instruments.

17. **Given that knowledge about climate change, particularly its economic and social aspects, is continuously evolving and uncertainties remain, the design of the SFCCD will be flexible** so as to incorporate new knowledge and support actions, whose benefits are robust under any future scenarios of climate change negotiations and impacts. The SFCCD will benefit from close coordination with the proposed *World Development Report 2010 on Climate Change* and several other major analytical products, such as a global research program on the economics of adaptation to climate change, the work on economic policy and climate change in PREM, and the ongoing and expanding research programs in DEC. The findings of these and other studies will inform the formulation and implementation of the SFCCD.

18. **The development of the SFCCD will include extensive consultations with a full range of stakeholders**, including developing country clients, development partners (UN agencies, RDBs, bilateral donors), private sector, and civil society. Particular attention will be given to understanding the needs and concerns of the WBG shareholders from developing countries, and demonstrating how their views have been taken into account in preparation of the SFCCD.

TOWARDS A STRATEGIC FRAMEWORK ON CLIMATE CHANGE AND DEVELOPMENT FOR THE WORLD BANK GROUP

Climate change “is a development, economic, and investment challenge. It offers an opportunity for economic and social transformation that can lead to an inclusive and sustainable globalization. That is why addressing climate change is a critical pillar of the development agenda.”

Robert Zoellick

United Nations Climate Change Conference in Bali, Indonesia, December 2007

A. Background and Rationale

1. **Climate change presents an urgent challenge to the well-being of all countries...** In its Fourth Assessment (2007), the IPCC made clear that warming of the climate system is unequivocal and that a delay in reducing GHG emissions significantly constrains opportunities to achieve lower stabilization levels and is likely to increase the risk of more severe climate change impacts. The impacts of climate change include, among others: increased frequency and severity of droughts, floods and storms, water stress, decline in agricultural productivity and food security, further spread of water-related diseases, particularly in tropical areas, population displacement and conflicts over scarce resources. The globe is already experiencing the effects of climate change through changes in weather patterns and ecosystems. Continued GHG emissions at or above current rates would cause further warming.

2. **...and particularly to the poorest countries and the poorest people in vulnerable regions.** During the 1990s, 200 million people per year, on average, were affected by climate-related disasters in developing countries, as compared to about a million people from developed countries. With increasing climate variability and risks, the poorest countries and communities, particularly in Sub-Saharan Africa and South-East Asia, are likely to suffer the earliest and most because of their geographical location, low incomes, and limited institutional capacity, as well as their greater reliance on climate-sensitive sectors like agriculture (see Annex 2). The impacts—and social and political consequences—could be also devastating in extremely water-scarce economies and hydraulic civilizations, such as those in the Middle East, and regions with expected dramatic changes in water availability due to glacier melting, exemplified by the Himalayas in Asia and the Andes in Latin America.

3. **Addressing climate change is central to the development and poverty reduction agenda.** Climate change has the potential to reverse the development gains that have been hard-earned by developing countries over the past decades, and progress towards achieving the MDGs, such as eradicating poverty, combating communicable diseases and ensuring environmental sustainability. Early mitigation of GHG emissions will significantly decrease future adaptation costs, and especially the burden on the poor. Even if efforts to stabilize GHG concentrations are successful, some degree of warming and related impacts will continue to

occur in the next decades. An effective response to climate change must combine both mitigation—to avoid the unmanageable—and adaptation—to manage the unavoidable.

4. **Tackling climate change is feasible...** A series of major studies, such as the IPCC Fourth Assessment Report (2007), the UNFCCC Report on Investment Flows (2007), the International Energy Association's (IEA) World Energy Outlook (2007), and the forthcoming Organization for Economic Co-operation and Development (OECD) Environmental Outlook (2008), have improved our understanding of the feasibility and costs of curbing GHG emissions. Stabilization of GHG concentrations within the levels that keep the impacts of climate change manageable would require limiting global GHG emissions through multilateral action involving policy incentives and the deployment on a global scale of a portfolio of currently available and future low-carbon technologies in a range of sectors including energy supply, transport, buildings, industry, agriculture, forestry and waste management. This translates into significant emission reductions by developed countries and curbing growth in GHG emissions by developing countries, with eventual stabilization in the long term. Economic cost estimates from several recent studies vary from 3 percent of global Gross Domestic Product (GDP) (IPCC, 2007) per year to annual costs of only 0.1 percent of global GDP by 2050 (OECD, 2008).

5. **...but who bears how much of the costs remains the key issue.** The OECD study also shows that developing countries may face far bigger losses in GDP from the mitigation action than the industrial world. Because of their lower historical contribution to GHG concentrations, much lower per capita energy use, and higher vulnerability to the impacts of changing climate, developing countries expect a cooperative arrangement to finance their transition to low-carbon growth in a manner that does not compromise their energy access and growth agenda and adaptation efforts, in accordance with the principle of common but differentiated responsibilities and respective capabilities. The Secretariat of the UNFCCC estimates that by 2030, financial flows to developing countries should be in the order of US\$100 billion annually to finance mitigation, and somewhere between US\$28-67 billion for adaptation. Importantly, financial resources are required in addition to the present level of ODA finance so as not to compete with achieving the MDGs.

6. **The past year witnessed impressive consensus building on the importance of addressing climate change** that culminated in an agreement at the UNFCCC COP13 in Bali to launch negotiations towards long-term cooperative action by all countries. The framework for negotiations embraces mitigation of climate change (including, for the first time, consideration of reducing emissions from deforestation and land degradation), adaptation, technology development and transfer, and provision of financial resources in support of developing countries' actions (see Box 1).

7. **The WBG has accumulated substantial experience in addressing climate change in the context of development and poverty reduction, most recently through the CEIF** (Annex 1). The WBG is an implementing agency of the GEF, a major lender to renewable energy and energy efficiency, a pioneer in the carbon market, and a facilitator of energy sector reforms that provide incentives for efficiency, energy savings and better environmental practices. Realizing the need to scale-up its work on climate change, while at the same time ensuring increased energy access in poor countries, the WBG formulated the CEIF, together with the Action Plan, in 2006/2007. The CEIF focuses on three areas of the WBG involvement: (a) energy for growth, with a particular emphasis on

access to energy in Sub-Saharan Africa; (b) transition to a low carbon development trajectory; and (c) adaptation to the effects of climate change.

Box 1: Highlights from the Bali Action Plan

The Bali Action Plan was formulated by member countries of the UNFCCC at COP 13 in order to enhance the implementation of the Convention and negotiate further actions for a post-2012 period. While reaffirming that socio-economic development and poverty reduction are global priorities, the Bali Action Plan calls for:

- Enhanced action on mitigation of climate change:
 - nationally appropriate, measurable, reportable and verifiable mitigation commitments or actions, including quantified emissions limitation and reduction objectives by all developed countries, taking into account differences in their national circumstances;
 - nationally appropriate mitigation actions by developing countries in the context of sustainable development, supported by technology and enabled by finance and capacity building in a measurable, reportable and verifiable manner;
 - policy approaches and incentives relating to emissions reductions from deforestation and forest degradation in developing countries;
 - cooperative sectoral approaches and sector-specific actions, as well as market-based approaches.
- Enhanced action on adaptation to climate change:
 - international action to support implementation of adaptation actions;
 - risk management and risk reduction strategies, including risk sharing and transfer mechanisms such as insurance;
 - disaster reduction strategies;
 - economic diversification to build resilience.
- Enhanced action on technology development and transfer to support mitigation and adaptation:
 - effective mechanisms for scaling-up the development and transfer of affordable and environmentally-sound technologies to developing countries, and ways to accelerate their deployment and diffusion;
 - cooperation on research and development of current, new and innovative technology;
 - mechanisms and tools for technology cooperation in specific sectors.
- Enhanced action on the provision of financial resources and investment to support mitigation and adaptation:
 - improved access to adequate, predictable and sustainable financial and technical support and provision of additional resources, including official and concessional funding for developing countries;
 - positive incentives for developing countries to enhance mitigation and adaptation actions;
 - innovative means of assisting developing countries that are particularly vulnerable to adverse impacts of climate change, including financial and technical support to capacity-building;
 - incentives to implement adaptation via sustainable development policies;
 - mobilization of public and private sector funding and investment, including facilitation of carbon-friendly choices.

8. **The WBG realizes that addressing climate change must not divert resources from core development needs.** The WBG will continue its engagement in the energy access agenda, and explore opportunities to link it to carbon finance and provide cost-effective and reliable solutions through renewable energy and energy efficient devices. The WBG attaches the utmost

importance—and has demonstrated its commitment by providing its own funds—to increasing IDA resources. In 2007, the Bank undertook a review of how climate change impacts IDA countries, which highlighted strong links between poverty and climate vulnerability. It also highlighted the need for increased resources—that are in addition to the core development assistance to achieve the MDGs—to assist countries (a) with the higher costs of climate risk management and asset rehabilitation due to more frequent and severe natural disasters and (b) to adapt within their core development strategies. Lessons from the WBG experience also demonstrate that mitigation of, and adaptation to, climate change can have significant synergies with local development priorities, and bring new business opportunities.

9. **The CEIF process resulted in a mandate to develop a comprehensive Strategic Framework for the WBG engagement.** The Progress Report on the CEIF Action Plan issued in September 2007 underscored significant achievements with energy sector lending and noted that the WBG engagement on supporting low carbon growth opportunities has expanded beyond energy to other sectors such as urban, transport, industry (primarily by the IFC), agriculture, and forestry. The Report also pointed to a growing demand for scaling-up WBG work in the area of adaptation to climate variability and changes. At the 2007 Annual Meetings, the Development Committee in its communiqué (October 21, 2007) welcomed the progress made in implementing the CEIF, recognized the critical importance of energy access for growth, and called on management to develop a comprehensive strategic framework for Bank Group engagement, including support for developing countries' efforts to adapt to climate change and achieve low-carbon energy growth while reducing poverty. It also called for enhanced cooperation and harmonization with other development partners, and for catalyzing substantial additional resources from both public and private sources.

B. Objectives and Guiding Principles

10. **The proposed *Strategic Framework on Climate Change and Development (SFCCD)* will be a means to articulate the WBG's vision** on how to integrate climate change and development challenges, without compromising growth and poverty reduction efforts through its country operations, including policy dialogue, lending, and analytical work in client countries, and through its regional and global operations. Scaling-up WBG action on climate change rests on (a) a continued priority for economic growth, poverty reduction and achieving MDGs in developing countries, (b) an understanding that access to energy services and increased energy use by developing countries are fundamental to these goals, and (c) a recognition that adaptation to climate variability and change is critical to sustaining and furthering development gains in the majority of developing countries.

11. **Reflecting the multi-sectoral and multidimensional nature of the challenge, the SFCCD will encompass activities in many sectors**, covering energy, transport, urban development, water, agriculture, forestry, industry, economic policy, and social and human development. The SFCCD also acknowledges and will address multiple dimensions through which changing climate affects development: economic, financial, social, gender and environmental, including impacts on other global environmental goods such as biodiversity.

12. **Given that knowledge about climate change, particularly the economic and social aspects, is continuously evolving and uncertainties remain, the design of the SFCCD will be flexible** so as to incorporate new knowledge and support actions, whose benefits are robust under

any future scenarios of climate change negotiations and impacts. The development of the SFCCD is also guided by the principles of: (a) supporting the UNFCCC process; (b) being neutral to any negotiating party position; (c) helping developing countries manage the challenges of climate change and realize opportunities of climate action; (d) considering climate change an overarching development and economic issue, not only an environmental issue, which requires involvement and leadership by the ministries of development and finance, in addition to environment ministries;¹ (e) recognizing the importance of partnerships given the many actors on the international arena with different mandates on the issue; and (f) building the SFCCD as an integral part of the Bank's strategy on inclusive and sustainable globalization.

13. **The SFCCD is being developed in the context of a broader assessment by the WBG of its comparative advantages to play a greater role in financing Global Public Goods (GPGs).** Making a difference on GPGs in general and climate change in particular, requires a joint effort by many development partners. In this context, the WBG has a number of unique strengths to significantly contribute to, and play a leadership role in several areas of, this agenda, in partnership with others, while building on the core business of its various institutions:

- *Multisectoral perspective.* Climate change affects most sectors. Similarly, the WBG support for action on climate change occurs across many development sectors, thus facilitating mainstreaming of the work in a coordinated, integrated and holistic manner.
- *Financial resources and leveraging power.* The WBG loans, credits and other products are a powerful signal to other potential funding agencies that a country has both the ownership and capacity to implement climate actions in development projects.
- *Working with the private sector.* The IFC and MIGA are important players in increasing the awareness and engagement of the private sector in climate change issues through investments to support mitigation and adaptation, such as innovative technologies, sustainable forestry and agribusiness, and increased development and use of climate risk insurance mechanisms.
- *Building partnerships with a wide range of institutions and stakeholders.* The WBG has the capacity to form diverse partnerships, ranging from joint knowledge ventures to financial partnerships, thereby catalyzing greater synergy among players.
- *Knowledge base and policy advice.* Analytic and advisory activities at the WBG, including a growing research program on climate change, form a key input to country and sector strategies, and help to shape the country dialogue and operations on these issues.

¹ The first meeting of Finance and Development Ministers on climate change took place in Bali in December 2007, alongside the UNFCCC negotiations. It acknowledged climate change as a major development issue and pointed to the importance of continuing the dialogue with all stakeholders. An informal meeting of the Ministers of Trade to discuss trade-climate change linkages and key issues was also held.

- *Convening power, global reach, and local presence.* The WBG collaborates closely with other development agencies and a variety of stakeholders at the country level. Given the high sensitivity of climate change to developing countries, which often view it as a “rich country agenda,” the WBG’s ability to serve as an impartial broker and convener is an important advantage. The WBG also has vast cross-country experience and applies lessons learned from middle-income countries to low-income-countries. The WBG staff from country offices share their experience and knowledge with clients daily.
- *Strong fiduciary, environmental, and social policies.* The WBG ensures that all its lending operations (including those on adaptation and mitigation) are in line with its fiduciary, environmental, and social safeguards. The Bank is already working on addressing climate change issues in Environmental Assessments of water resources, in agriculture, and other key sectors, as well as in Country Environmental Analyses (CEAs).

14. **The *Strategic Framework on Climate Change and Development for the World Bank Group* will be proposed for endorsement by the Board in September 2008 and subsequently discussed at the 2008 Annual Meetings.** The SFCCD will include a results framework, priorities, operational approaches and a roadmap of actions, including addressing internal constraints, for achieving the results (by sector and region/group of countries where needed), and major products/deliverables leading to the COP15 in Copenhagen. This Concept Note will be distributed at the 2008 Spring Meetings, together with the attached *Clean Energy for Development Investment Framework—Implementation Report on the World Bank Group Action Plan*, which served as a platform to launch the SFCCD.

15. **Going forward, the scaling-up of access to modern energy services will be addressed under the Sustainable Infrastructure Action Plan and the Africa Action Plan.** Although the access issues will be dealt with in parallel to the climate change agenda, the linkages and synergies will be given close consideration. For example, renewable energy options will be an important component of both grid-based and off-grid electricity supply options, drawing on sources of funds to buy-down incremental costs where it is economically efficient to do so. Energy efficiency options such as recent Compact Fluorescent Lamps (CFL) projects and the WBG “Lighting Africa” program will continue to be an important development tool as a way of decreasing both the supply-demand gap and the carbon intensity of development. The SFCCD will further explore opportunities to link energy access programs to carbon finance and provide cost-effective and reliable solutions through renewable energy and energy efficient devices.

16. **The SFCCD envisages strengthened collaboration among IDA/IBRD, IFC, and MIGA, while recognizing the need for a differentiated approach among different groups of clients served by these institutions.** The work to articulate a specific strategy for each institution and identify major areas of collaboration has already started, and will be expanded during the preparation process. It is important to emphasize that the SFCCD is envisaged as a framework that sets directions and principles, and proposes tools, incentives, global products, and measures to track progress, with an agreement on the key messages to convey to our clients and external stakeholders. It is not a substitute for sectoral and regional business strategies, which are being (or planned to be) developed and which will be much more specific and detailed about integrating climate actions in their operations and deliverables. The SFCCD, therefore,

will be prepared to provide a distinct value-added to—and not to repeat or significantly overlap with—other sector strategies. Specifically, it will focus on actions related to developing and disseminating tools and methods; sharing knowledge; creating internal incentives and building capacity to address priorities relating to the GPG agenda; developing new financial and other products; strengthening collaboration with key external players to achieve results; and building a system of monitoring and reporting progress and impact.

17. The SFCCD will be prepared in parallel, and will benefit from close coordination with the proposed *World Development Report 2010 on Climate Change* and several other major analytical products, such as a global research program on the economics of adaptation to climate change, led by the SD Network, and the work on economic policy and climate change in PREM, and from interaction with the ongoing and expanding research programs in DEC. The findings of these and other studies will inform the formulation and implementation of the SFCCD.

C. Action Framework: Strategic Pillars

18. Building on its comparative advantages, the WBG will achieve the objectives of the SFCCD by adopting an action framework based upon the following six pillars:

- Scaling-up operational approaches to integrate adaptation and mitigation in development strategies;
- Consolidating efforts to mobilize and deliver finance;
- Expanding the WBG’s role in developing new markets;
- Tapping private sector resources for climate-friendly development;
- Clarifying the WBG’s role in accelerating technology development and deployment; and
- Stepping-up policy research, knowledge management and capacity building.

19. IDA has emerged as an appropriate platform for integrating adaptation into the development programs of poor countries (with support from additional grant and concessional financing instruments). In addressing capacity and investment needs of IDA countries to deal with the impacts of climate change, the SFCCD will build upon the recent paper on IDA and Climate Change (see Box 2). As IDA countries comprise the majority of the most vulnerable to adverse impacts of climate change, a key priority for the WBG is to support a development process in IDA countries that is sustainable and resilient to climate variability. This will require mainstreaming climate risk management processes in IDA operations and programs, supported by financing and capacity building that is additional to the current level of development assistance. The IDA countries also have low levels of energy access and very low energy-related GHG emissions; thus, increasing access to energy remains a top priority. The WBG will support mitigation opportunities in these countries through “win-win” solutions beneficial for local development, such as energy efficiency measures, cost-effective and reliable uses of renewable energy, and facilitating access to carbon markets. Furthermore, deforestation and land degradation in many IDA countries are the

Box 2: Highlights from the IDA and Climate Change Paper

IDA countries are highly vulnerable. IDA and IBRD-IDA blend countries are the most vulnerable to risks associated with (a) extreme weather events such as floods, droughts, and storms; (b) rising sea levels and related coastal issues; and (c) changes in agricultural production. Furthermore, currently most important health burdens in poor countries, such as malaria and water-borne diseases are particularly likely to be worsened by climate change.

Adaptation is critical. However, it should be pursued not as an end in itself, but as a means to meet the development objectives of IDA countries.

Due to the impacts of changing climate, maintaining effective levels of development assistance will require additional resources. IDA countries will need additional finance just to maintain the development benefits of projects at their ‘without climate change’ level. The increase in IDA credits that would make this possible has been estimated to range from \$600 million to \$1.9 billion per year (i.e., a 6 to 21 percent increase from the total FY06 IDA credits), for each of the climate damage scenarios taken from the Stern Review of the Economics of Climate Change.

Approaching mitigation through the prism of local benefits. IDA countries contribute the least to GHG emissions, thus mitigating emissions constitutes a less pressing issue in the short to medium term. Yet, some mitigation actions—such as expanding access to clean energy (including through regional projects) or financing improved land and forest management programs—can offer win-win opportunities in IDA countries, both in terms of supporting good local development and reducing global GHG emissions.

Source: IDA and Climate Change, World Bank, 2007.

main contributors to their GHG emissions, as well as causing local-level problems. Investments in addressing these issues could provide multiple environmental and development benefits, including improved livelihoods for the poorest communities and greater resilience to climate risks.

20. There is a need to better articulate a middle-income country (MIC) agenda with respect to climate change, covering both mitigation and adaptation. The SFCCD recognizes a range of situations among the MIC pool with respect to the balance of priorities between adaptation and lower carbon growth opportunities, and supports the case for providing assistance to climate risk management and adaptation in the countries with high vulnerabilities (such as water scarce economies of Middle Eastern and North African or Latin American countries exposed to glacial melting in the Andes and other major climate risks). At the same time, the SFCCD will attach significant attention to developing *competitive* products for financing lower carbon investments in middle-income countries. In doing so, the SFCCD will draw upon the CEIF, the Sustainable Infrastructure Action Plan (forthcoming), the urban strategy (under preparation), and the WDR 2009 on spatial development, and will focus on exploring innovative joint products across IBRD, IFC, MIGA, CF and other climate funds that increase competitiveness of the WBG financial services in MICs.

21. Energy use patterns within middle-income developing countries diverge greatly between the poor and a growing and increasingly affluent middle class. This is likely to pose additional challenges for planning low carbon programs that address broad-based development needs. In addition to the need to protect population groups at-risk from the impacts of climate change, it will also be important to understand how mitigation action is expected to affect intra-country inequality, and clarify a WBG approach to this issue within its MIC strategy.

22. The SFCCD will also consider a more detailed segmentation of the WBG client countries according to their need and capacity to mitigate and adapt to climate change. Distinct approaches to IDA and IBRD countries, while important, may not fully reflect the differences in capacities and constraints that are present within these two groups of countries.

Moreover, countries with different geography differ in their exposure to climate change, irrespective of income levels, which affects their views about bearing the costs of prevention and mitigation efforts and their action priorities. In this context, special concerns, risks and limitations of small countries and island states needs to be recognized.

23. Fragile states, as well as conflict-affected countries, are disproportionately represented among the countries most at risk from climate related threats. These countries face special challenges to mitigate and adapt to climate change that deserve to be recognized. The business products that can be effective in fragile states need to take into account their institutional constraints, the limited funding availability and the scarce capacity to formulate and implement development-oriented actions. The additional threats posed by the potential impact of climate change will further strain their limited capacity.

24. The SFCCD will attempt to address the specific needs of different countries, as well as, more generally, develop a typology of the countries' groups that require differentiated strategies in dealing with climate change. Some countries, for example, would focus their demands on dissemination of, and financing for, clean technologies. Others facing the brunt of flooding, desertification and other effects of climate change are particularly concerned with obtaining financing to adapt to the effects of climate change. For a group of oil producing countries, assistance with diversification of their economies could be at the core of a strategy to help them deal with climate change. Many countries will have to address several issues at the same time, and in most countries, there are significant differences in priorities between rural and urban areas.

25. The SFCCD will further address how the WB, the IFC, and MIGA can strengthen cooperation on climate change, building on their comparative advantages. To this end, the SFCCD will draw on lessons from joint CASs and good project examples, including the Lighting Africa initiative, the cooperation on hydropower (e.g., Bujagali Dam), a joint WB/IFC/GEF clean energy finance project in the South Pacific, etc. It will also explain differences in approaches and focus between these institutions, tailored to the specific needs and interests of their clients. For example, the IFC is actively positioning itself as a leader in catalyzing and responding to a growing interest by the private sector in new business opportunities resulting from the need to adapt to and mitigate climate change (see Box 3 below with a summary of IFC progress on the climate change strategy).

Box 3: Towards an IFC Climate Change Strategy

Approach: The IFC is developing its Climate Change strategy as part of the overall WBG approach on climate change, which will fall under the WBG Strategic Framework for Climate Change in FY09. IFC's approach in this respect will build on and support World Bank (WB) efforts to address broader policy and regulatory issues. In addition, the IFC will partner with the WB, MIGA and other institutions to enhance effectiveness where possible.

The IFC proposes a balanced and demand-driven approach aligned with its mandate of supporting economic development in client countries while helping mitigate and adapt to global climate change. There are prospects of a new international consensus following the recent Bali discussions, and an expectation for the IFC to be a thought leader with respect to the role of the private sector and climate change in developing countries. Climate change also provides IFC with the opportunity to expand its activities and development impact.

Climate change is proposed to be included as one priority in the IFC's sustainability pillar. While still evolving, key features of the IFC's approach to climate change include near term actions on: (i) enhanced support for RE/EE investment; (ii) partnerships to address climate change mitigation and adaptation; and (iii) extending carbon finance activities. The IFC will review further: (i) its role in adaptation to climate change; (ii) measuring the GHG emissions in the IFC's portfolio; and (iii) the use of carbon shadow costs in project appraisal. As part of its approach, IFC will increase its investment support and aim for a catalytic role in helping facilitate the transfer of appropriate technologies and approaches to the private sector in developing countries.

The IFC has launched several initiatives in coordination with the Bank, e.g., it is finalizing a methodology to measure the IFC portfolio GHGs, initiating adaptation studies, and working with the Bank on effective private sector accessibility in the CIFs *currently* under discussion.

Process and next steps: A brief summary of the IFC's emerging approach on climate change will be attached to the Road Map, which will be discussed by Board committees on March 5 and March 27, 2008. The IFC is collaborating closely with the Bank on the development of its approach and will have discussions with its stakeholders.

Source: IFC.

D. Operationalizing the Action Framework: Key Issues and Approaches

Pillar 1: Scaling Up Operational Approaches to Integrating Adaptation and Mitigation in Development Strategies

26. **Country ownership and client demand are the key to the success of this pillar.** Improving understanding of the “development-adaptation-mitigation” linkages and supporting actions with multiple benefits is at the core of the SFCCD approach. At a broad level, the main synergies can be summarized as follows. Climate risk management is fundamental for preserving and enhancing development progress in many developing countries—even with the current climate variability and disaster management needs, and more so with on-going climate change. Successful mitigation efforts by the global community will reduce the burden of adaptation. Adaptation to aggravating climate risks and low carbon growth options are often directly linked to national development priorities and business opportunities, such as energy efficiency, renewable energy, sustainable livelihoods and environmental protection, and building resilience of infrastructure to climate variability (see Box 4). Accelerating economic growth is critical for increasing capacity to adapt and take full advantage of low-carbon business opportunities.

27. **Climate action can — and should — result in multiple local benefits for developing countries: commercial, developmental or environmental.** Lessons from many long-standing WB and IFC engagements show that the best entry points to client dialogue and program development on climate change arise from the synergies between development progress, disaster

management and adaptation, particularly in the infrastructure and agriculture sectors; the benefits, including additional revenues, from sustainable forest and land management; and the business opportunities of investing in energy efficiency, renewable energy and other “low carbon” projects. The scope for cost-effective, pro-development investments in energy efficiency and, increasingly, renewable energy especially against the background of rising oil prices, is particularly broad. This is becoming a key target area for the IFC in increasing their support for low carbon investments. The IFC’s focus on climate change has been prompted by growing demand from its private sector clients and expanding climate change related market opportunities. Existing and new concessional finance instruments for both mitigation and, more recently, adaptation, create other important levers for client demand, evident from a robust growth in the WBG carbon finance business. It is also important to strengthen the linkages and cooperative arrangements between adaptation and disaster management programs. The WBG has skills that can help countries, and regions within countries, anticipate and plan for disasters that will hit them in the near term, even as they invest in long term adaptation and risk reduction strategies.

Box 4: Climate Action as a Development Opportunity

“Climate-responsible” development creates opportunities for:

- Greater energy efficiency and diversification of energy base
 - New business and income-generating activities,
 - Rural renewable energy enterprises (mitigation)
- Increased sustainability of rural incomes due to adaptation to climate change risks
- Technological innovation that increases competitiveness
- Higher quality infrastructure resilient to climate-related disasters
- Improved air quality and reduced congestion
- Better forest and land management practices that also benefit local communities, with the potential to contribute to both adaptation and mitigation
- Improved spatial planning and accountable local governance with multiple benefits for local communities

28. These linkages and the WBG experience underscore the proposed building blocks to integrate climate change and development by helping developing countries to:

- Realize immediate climate risk and disaster management needs while taking into account and building capacity for dealing with longer-term adaptation needs; give priority to supporting the most vulnerable countries with low capacity in a manner that is cost-effective and does not compromise the short-term well-being of the most vulnerable and poorest groups;
- *Take advantage of low carbon growth opportunities* that benefit local communities, businesses, the economy and the environment, and that can be supported by concessional financing to cover increased costs, including the forestry sector; give priority to cost-effective interventions with large potential for GHG reductions;

- Identify and support development programs with multiple development and environmental benefits and strong adaptation-mitigation synergies that are particularly significant in the agriculture, forestry, water, and urban sectors; and
- Access concessional finance at the needed scale, obtain assistance with technology and capacity building, and attract private sector resources into pro-development climate-friendly investments (including investments that help diversify oil producing economies dependent on oil exports) through innovative incentives and market mechanisms.

29. **Scaling up a novel agenda of integrating climate change considerations into development assistance will require a dual approach** of (i) building on the strengths of the WBG's existing business models, such as a country-based assistance model and sectoral engagement driven by client demand, while (ii) developing new approaches and global products. It should be stressed that a simplistic approach of withdrawal from "carbon intensive" sectors, such as thermal power or transport, will not serve either climate change or development agendas. Supporting advanced and efficient technologies and more sustainable alternatives is the preferable way forward. Specific decisions will need to take into account the circumstances of the client country, many of which are poor and face acute energy and connectivity shortages (e.g., in Africa).

30. **The key elements of the proposed approach** are as follows:

- *Understand distinct needs and roles of different countries and groups of countries:* while the problem is global, most actions and impacts are local or regional, and a careful application of knowledge at both a local (country, regional) level and a global level is needed to define the issues;
- *Realize "quick wins",* i.e., immediate opportunities for addressing adaptation and/or mitigation issues based on an assessment of country/regional priorities, existing client demand, sectoral engagements specified in CASs and regional business programs; and available instruments;
- *Identify priorities for developing new business lines and areas of engagement* to help clients meet the challenges of reconciling climate and sustainable development objectives in the evolving international context, while retaining selectivity and coherence of a country program;
- *Engage on policy, institutional and social issues* that are linked to the climate change agenda, including through dialogue with Finance and Development Ministries;
- *Build public-private partnerships:* reach out to the private sector in developing countries, and those who wish to invest in developing countries, to understand their needs, promote appropriate public-private partnerships and share best practice.
- *Address the needs for new tools and products* -including knowledge, capacity building, and financial products at the country, regional and global levels and in collaboration with all its institutions to scale up the impact; and

- *Enhance skills and capacity*—inside the WBG and among clients—to develop, disseminate and apply knowledge and deliver on the new agenda.

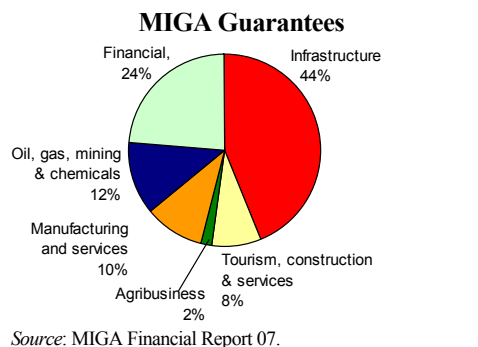
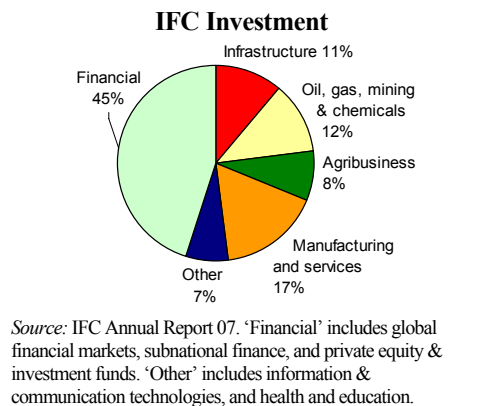
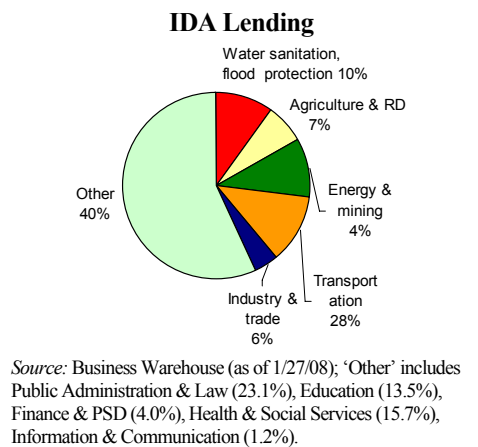
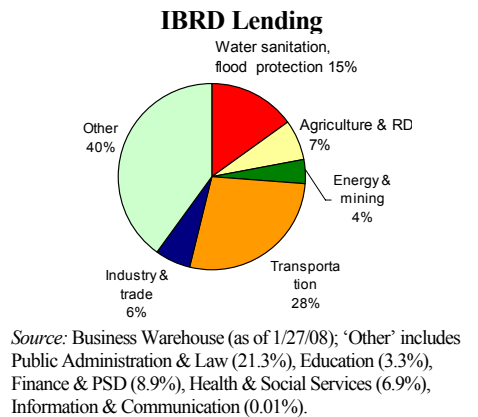
31. **The first step is to identify country-specific priorities related to climate change.** While climate change is a global challenge, priorities for climate action—with respect to vulnerability to climate risks, potential for cost-effective lower carbon growth options, and balancing mitigation and adaptation—are quite different among regions, among countries within the regions, and within the IDA and IBRD pools. Annex 2 shows brief profiles by regions and for select countries with respect to impacts and emissions. The Bali Action Plan (Box 1) recognizes the need for “nationally appropriate” mitigation programs and adaptation strategies and will likely create further demand by developing countries for support to develop and implement these programs.

32. **Key emphasis will be given to developing programs that are adjusted to national, and in some cases, multi-country or regional circumstances,** identified through regional business strategies, country dialogue, analytical work, and CAS processes. The CAS process will be essential to ensure that country development needs related to climate change are considered and incorporated as appropriate. Bank-wide analytical work and tracking progress using a strong results framework will help to link country/regional actions with indicators of progress for the WBG as a whole.

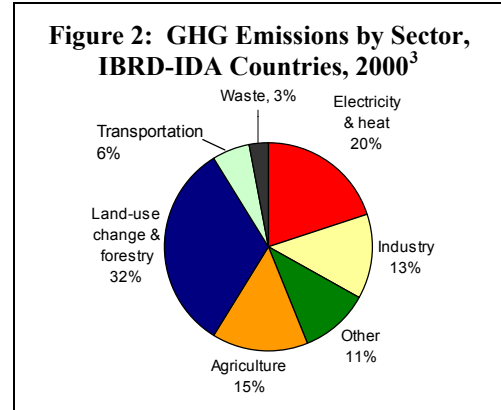
33. **The SFCCD will address adaptation and mitigation priorities through existing core engagements with the WBG clients in relevant sectors and areas.** The WBG can achieve a large impact by making its major existing support programs in key sectors (most relevant for adaptation and/or mitigation) climate-resilient and/or less emission intensive. The five SDN sectors—transport, agriculture (including irrigation and forestry), water, energy, and urban that have particularly strong linkages to the climate change agenda—account for over 50 percent of

² Urban lending as such cannot be shown as a distinct category on this chart (displaying activity by sector) since it is considered as a theme and not a sector.

Figure 1: WBG lending by Sector², FY07



WB's pipeline, ranging from about 40 percent for IDA to 60 percent for IBRD (see Figure 1). Economic activity in these sectors dominates GHG emissions at the global, regional, and national levels, even as their relative contribution varies across countries and regions (see Figure 2 for global sources of GHG emissions and Annex 2). Impacts from climate change on the agriculture and water sectors are identified as a priority by all regions, and the work to understand the impacts on the transport, energy, and water sectors is ongoing. These sectors lend themselves as a priority focus—and an opportunity for influencing the way the Bank does business. It is also important to start taking account of the health impacts of climate change in health sector projects, another key area of WB engagement, particularly in IDA countries.



34. **IFC and MIGA operate in sectors with significant mitigation potential (oil and gas), or which are sensitive to climate risk (tourism), or sectors for which both apply, such as infrastructure and industry.** The joint WB/IFC/MIGA Sustainable Infrastructure Action Plan (forthcoming) forecasts a shift in the composition of portfolio and investments, reflecting the key role played by the private sector in addressing climate change. A more nuanced analysis of overlaps between the current major lines of business, adaptation priorities and mitigation potential, and business implications, will be included in the SFCCD paper by region.

35. **In case of significant divergences between the current business lines, adaptation priorities, and mitigation opportunities at the country or regional level, there will be scope to develop new or expand certain areas of engagement.** For example, Latin America and the Caribbean Region (LAC) is planning to expand its currently modest energy sector business, which will help leverage climate objectives in energy sector dialogue, and the WBG adopted its Energy Efficiency Action Plan to scale up the work on energy efficiency.

36. **Given the scale of the transformational change, there will be a need for innovative business products,** particularly in countries with the highest risks (for example, many small island states, Bangladesh and many African countries,) or the greatest potential for reducing growth in GHG emissions. Examples of emerging new lines of business focusing specifically or largely on climate risks and actions include the Kiribati Adaptation Program (KAP) in the Pacific Region, several GEF-supported adaptation projects in Latin America, and the Bank's technical and lending assistance for enhancing the resilience of coastal areas in Bangladesh. There is also a scope for scaling up the WBG work on natural disasters, an important cause of persistent poverty in developing countries, and strengthening linkages with disaster management and adaptation programs through innovative projects and initiatives, such as *the Caribbean Catastrophe Risk Insurance Facility* (see Box 5).

³ Source: Climate Analysis Indicators Tool (CAIT) Version 5.0. Washington, DC: World Resources Institute, 2008)

Box 5: Helping the Caribbean Cope with Hurricane and Earthquake Damage

Caribbean states are highly vulnerable to natural disasters and have limited financial options to respond. On average, a major hurricane affects a country in the region every 2 years. The Caribbean Catastrophe Risk Insurance Facility (CCRIF) is the first regional disaster insurance facility in the world. It provides 16 participating governments from the Caribbean region with immediate liquidity in the aftermath of a natural disaster. By pooling their risks together, participant countries save approximately 40 percent over individual premiums. Participating governments are Anguilla, Antigua & Barbuda, Bahamas, Barbados, Belize, Bermuda, Cayman Islands, Dominica, Grenada, Haiti, Jamaica, St. Kitts & Nevis, St. Lucia, St. Vincent & the Grenadines, Trinidad & Tobago, and the Turks and Caicos Islands.

CCRIF's reserves come from participating countries and donors. Its capacity to service claims is based on its own reserves combined with the financial capacity of the international financial markets. This allows CCRIF to respond to events that may occur only once every 1,000 years or more, achieving a higher level of resiliency than international standards. CCRIF was able to secure \$110 million of claims-paying capacity on the international reinsurance and capital markets. Work is also being considered to expand the scope of the coverage provided by CCRIF to other natural hazards such as floods and tsunamis, as well as to other Caribbean territories.

37. **Addressing climate change will require more attention to integrating all aspects of sustainable development and promoting a holistic approach, using natural resources and building infrastructure in an integrated manner.** With respect to adaptation, the SFCCD proposes to adopt a broad perspective, which addresses a better understanding of the immediate impacts of climate variability, but also economic, social and geo-political consequences, including the potential of climate related migrations and additional pressures imposed by increased rural to urban migration. Examples of the programs and products that have a potential to apply holistic approaches at different spatial scales, with adaptation and/or mitigation benefits, include:

- *Integrated natural resource or coastal zone management projects.* Forest, coastal and biodiversity conservation can provide multiple benefits of (i) improved local livelihoods and reduced poverty; (ii) reduced vulnerability to natural hazards and (iii) enhancing global public goods through carbon sequestration and biodiversity conservation;
- *Various regional and multi-country products* that can support multi-country water resource management programs, regional adaptation schemes, or regional energy systems;
- *Programs that acknowledge the centrality of the water cycle* as one of the key driving mechanisms in climate change impacts across sectors, particularly agriculture, transport, energy and health sectors and that address water and energy in an intergraded manner;
- *Cross-sectoral infrastructure programs at the local government level*, and particularly at a city level—where many mitigation and adaptation decisions can be taken (and have been taken by several city governments). Indeed, more than two thirds of modern energy consumption takes place in cities and they are the source of most solid waste and transport-related GHG emissions. Furthermore, many cities are located in coastal areas and deltas that are likely to be affected by climate change, and there are important synergies between adaptation and mitigation integrated in city planning and

development. Sub-national financing instruments are a useful tool for such programs; and

- *Integrated disaster management and climate change adaptation* that help mainstream these issues as part and parcel of regular development planning and project preparation. Innovative projects such as the Kiribati Adaptation Program, now in its pilot implementation phase, demonstrate such integrated climate risk management, ranging from national budgets and planning in all key ministries to consultation with local communities and NGOs.

38. **The role of forests in addressing climate change needs to be emphasized.** About 20 percent of global GHG emissions and over 30 percent of GHG emissions in developing countries result from land use changes, deforestation, and forest degradation. While sustainable forest management is a way to achieve tangible GHG emission reductions, forests themselves would suffer significantly from climate change, including impacts on natural habitat and biodiversity. This makes forests an important focus for developing and implementing adaptation measures. The 2002 World Bank Forest Strategy, together with its programs and partnerships, has provided the enabling environment to address global forest issues related to climate change mitigation and adaptation. Strategic programs such as the Forest Carbon Partnership Facility (FCPF), the BioCarbon Fund, the Forest Law Enforcement and Governance (FLEG) program, and the Program on Forests (PROFOR) are already helping client countries to engage in environmentally sustainable and carbon-positive forest management. The WBG is working on a broad, multi-stakeholder partnership approach, which would allow programming and implementation of financing to address climate change mitigation and adaptation through sustainable forest management on a participatory and equitable basis. The SFCCD will further support this initiative, promote its lessons as a demonstration of “development-mitigation-adaptation” synergies, and provide a broader strategic context.

39. **Importantly, institutional capacity, policy barriers, and a complex political economy of energy and water pricing are among the major constraints to adopting win-win solutions, absorbing additional financial resources and harnessing private sector investments.** Many of the policy and institutional development actions that help a country prepare for climate change are in the “no regrets” category, i.e., they would be beneficial even in the absence of climate change. This includes policies and institutions affecting natural resource management (especially water), energy sector reforms, risk management, and conflict resolution on the national and trans-boundary levels. But the specter of climate change can make the need for actions in these areas more apparent and urgent, and help raise their profile and advance the necessary reforms. The proposed approach of building on major sectoral engagements with WB clients and sectoral business strategies as an entry point for integrating the climate change agenda has an extra benefit of greater ability to address institutional and policy issues at the core of a successful transition to climate resilient development. Joining forces with the IFC and facilitating private sector investment in low carbon and climate risk resilient projects by creating an enabling policy environment and public-private partnership is another major area of action advocated by the SFCCD.

40. **There is a greater role for the WBG dialogue on economic policy, investment climate, governance and social protection in the context of climate change.** Analytical work

initiated by PREM on linkages between climate change and growth, poverty, trade, fiscal policy, and governance and decentralization will inform and facilitate the integration of climate change issues into economic management dialogue, CASSs, and policy lending. An increasing engagement of Economic and Finance Ministries provides an opportunity to further articulate these linkages and advance an understanding on how domestic economic policy can benefit both development and climate objectives. The IFC is stepping up its efforts to reach out to and engage with the private sector on the need to support climate action.

41. **The SFCCD will stress the importance of social and gender considerations in addressing climate change.** WBG work on climate change should give priority attention to ensuring that the poorest, least resilient social and gender groups who are most vulnerable to climate change impacts are supported in developing adaptation strategies. Coping strategies for these groups should not compromise their short-term well-being; nor long-term life chances. Climate actions should also take into account that impacts are often differentiated by gender, since women may be disproportionately engaged in particularly vulnerable sectors such as paddy cultivation, cotton, and tea plantations, and fishing. . Within the prevailing lack of equal rights of women to land, irrigation water, and access to education renders them especially vulnerable in a future with anticipated increases in pressure on these resources. Women, therefore, may often have a lower adaptive capacity arising from prevailing social inequalities and are ascribed social and economic roles that lead to increased hardship (e.g., through reduced food security or shortage of water resources). The SFCCD therefore will be an opportunity to further enhance attention to important social dimensions in the development agenda, such as the centrality to address especially vulnerable groups, including women, in policy dialogue and all its lending and non-lending activities.

42. **Resilient local institutions are critical for managing the adverse impacts of social stress and dislocations associated with climate hazards and climate change, and in mediating conflicts over increasingly scarce resources.** In this context, Middle East and North Africa (MENA) should be highlighted as a region experiencing water scarcity on a scale yet unknown in other regions in the world, so that any further precipitation declines pose a threat to the very foundation of human existence in some of its sub-regions. The specter of increasing rural-urban migration and an increase in urban slums population, social unrest, growing unemployment and sense of exclusion and the increased conflict in the region can already be witnessed in a number of countries. Understanding and supporting local institutions is vital in helping facilitate adaptation and mitigation strategies that maintain or increase social resilience.

Pillar 2: Consolidating Efforts to Mobilize and Deliver Finance

43. **The finance gap is large.** The benefits of a more sustainable, climate-friendly development depend on the success in mobilizing finance at the scale necessary to initiate transformational change. Making bold progress in this area—by increasing ODA and mobilizing finance from the private sector through a better use of existing instruments and innovative tools—is critical for the WBG credibility with client countries, the private sector, and civil society. This has been a key area of focus for the CEIF, with several important achievements, and will remain a top priority for the SFCCD.

44. **The WBG uses a wide range of existing instruments to support development investments and policies**, such as IDA credits and grants, IBRD loans and partial risk guarantees, partial credit guarantees and policy-based guarantees, MIGA political risk guarantees, and IFC's equity, loan and risk-management products. These instruments have occasionally been used to finance projects and programs that, de facto, support mitigation and/or adaptation, even if these actions are not their stated objectives. It is estimated that IBRD/IDA/IFC/MIGA invested about US\$1.4 billion in low-carbon projects in FY07. Examples include renewable energy projects (hydropower, biomass or solar), energy efficiency projects (district heating or large industrial facilities), waste management projects, policy lending targeting the energy sector, and more broadly, projects fostering sustainable management of natural resources and enhancing resilience to climate risks (response to natural hazards, sustainable water basin/land resources management, agriculture and forestry). An on-going IEG review of how the WBG used opportunities to support climate change objectives in core operations is expected to provide a more systematic assessment. The strong replenishment of IDA15 will help to establish IDA as the appropriate platform for adaptation investments that yield strong development benefits.

45. **Several instruments specifically dedicated to climate change are available, most significant of which are GEF and rapidly growing carbon finance business.** The WBG's long-term productive partnership with the GEF has been a major force in advancing the climate change agenda. GEF grant funding focuses on global environmental benefits and is available for piloting and innovating new approaches, as well as creating enabling environments for market transformation by removing barriers, capacity building, and institutional development. GEF resources have been often combined with IDA, IBRD, and IFC products, which allowed strengthening of climate change objectives in the WBG lending. In particular, the GEF's shift from project-by-project to programmatic actions is helping countries take a broader and longer term view in addressing barriers and strengthening national capabilities to understand and tackle both mitigation and, more recently, adaptation challenges. The GEF has played a critically important role in developing a knowledge base for adaptation. At the COP13 in December 2007, a new Adaptation Fund was agreed upon, with a special management arrangement by the GEF. Carbon finance, one of chief sources of mitigation financing, has grown to over \$2 billion, and two new instruments—the FCPF and the Carbon Partnership Facility (CPF)—were approved in September 2007. (See Table 1)

46. **The need for further mobilizing and innovating finance for addressing climate change was a critical lesson of the CEIF experience that is reinforced by the SFCCD's focus on scaling-up climate action.** The scale of action required calls for taking the important lessons learned from pilot and prototype projects and programs and capacity building efforts, such as those supported by the GEF through its implementing agencies, to broader programs which will help combat poverty and foster growth while transforming economies towards lower carbon and more climate resilient pathways. As noted before, supporting programs with strong country ownership and multiple development benefits is the key to success. By building on these lessons and capitalizing on the capabilities of the WBG and the RDBs, a scaled-up level of funding delivered in a package combining sectoral and private sector knowledge with the full range of development finance instruments will facilitate early transformational climate actions that are tightly linked to national economic and sectoral objectives.

Table 1: Existing resources and financing instruments dedicated to climate change

Adaptation—Climate-resilient growth		Mitigation—Low-carbon growth	
<i>Financing Source</i>	<i>Role/Scope/Operational criteria</i>	<i>Financing Source</i>	<i>Role/Scope/Operational criteria</i>
<p>GEF</p> <p>Adaptation Fund—\$100 million to 500 million by 2012 (estimate); Least Developed Countries Fund (LDCF)—\$169 million; Special Climate Change Fund (SCCF) ~\$60 million (for adaptation); Strategic Priority to Pilot an Operational Approach on Adaptation (SPA)—\$50 million</p>	<p>Funding for the Adaptation Fund will mainly come from a 2 percent levy on revenues generated by the Clean Development Mechanism (CDM); LDCF helps in the preparation and implementation of national adaptation programs of action (NAPAs) in the least developed countries; SCCF supports adaptation projects in all developing countries; SPA is a funding allocation within the GEF Trust Fund whose objective is to support pilot and demonstration projects that address local adaptation needs and generate global environmental benefits in all GEF focal areas.</p>	<p>GEF</p> <p>ca \$250 million p.a. Trust Fund \$240 million p.a. SCCF ~ \$15 million p.a.</p>	<p>Focuses on global environmental benefits to finance incremental costs of removing barriers to market development of near commercial technologies through capacity building, policy and regulatory reform, institutional development, innovation and demonstration.</p>
<p>Global Facility for Disaster Reduction and Recovery (GFDRR)</p> <p>\$8 million FY07+\$40 million FY08</p>	<p>Partnership within the UN International Strategy for Disaster Reduction (ISDR), focusing on building capacities to enhance disaster resilience and adaptive capacities in changing climate. The goal is to reduce disaster losses by 2015.</p>	<p>Carbon Finance</p> <p>over \$2 billion under management</p>	<p>Improves financial returns through long-term purchase agreements for the GHG emissions reductions resulting from climate-friendly projects. The Bank manages 11 carbon funds, including the recently launched FCPF.</p>
<p>Other sources (trust funds, partnerships, etc.)</p>	<p>Provide grant financing for climate change knowledge products, capacity building, upstream project work or pilots (Japan Policy and Human Resources Development (PHRD), Climate Change Initiative Grant, Bank Netherlands Partnership Program (BNPP), Trust Fund for Environmentally and Socially Sustainable Development (TFESSD), etc.).</p>	<p>Other sources (trust funds, partnerships, etc.)</p>	<p>Provide grant financing for climate change knowledge products, capacity building, upstream project work, and small pilots (Japan PHRD Climate Change Initiative Grant, Energy Sector Management Assistance Programme (ESMAP), etc.).</p>

47. **In consultation with interested parties, including developed and developing countries, the UNFCCC, GEF, the UN agencies and the private sector, the WBG and RDBs are joining efforts to establish a portfolio of strategic Climate Investment Funds (CIF).** The CIF would build on the ability of the Multilateral Development Banks (MDBs) to work across multiple sectors and to engage at both policy and project levels; their presence in the field, their ability to innovate, and their convening power will support the new funds in achieving their targeted objectives. The funds will complement, build upon and enhance the activities of other existing instruments, like the financing products of the GEF, IBRD and the IFC. The overall goal will be to make available a range of new financing, credit enhancement and risk management tools, such as loans, grants, guarantees and others, targeted to the needs of developing countries facing the new challenges of accelerating growth and poverty reduction in a world increasingly impacted by changing climate. The funds will aim to encourage early action by both private and public sectors and market-based solutions to the climate change challenge with a transformational impact.

48. **Achieving transformational impact will require investments at significant scale, market-enabling activities, a country focus, and a programmatic approach.** Consideration

is being given to the scope of the funds, and proposals are under consideration to address clean technology, forestry and climate resilience.

49. **The climate investment funds would rely as much as possible on existing processes of the WBG and RDBs, and therefore no new institution would be created to manage this program.** Donors could invest directly into these funds, or into another umbrella vehicle, such as the *strategic climate fund*. The strategic climate fund would, in particular, accommodate donors that wish to make investments in more than one of the investment funds or programs, thereby strengthening the coherence of their contributions.

50. **In developing the CIF, the following principles will be taken into account:**

- a. The core mission of the multilateral development banks is growth and poverty reduction. Climate change mitigation and adaptation considerations need to be integrated into the development process;
- b. The multilateral development banks should provide financing for adaptation and mitigation programs to address climate change that are country-driven and designed to support sustainable development. Activities financed by the fund should be based on a country-led programmatic approach and should be integrated into country-owned development strategies, consistent with the Paris Declaration focus on country ownership;
- c. The UN is the appropriate body for broad policy setting on climate change, and the multilateral development banks should not preempt the results. Actions to address climate change should be guided by the principles of the UNFCCC. The multilateral development banks should assist developing countries to build country-level knowledge, capacity and development project experience about the feasibility and implications of addressing climate change;
- d. Multilateral development banks can and should play a role in ensuring access of developing countries to adequate finance resources and appropriate technology for climate actions, and such resources should be made available without conditionality and on an incremental cost basis.
- e. The CIF should provide for provide for inclusion, transparency and openness in its governance.

51. **In further developing the proposal for climate investment funds, the WBG will continue to engage in extensive consultations with all key stakeholders to expand the donor base, seek the views of potential recipient countries and other interested parties** (UNFCCC, GEF, UN partners, and the private sector), and advance the design of funds and financial instruments. On-going consultations with the GEF are focusing on how best to ensure complementarities between the objectives of the climate investment funds to demonstrate the impact at scale within a relatively short period of time with the GEF's longer-term mandate to create enabling environments for market transformation, build capacity, and support institutional

development, and the GEF secretariat's newest mandate as Secretariat with respect to the Adaptation Fund. A summary of consultations to date is given as Annex 4.

52. **There are several other initiatives by the WBG.** The IFC is accelerating opportunities to expand its activities and development impact in the area of mitigation, particularly investments in energy efficiency and renewable energy, together with a continued development of carbon finance product. MIGA is pioneering ways to apply its political risk guarantee to cover specific host country-related risk potentially affecting delivery of carbon credits from projects. The World Bank Treasury Department is preparing structured notes, with a performance based on future prices of carbon emission rights, which will be eventually tied to the performance of carbon finance projects; it is also working with the EU donors on its proposed IFFI_m-like climate bond. Promising climate risk insurance products, such as weather risk management instruments, have been already introduced in several countries. The work is also on-going on ways to further combine carbon finance with regular IBRD/IDA/IFC or GEF funding or guarantees (e.g., buying down the cost of IBRD loans through blending with carbon finance).

53. **A variety of instruments and new initiatives is the key strength of the WBG** but it also creates a need for greater consolidation of the various financing instruments at the recipient level to help clients (i) obtain the most attractive financing packages and (ii) reduce the associated transaction costs (by offering, for example, a “one-stop” source of access to the WBG financial products). With a situation of a growing number of new instruments, often available in small amounts to a particular client/project, operational staff is requesting clearer guidance as to what instruments are most suitable in which situation, and how to minimize the transaction costs. There is also a need to increase the outreach of existing financial products that address climate change to strengthen the project pipeline.

54. **The SFCCD will articulate complementarities among the various instruments and outline a plan of actions** that will serve to:

- *Promote more effective and innovative use* of existing and emerging financing instruments (IBRD, IDA, IFC, MIGA, insurance schemes, CF funds, GEF, etc.) in the WBG operations, including better packaging and cross-leveraging and strengthening collaboration with GEF;
- *Develop guidelines to operational staff and clients* as to what instruments and their combinations work best for certain projects/situations;
- *Facilitate applications of new instruments at the target scale*, including knowledge products, training and capacity building to raise awareness of the WBG staff and clients on available financial products and their optimal application;
- *Identify barriers to financing climate-friendly investments* that are not yet addressed, drawing on the previous work done and coordinating with on-going activities, including analyses undertaken for the CEIF, the experience gained by the Carbon Finance Unit (CFU), conclusions by a working group on the constraints to the mobilization of private capital to finance climate friendly initiatives in developing countries; and an on-going assessment by the GEF;

- *Propose specific steps for developing new products* to fill the gaps, in collaboration with other development finance players, such as the GEF, RDBs, and the private sector;
- Recognizing that the mobilization of additional and innovative financing for adaptation is falling behind compared to initiatives focused on mitigation, *give particular attention to filling gaps in adaptation financing* and opportunities for public-private partnerships in this area, in partnership with GEF, IFC, RDBs, particularly the African Development Bank (AfDB) that made adaptation its top climate priority, and others; and
- *Explore the WBG advantages as a global platform* to enable effective and efficient use of various institutions, instruments and programs.

55. The WBG is working on a number of fast-track products to make additional financing available:

- *Operational CPF*: The WBG is currently conducting detailed consultations with potential CPF participants and other stakeholders to finalize the Facility design, including its governance structure. The target is to open the Facility for financial contributions in late spring/early summer 2008. The Facility would first start operating its Carbon Asset Development Fund (a fund aimed at supporting the development of emission reduction programs) before mid-2008 and become fully operational (i.e., launch the carbon purchase fund and the governance structure of the Facility) once the first tranche of the Facility is fully capitalized, which is expected during the summer/early autumn of 2008.
- *CIFs*—the design and consultations with donors, RDBs and other partners are on-going, with the launch of the CIF expected during summer 2008.
- *Treasury bonds* allowing to mobilize financing at reduced rates to support projects that yield climate benefits.
- *Structured financing packages using CF* to improve loan terms for project sponsors, as well as offering expanded guarantees on delivery of carbon credits to buyers, building on what the IFC already offers.

Pillar 3: Expanding the WBG's Role in Developing New Markets

56. The WBG played a pivotal role in the development of the carbon market by setting a Prototype Carbon Fund several years before the Kyoto Protocol would enter into force. The CFU of the WB has continuously sought to promote the catalytic role of carbon finance in securing underlying finance for climate-friendly projects in developing countries and economies in transition, raising awareness of the impact of carbon finance on climate-friendly investments, and encouraging lending against carbon revenue streams.

57. The WBG continues pushing boundaries of the carbon market, for example, by addressing GHG sources bypassed by the existing regimes and piloting new, programmatic

approaches, as evidenced by FCPF and CPF. The IFC is structuring innovative financial products for the carbon market; its Carbon Delivery Guarantee is currently the only product that provides improved and transparent market access to help projects in developing countries optimize the value of their carbon assets. Currently, CFU is undertaking a review to identify the specific ways for the WBG to integrate its carbon finance with other financial mechanisms to provide a more effective support to low-carbon projects. Blending carbon finance with the WBG lending operations and other financial mechanisms can eventually provide further development to the carbon market and these instruments. Finally, new opportunities are being explored such as the issuance of bonds, development of derivatives, and guarantee and insurance products. The SFCCD will reflect the recommendations of this review.

58. **The SFCCD will also identify other areas where the WBG and other MDBs can play a significant role in the facilitation of market development and financial intermediation.** The IFC is in a unique position among Multinational Financial Institutions (MFIs) with its comparative advantage in assessing and assuming emerging market risk. Efforts could focus on contributing to reducing barriers to market development, whether through analytical and advisory work at the sector level (to improve the business environment and therefore increase the amount of investment from private sector) or through the WBG convening power (to build confidence in pioneering areas and play a catalytic role in supporting the necessary technological breakthrough). One of such areas is the market of energy efficiency goods and services, estimated to have the greatest potential for GHG emission reductions in developing countries, not counting reduced deforestation.

59. Other areas of engagement could include: i) markets of supplies of climate change related products at competitive prices (including equipment for cleaner energy production which is currently in shortage); ii) markets of low carbon commodities that support economic objectives of developing countries; or iii) insurance markets that help the poor cope with climate risks. One example of the latter would be the use of the WBG convening power to help develop private sector managed multi-country risk pooling for the reinsurance of catastrophic risks—one of the options under discussion through the Catastrophic Risk Insurance Working Group. Building on WBG experience in supporting payments for ecosystem services is another area worth further exploring.

Pillar 4: Tapping Private Sector Resources for Climate Friendly Development

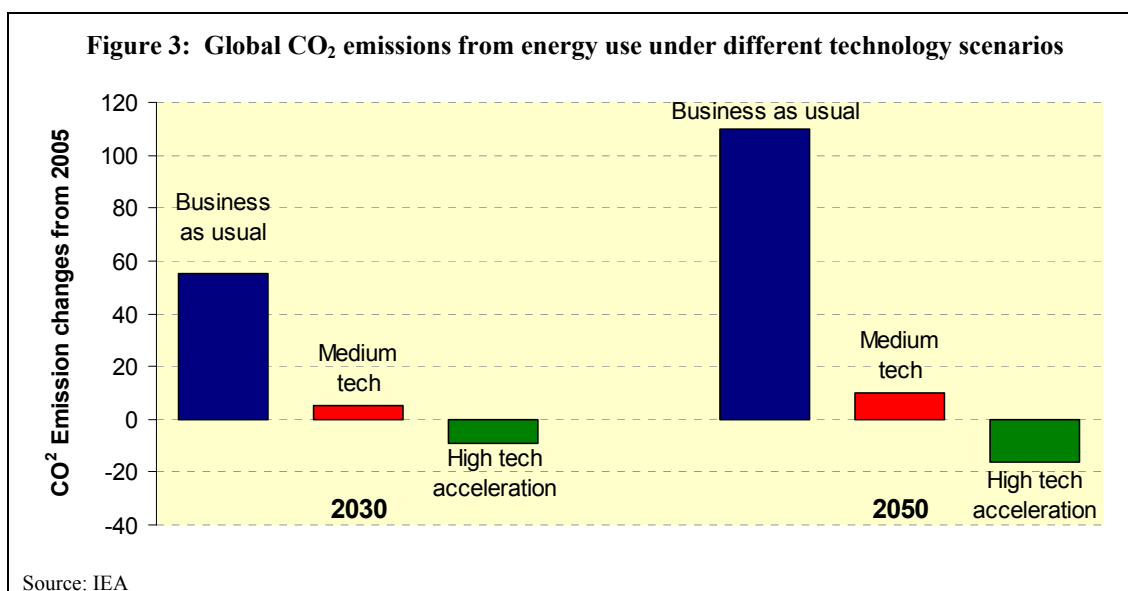
60. **Given that over 80 percent of financing to meet the needs of climate friendly development is expected to come from private sources, it is difficult to overestimate this area of action.** These requirements are large in relation to ODA but are modest when compared to global investment flows. Over the next three years, the IFC aims to double to triple its renewable energy and energy efficiency investments, with strong advisory services support; pursue mitigation opportunities in other industrial and economic sectors such as the supply of less GHG intensive fuels, sustainable forestry and agriculture; extend its carbon finance activities; and support the transfer and adoption of appropriate new technologies through direct and funds investments. The WBG has substantial experience in leveraging private finance through combined efforts of its agencies, including the IFC investments, guarantees and Technical Assistance (TA), MIGA's guarantees, and WB engagement on policy and regulatory reforms and capacity building in the public sector that help countries create an enabling

environment for private investment and harness investment flows to the desired areas with public good benefits.

61. **The SFCCD will build on collective experience of the WBG and outline opportunities for greater synergies and collaboration across WBG institutions as a way to increase flows of private investments in low carbon and adaptation projects.** The SFCCD realizes that the public sector role remains critical for facilitating private investment flows. It will address the role of policy and regulatory measures to create the right incentives to private sector investment, such as in case of cleaner energy projects, including rehabilitation of existing power plants and energy efficiency improvements. Some areas for working more effectively together include harmonizing project processing requirements for the clients and better disseminating information on the entire range of the WBG financial products, which can be readily accessed by the private sector.

Pillar 5: Clarifying the WBG Role in Accelerating Technology Development and Deployment

62. **Advanced and new technologies are a critical area for addressing climate change and highly demanded by developing countries** (see Figure 3). There is a need to speedily assess and establish an appropriate scope and level of engagement, taking lessons of experience with newly commercialized technology deployment, recognizing the WBG limitations in “picking the winners” at pre-commercial technology development stages, and revisiting issues related to intellectual property rights.



63. **While experience is mixed, the WBG, particularly the IFC, has a long-standing involvement with accelerated deployment of commercial clean technology—and its commercialization in different country’s setting.** This includes several successes, in particular the recent joint WB/IFC/GEF Lighting Africa program. Many of the pioneering efforts by developing countries to introduce clean technologies have been supported by GEF grants blended with the WBG and other funds. A notable technology adoption and innovation model to

be scaled-up is the approach used in WB-GEF China Renewable Energy Development Program (REDP) initiated in 2001, that shared product development costs with private Chinese firms to develop low-cost solar PV modules and increased quality by implementing standards and certification systems. The Chinese firms involved invested over \$75 million and introduced new PV system products both in China and for the export market. This approach is being replicated in the WB-GEF assisted China Renewable Energy Scale-up Program to facilitate technology transfer of wind turbine technology to China and improve standards of locally manufactured wind turbine systems. The Bank's approach of supporting the deployment of clean coal technology in China by introducing large-scale super-critical power plants in the late 1990s is being considered for replication for newer technologies with the support of concessional funding.

64. With support from GEF and other donors, the IFC has been a leading supporter of new clean energy technologies such as fuel cells, advanced biomass combustion, and solar cells. IFC's Cleaner Technologies investing focuses mainly on supporting small, high risk ventures with accelerated technology transfer and commercialization of intellectual property. IFC's Cleaner Production Technical Assistance work reduces the environmental footprint of its clients in a profit-maximizing manner. The IFC is working on rolling out Cleaner Production on a wider scale, including: (a) launching a new small Cleaner Production loan investment product; (b) launching Cleaner Production Technical Assistance programs in the regions and recruiting staff with the right skills; and (c) embedding a Cleaner Production perspective into new investment strategies as an integral part of IFC's approach to climate change.

65. The private sector will play a key role in transferring technology and needed know-how to developing countries. The IFC will support technology transfer through direct and funds investments, and play the role of catalyst in crowding in private investment in new technology areas, including by leveraging existing client relationships, and by accessing carbon finance and, eventually, CIF financing (currently under discussion with donors and discussed in paragraphs 45-48). The IFC investments in renewable energy, including hydro power, have demonstrated the potential of alternative sources of energy in developing countries—both at small and large scale. Overall, IFC investments aim to support climate friendly development by combining commercially viable approaches with energy efficient and modern technology in GHG-intense sectors (e.g., power, steel, cement, chemicals, etc.).

66. In addition to scaling-up efforts with technology deployment, on-going analytical work is looking at institutional models being used for accelerating technology R&D and commercialization in other sectors and their relevance to climate-friendly technologies. The models under consideration allow drawing lessons about such sensitive issues as intellectual property rights and creating local R&D centers. Extensive consultations over its early findings will inform the preparation of the SFCCD and its recommendations regarding the potential roles of the WBG and external partners in new technology development.

Pillar 6: Stepping Up Policy Research, Knowledge Management and Capacity Building

67. With over 100 products on-going or planned, there has been a steep increase in climate related Analytical and Advisory Assistance (AAAs) across the WBG in the past year. Highlights include low carbon growth studies in six countries—Brazil, China, India, Indonesia, Mexico and South Africa; regional flagship studies on adaptation or/and energy issues

in LAC, East Asia and Pacific Region (EAP) and Europe and Central Asia Region (ECA); a study on adaptation in the water sector, a series of policy notes by PREM and SDN. The challenge lies in effectively sharing this knowledge, minimizing duplication and enhancing added value for the WBG, clients and the global community. The SFCCD, with the help of regional, PREM, DEC and WDR teams, will summarize the state of a WBG program of research to date, propose steps for more effective information and knowledge sharing, and identify the key remaining knowledge gaps and policy questions to guide a future research program in a more coherent manner.

68. **The proposed WDR 2010 on climate change provides an excellent opportunity to position the WBG as a knowledge leader.** The low carbon and adaptation studies will also help improve critical knowledge of synergies and trade-offs between growth and climate objectives, which is fundamental for placing WBG support to integrating climate action and development on a solid analytical basis.

69. **Advancing economic analysis of investment decisions in the context of climate change can be a major added value of the SFCCD.** Climate change involves very long time frames and very high uncertainty. Scarcity of resources in developing countries further complicates policy planning. While recognizing the dangers posed by climate change and the urgency of taking action, developing countries have a very high stake in assessing the optimal timing of adaptation and mitigation measures. A clearer articulation of the framework for investment decisions could help better understand whether and why additional resources ought to be deployed today for adaptation and mitigation measures, rather than, as some will undoubtedly argue, for general development financing, with a view to shifting toward climate change-related investments at a later date. As a step in this direction, a series of brainstorming meetings have been held, with participation of top external experts, on intergenerational discounting and economic analysis in the context of unique uncertainties and risks associated with climate change. Developing guidelines in this area to strengthen an analysis of investment and policy choices will be a valuable contribution to global knowledge and the WBG operations.

70. **There is still much work to be done to establish appropriate tools and methodologies,** including how to assess the risks of climate change to investments, borrowers, and project beneficiaries; how to measure and report the “carbon footprint” (GHG emissions) of the WBG portfolio; how to best leverage carbon finance; how shadow pricing might be used in project economic analysis, and how to estimate the “true” costs of adaptation in projects, taking into account endogenous adaptation that is occurring.

71. **The work to develop new analytical tools to help understand the implications of climate change for WBG operations, such as climate risks screening and carbon footprinting, has been initiated.** The WB and the IFC taking the lead in different areas while ensuring close coordination. For example, the WB has taken the lead on the climate risk screening tool while the IFC is piloting, for information purposes, the use of shadow costs in its real sector project economic appraisals. Both the IFC and the WB are collaborating on carbon footprinting, with the IFC proposing to measure the emissions of new real sector investments from the start of FY09 using the carbon accounting methodology for private business established by the World Business Council for Sustainable Development and the World Resources Institute (WRI). For the next two years, the WB, with assistance from WRI, will be developing and

testing methodologies more suitable for the nature of its projects in energy, transport and forestry sectors, followed by a plan for rolling out this initiative.

72. **The SFCCD will support—and attach a high priority to—the development, piloting and evaluation of these tools so that they are deemed practical, credible and useful** by key operational staff, clients and external stakeholders. Progress with developing and lessons from piloting the risk screening, carbon accounting, shadow pricing and other tools will determine the extent and pace at which they will be introduced in the WBG project analysis. The SFCCD will outline common tools and approaches to be used by both public and private sector “arms” of the WBG, rationale for using different approaches in certain cases, and collaborative arrangements with other MDBs.

73. **The SFCCD will also review opportunities for using existing instruments, such as Strategic Environmental Assessments (SEAs), CEAs and Poverty and Social Impact Analyses (PSIAs) for informing and influencing operations with respect to climate change impacts and actions.** For example, poverty mapping and social analysis tools can help in identifying those social groups within countries who are most at risk from the impacts of climate change as a result of their physical location in vulnerable environments (drylands, coastal zones, floodplains, areas prone to landslides, etc.), or owing to their primary dependence on land and natural resources for a livelihood. There is already useful experience of addressing climate change in CEAs and the WB is collaborating with OECD on the preparation of guidelines for integrating climate change issues in SEAs. The SFCCD will specify anticipated needs in developing and disseminating methodologies, assessments and tools to support integration of climate change aspects into various WBG products and services.

74. **The SFCCD will also support analytical work by the WBG that can assist countries in their preparation for the UNFCCC negotiations.** In particular, the WBG, particularly DEC, modeling capacities could be brought to bear in helping countries understand the implications of different global policies. The WBG's stance should be that of an impartial analyst laying out the consequences of different policy choices. However, if it were found that certain solutions generally fairer to developing countries than the others, the WBG could take a more active advocacy stance—perhaps similar to its involvement in trade negotiations.

75. **Enhancing skills and capacity to apply new and existing knowledge inside the WBG and in client countries will be a key component of effective actions for integrating climate and development.** The SFCCD will seek to promote collaboration with key regional, international and national partners to achieve improved capacity by developing countries to apply context-dependent knowledge for both mitigation and adaptation. This can also include assistance to developing countries with increasing capacity to formulate and articulate their views in international fora, including the UNFCCC negotiations. A variety of approaches for knowledge sharing, effective learning (including learning by doing), and skills enhancement will need to be explored through a collaborative effort of the World Bank Institute and other groups of the WBG. Mechanisms will also have to be developed to capture new knowledge, lessons learned (for example on policy development, institutional strengthening), and make it readily available for the WBG and client country use.

E. Results Framework

76. **The development of a results-based framework is a key area of focus for the SFCCD.** The results framework will specify time horizons, with milestones, for measuring the inputs, outputs, outcomes and indicators of progress, as well as clarify and harmonize among regions and sectors—basic definitions such as what “adaptation” and “mitigation” projects are.

77. **The preparation and implementation of the SFCCD will be an important opportunity to consult and agree with development partners, client countries and a broad range of stakeholders** on a set of measurable and practical indicators to track progress on low carbon and climate resilient development actions in various sectors. It will build on achievements under the CEIF, which introduced tracking of *low carbon energy* projects and established a clear definition and an information collection system across the WBG. The WBG has also been working with the GEF and other agencies to develop a minimum set of indicators for climate change mitigation projects as part of GEF’s move towards results based monitoring system.

78. **Following the CEIF approach, the development of outcome and output indicators for the SFCCD will be tailored to reflect the WBG comparative advantages,** its mandate of supporting growth and poverty reduction, its approach of working in partnership with client countries, and its business deliverables. The SFCCD will be guided by a set of specific actions related to climate change that was developed for the IDA15 results framework and includes: mainstreaming adaptive action in CASs; piloting climate change screening tools; scaling up adaptation actions and financial support; increasing technology dissemination by tapping into carbon finances; improving donor coordination in the area of climate actions; and reporting on progress with climate change actions

79. **The results framework will be strengthened and detailed over time,** as the WBG makes progress to address key analytical questions related to climate change risk assessment and carbon accounting/footprinting. There are areas, in which the World Bank, IFC and MIGA are already actively involved and coordinating the effort, and which have been identified as priorities for collaboration among MDBs on common approaches to addressing climate change.

80. **The WBG will continue to roll-out an initiative to make its office operations and travel carbon neutral** by extending to country offices and sharing its experience with UN agencies and other interested development partners.

81. **Without incentives to and the accountability of operational units, it will be difficult to scale up new approaches,** including tools for project analysis; more proactive identification of opportunities for enhancing projects by additional climate financing, and a more holistic, cross-sectoral planning. The IFC measures its Renewable Energy and Energy Efficiency commitments against the “Bonn” target of 20 percent increase per year (from FY05) for the WBG in its corporate scorecard. In addition, its departmental scorecard for the regions measures the percentage of investment projects which include an energy efficiency (EE) or renewable energy (RE) component. For the WB, an approach based on business incentives rather than targets could be more appropriate, and the SFCCD can propose a number of options. The results framework should be able to assess operational performance of the WBG units with respect to the agreed inputs and outputs and help structure incentives. It will also address the issue of skills mix and human resources as a principal input to delivering on outcome/output indicators.

F. Working with External Partners to Address a Global Challenge

82. **Climate change is an unprecedented global challenge that requires collaboration among a large number of development partners**, including the UN system, the GEF, regional development banks, bilateral donors, the private sector, research institutions and civil society groups. The SFCCD will detail the roles and mandates of the key actors on the international arena, and a particular niche that the WBG is best-positioned to fill.

83. **Under the CEIF, MDBs have established a close working relationship on climate change activities.** A regular formal session on the MDB's climate change initiatives would be added to each meeting of the existing MFI- Working Group on the Environment; measuring "carbon footprint" of lending and adaptation having been selected as initial topics. An MDB working group on the CEIF is also being established. The WBG has also worked extensively with the private sector on assessing barriers to clean energy financing and a possible design of new instruments.

84. **Our long-term productive partnership with the GEF has been a major force in advancing the climate change agenda.** The paper will outline the complementarities between the WBG and GEF strategies, including links to the new adaptation fund being creating within GEF. This will also be informed by ongoing work recently commissioned by GEF on scenarios for a post-2012 period.

85. **Recently, the WBG actively cooperated with other UN agencies on the development of "The UN system coordinated approach to climate change"** (summary of which was released in Bali, December 2007) and was assigned a role in all of the activities identified as priorities for UN engagement. The WBG is working with other UN agencies towards a "carbon-neutral" UN, using its experience as the first UN agency to make its Headquarters office operations and travel carbon-neutral.

86. **The SFCCD will summarize substantial progress made by the WBG in collaborating on climate change with various development partners, and outline specific areas for strengthening and broadening collaboration** with each group of the key players. Two areas are worth highlighting:

- The WBG needs to become more pro-active in supporting the work of the UNFCCC Secretariat towards success of a post-2012 inclusive and equitable global compact, while remaining neutral to any particular negotiation position. The WBG can combine efforts with other development partners in supporting developing countries with capacity, awareness, and consensus building efforts; training in negotiation skills; and information to provide the best platform for the negotiations to succeed.
- Another area of additional focus could be innovative partnerships with the private sector, including financial and insurance sectors.

G. Consultation and Feedback Process

87. **Climate Change is an all-encompassing, multi-faceted development issue with a very complex political economy context.** The development of the SFCCD will include extensive

consultations with a full range of stakeholders, including developing country clients, development partners (UN agencies, RDBs, bilateral donors), private sector, and a spectrum of civil society. Particular attention will be given to understanding the needs, and concerns of the WBG shareholders from developing countries, and demonstrating how their views have been taken into account in preparation of the SFCCD. A consultation draft of the SFCCD, a detailed plan for consultations, a set of guiding questions and contacts to provide feedback will be provided on a SFCCD consultation website which can be accessed on the home page of the World Bank Group website www.worldbank.org.

H. Risks

88. The work on the SFCCD will take account of and address several risks:

<i>Risks</i>	<i>Measures to address/mitigate them</i>
External	
<p>Uncertainty of several shareholders and clients about our role related to climate change. While the WBG is now stepping up engagement significantly, its role so far has not always been that of a leading institution in the field.</p> <p>Uncertainty about progress with UNFCCC negotiations and implementation of negotiated agreements. In a case of developed countries not taking bold actions and commitments, a focus on integrating mitigation in development strategies of poorer countries carries a reputational risk.</p>	<p>Extensive consultations sharing our experience and capabilities; careful drawing on lessons from past engagement; and scaling up, demonstrating and disseminating successes.</p> <p>The focus of the SFCCD will be on supporting adaptation and mitigation measures that are justified by local benefits (e.g., energy efficiency, energy diversification, rural employment, air quality), as well as generating additional concessional finance to reduce costs and risks of lower carbon and/or climate resilient investments.</p>
<p>Managing expectations: inability to generate substantial new finance; reluctance to dedicate WBG core resources (IDA/IBRD) to climate change.</p>	<p>The WBG will explore a wide spectrum of options, including better use and cross-leveraging of long existing and newly approved instruments, and innovative market approaches. This will minimize the risk of possible failure with any particular instrument.</p>
Internal	
<p>The challenge of coordination across regional, sector and IFC strategies and adopting coherent approaches given different situations, interests and demands of different countries and clients within countries.</p> <p>Tracking and reporting progress: Development of a robust and credible results framework might take a long time.</p> <p>Presently limited staff skills and knowledge of climate change issues, particularly on adaptation needs and options; only evolving in-house analytical frameworks.</p>	<p>The SFCCD will provide a common but flexible framework that is, in substance, built on demands voiced by clients and issues identified by regions & sectors across the WBG.</p> <p>Will develop a phased approach in consultation with MDBs, clients and other stakeholders.</p> <p>A large increase in climate change AAAs has already happened and will soon improve internal knowledge, analytical base and staff skills; the SFCCD will also address knowledge sharing, training and new recruitment.</p>
<p>Technology acceleration is critical; but WBG experience is lacking.</p>	<p>Will proactively explore a suitable role in the context of collaboration with other development partners.</p>

I. Timeframe and Milestones

89. The preparation of the Strategic Framework on Climate Change is on a fast track, as follows:

April 13, 2008	Development Committee (background paper)
April-June 2008	Consultations with stakeholders
Early July, 2008	OVP review of draft paper
July/August 2008	CODE Meeting on draft paper
August 2008	Web-based consultations on draft paper
September 2008	Committee of the Whole
October 2008	Development Committee

ANNEX 1: CLIMATE CHANGE AND REGIONS: RISKS, IMPACTS AND EMISSIONS

Who is worst impacted? The impact of climate change spans multiple sectors and development issues, and IDA countries are at significant risk. IDA and IBRD-IDA blend countries are the most vulnerable to risks associated with (a) extreme weather events such as floods, droughts, and storms; (b) rising sea levels and related coastal issues; and (c) changes in agricultural production (Table A2.1).⁴ The distribution of some of the major climate-related risks around the world is similarly skewed (Figure A2.1). Sub-Saharan African countries dominate the list of the most drought-affected and consequently also suffer the largest negative impacts on agricultural productivity. South and Southeast Asia are disproportionately flood-affected. Storms have their greatest effects in the hurricane belt of the Pacific and Indian Oceans, but winter storms in land-locked countries are also important.

Table A1: 1 Countries most at risk from climate-related threats

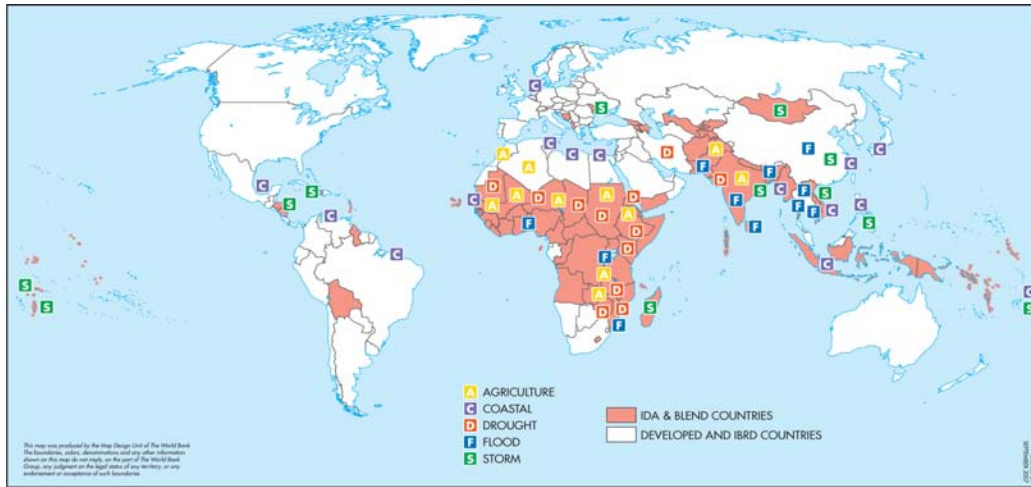
<i>Drought</i>	<i>Flood</i>	<i>Storm</i>	<i>Coastal 1m^a</i>	<i>Coastal 5m^a</i>	<i>Agriculture</i>
Malawi	Bangladesh	Philippines	All low-lying Island States	All low-lying Island States	Sudan
Ethiopia	China	Bangladesh	Viet Nam	Netherlands	Senegal
Zimbabwe	India	Madagascar	Egypt	Japan	Zimbabwe
India	Cambodia	Viet Nam	Tunisia	Bangladesh	Mali
Mozambique	Mozambique	Moldova ^b	Indonesia	Philippines	Zambia
Niger	Laos	Mongolia ^b	Mauritania	Egypt	Morocco
Mauritania	Pakistan	Haiti	China	Brazil	Niger
Eritrea	Sri Lanka	Samoa	Mexico	Venezuela	India
Sudan	Thailand	Tonga	Myanmar	Senegal	Malawi
Chad	Viet Nam	China	Bangladesh	Fiji	Algeria
Kenya	Benin	Honduras	Senegal	Viet Nam	Ethiopia
Iran	Rwanda	Fiji	Libya	Denmark	Pakistan

Note: Light Grey= IDA and blend countries. Dark grey = IBRD. Bolded = developed countries. The typology is based on both absolute effects (e.g., total number of people affected) and relative effects (e.g., number affected as a share of GDP). See Annex C for more detail on the indices used.

a. Meters above the seal level. b. Winter storms.

⁴ The table is purely indicative, as the ranking depends very much on the indices used and on the random nature of climate events even over a 25-year period. However, almost every index shows that IDA countries are disproportionately vulnerable to risks associated with climate change.

Figure A1: 1 Distribution of World Climate Risks



Note: See Annex C of IDA paper for details.

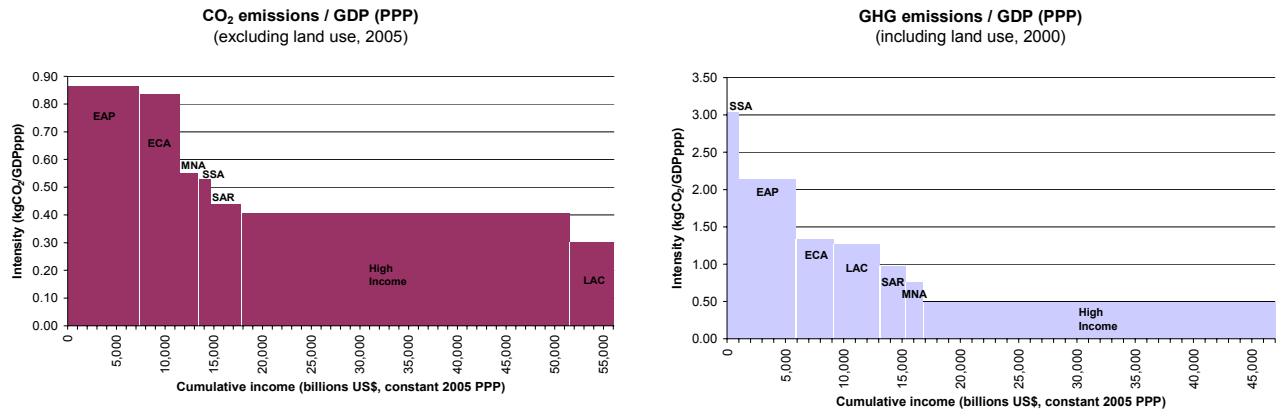
Different CO₂ emission characteristics of select developing countries and transition economies

Table A1: 2 Emission characteristics

Rank	Country	CO2 Emissions, 2005	CO2 intensity, PPP, 2005	CO2 intensity, MER, 2005	CO2 growth, 1995-2000	CO2 growth, 2000-2005	CO2 per capita, 2005	GDP per capita, PPP, 2005	Income group
		(MtCO2)	(tCO2 per Million \$)	(tCO2 per Million \$)	(%)	(%)	(tCO2)	(\$ per annum)	
1	United States	5,957	480	480	1.9	0.5	20.1	41,813	High: OECD
2	China	5,323	998	2,372	0.5	12.1	4.1	4,088	Lower middle
3	Russia	1,696	999	2,218	-0.5	1.4	11.9	11,858	Upper middle
4	Japan	1,230	318	271	2.0	0.7	9.6	30,290	High: OECD
5	India	1,166	479	1,447	2.8	3.2	1.1	2,222	Low
6	Germany	844	336	302	-0.7	-0.1	10.2	30,445	High: OECD
7	Canada	631	559	567	2.0	2.5	19.5	34,972	High: OECD
8	United Kingdom	577	305	262	0.0	0.8	9.6	31,371	High: OECD
9	Korea, South	500	486	631	3.0	2.5	10.3	21,273	High: OECD
10	Italy	467	287	265	0.8	1.0	8.0	27,750	High: OECD
11	Iran	451	700	2,375	4.0	6.9	6.6	9,314	Lower middle
12	South Africa	424	1,066	1,751	2.2	2.0	9.0	8,478	Upper middle
13	France	415	223	195	1.5	0.8	6.8	30,591	High: OECD
14	Saudi Arabia	412	841	1,331	4.3	7.1	17.8	21,220	High: non OECD
15	Australia	407	584	555	4.2	2.9	20.0	34,106	High: OECD
16	Mexico	398	339	519	3.5	0.9	3.9	11,387	Upper middle
17	Spain	387	328	344	5.3	3.6	8.9	27,180	High: OECD
18	Brazil	361	228	409	3.6	1.1	1.9	8,474	Upper middle
19	Indonesia	359	508	1,253	4.8	5.6	1.6	3,209	Lower middle
20	Ukraine	343	1,303	3,977	-5.2	1.2	7.3	5,583	Lower middle
21	Poland	285	551	939	-1.0	-0.4	7.5	13,535	Upper middle
22	Taiwan	284	480	..	6.3	2.7	..	26,057	..
23	Netherlands	270	479	..	2.4	1.6	16.5	34,492	High: OECD
24	Thailand	234	526	1,329	2.2	7.5	3.6	7,061	Lower middle
25	Turkey	230	410	633	5.5	2.8	3.2	7,786	Upper middle
26	Kazakhstan	198	1,503	3,466	-0.4	7.6	13.1	8,699	Upper middle
27	Egypt	162	486	1,804	3.8	6.1	2.2	4,574	Lower middle
28	Malaysia	156	519	1,189	4.5	6.7	6.1	11,678	Upper middle
29	Venezuela	151	576	1,045	1.6	2.5	5.7	9,877	Upper middle
30	Argentina	147	350	800	2.8	1.3	3.8	10,815	Upper middle
31	UAE	138	1,003	1,063	1.8	4.6	30.4	33,484	High: non OECD
32	Belgium	136	409	366	2.1	-1.2	13.0	31,699	High: OECD
33	Singapore	134	743	1,147	5.2	4.5	30.8	41,479	High: non OECD
34	Pakistan	121	357	1,092	4.4	2.3	0.8	2,184	Low
35	Uzbekistan	118	2,246	8,078	0.3	2.2	4.5	2,008	Low
36	Czech Republic	113	544	910	-1.6	0.3	11.0	20,280	High: OECD
37	Nigeria	105	490	1,084	-4.3	5.4	0.7	1,520	Low
38	Greece	103	317	458	3.3	0.5	9.3	29,261	High: OECD
39	Romania	99	490	1,005	-5.5	1.4	4.6	9,368	Upper middle
40	Iraq	98	..	..	-0.9	5.9	..	..	Lower middle
41	Algeria	88	442	866	-1.0	1.1	2.7	6,062	Lower middle
42	Vietnam	80	451	1,519	6.7	10.6	1.0	2,143	Low
43	Austria	78	279	255	1.7	4.1	9.5	34,075	High: OECD
44	Philippines	78	312	794	4.1	2.1	0.9	2,956	Lower middle
45	Kuwait	77	695	949	7.9	5.2	30.2	43,551	High: non OECD
46	Hong Kong	75	309	422	3.2	6.1	10.8	35,690	High: non OECD
47	Korea, North	74	..	..	-3.6	1.3	3.3	..	Low
48	Chile	66	332	557	6.5	3.6	4.1	12,248	Upper middle
49	Israel	65	415	527	4.9	0.9	9.4	22,627	High: non OECD
50	Portugal	65	309	354	4.5	0.6	6.2	19,956	High: OECD

Note: the table presents top 50 countries ranked by total CO₂ emissions. It shows that most countries rank differently by several measures such as total CO₂ emissions, emission intensity of GDP, and the rate of emission growth. CO₂ intensities are tons of CO₂ per million US\$ of GDP. Source of CO₂ emissions is EIA website (as of September 18, 2007). GDP PPPs (constant 2005 US\$), GDP MER 2005 and Population data in 2005 are from World Development Indicators database.

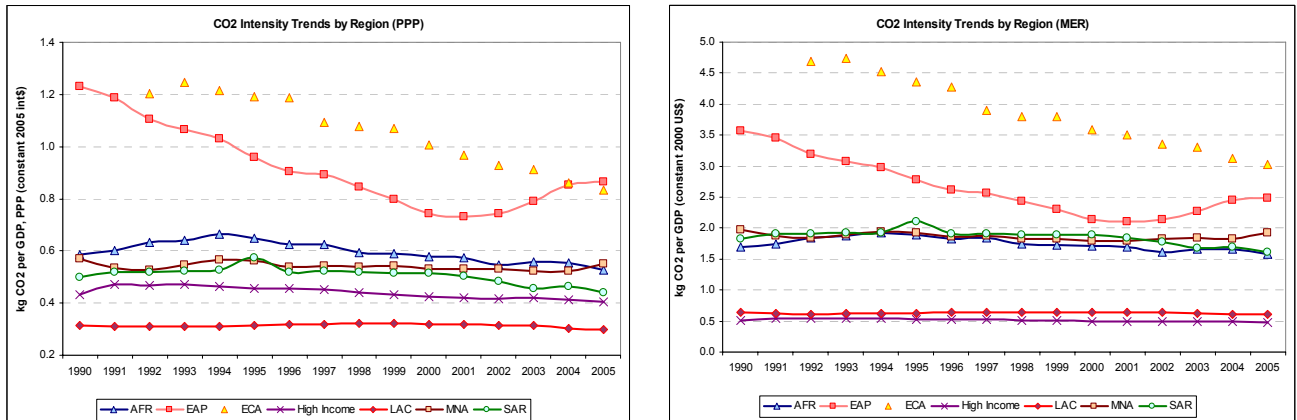
Figure A1: 2 CO₂ and GHG Intensity by Region



Note: The charts show significant variations in energy-related CO₂ and total GHG intensities per GDP by region and a significant shift in ranking when a measure of emissions changes from CO₂ to GHG. The ECA region has the highest energy-related CO₂ emission intensity per GDP while LAC has the lowest. High income countries generate by far the largest volume of CO₂ emissions. Taking into account all GHG emissions, including those arising from land use, land use change and forestry would tend to increase SSA, EAP and LAC intensities and contributions to global GHG since land degradation and deforestation has been progressing at a rapid pace in these regions.

Source: CO₂ emissions (emissions from energy use) from EIA website (as of September 18, 2007); GDP, PPP (constant 2005 US\$) from WDI; GHG emissions from Climate Analysis Indicators Tool (CAIT) Version 5.0. (Washington, DC: World Resources Institute, 2008). Comprehensive (as many countries and GHG as possible) data for emissions are only available up to 2000.

Figure A1: 3 CO₂ Intensity Trends by Region, with PPP and MER



Note: The charts show that the dramatic decline in CO₂ intensity during 1990s in highly intensive regions has been reversed (EAP) or slowed down (ECA). Meanwhile, CO₂ intensity in other regions remains relatively stable. The use of PPP or MER measure does not change the relative ranking of different regions, except for high income countries that have the lowest intensity when MER is used.

Source: CO₂ emissions (emissions from energy use) from EIA website (as of September 18, 2007), and GDP, PPP (constant 2005 US\$) from WDI.

Figure A1: 4 Regional Profiles: Key Impacts and Emissions Sources⁵

Regions	GHGs by sector	Issues/Key impacts																
AFR	<table border="1"> <caption>GHG Emissions by Sector - AFR</caption> <thead> <tr> <th>Sector</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Land-Use Change & Forestry</td> <td>59%</td> </tr> <tr> <td>Electricity & Heat</td> <td>10%</td> </tr> <tr> <td>Agriculture</td> <td>13%</td> </tr> <tr> <td>Other</td> <td>7%</td> </tr> <tr> <td>Transport</td> <td>4%</td> </tr> <tr> <td>Industry</td> <td>4%</td> </tr> <tr> <td>Waste</td> <td>3%</td> </tr> </tbody> </table>	Sector	Percentage	Land-Use Change & Forestry	59%	Electricity & Heat	10%	Agriculture	13%	Other	7%	Transport	4%	Industry	4%	Waste	3%	<ul style="list-style-type: none"> • Food security and risk associated with agricultural production • Lack of access to safe water and increased water stress • Low adaptive capacity and high vulnerability to climate variability and natural disasters such as droughts and floods • Negative health impacts, especially increased risk of malaria • Sea-level rise and its impact on low-lying coastal areas
Sector	Percentage																	
Land-Use Change & Forestry	59%																	
Electricity & Heat	10%																	
Agriculture	13%																	
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Waste	3%																	
EAP	<table border="1"> <caption>GHG Emissions by Sector - EAP</caption> <thead> <tr> <th>Sector</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Land-Use Change & Forestry</td> <td>34%</td> </tr> <tr> <td>Electricity & Heat</td> <td>19%</td> </tr> <tr> <td>Industry</td> <td>16%</td> </tr> <tr> <td>Other</td> <td>9%</td> </tr> <tr> <td>Agriculture</td> <td>14%</td> </tr> <tr> <td>Transport</td> <td>5%</td> </tr> <tr> <td>Waste</td> <td>3%</td> </tr> </tbody> </table>	Sector	Percentage	Land-Use Change & Forestry	34%	Electricity & Heat	19%	Industry	16%	Other	9%	Agriculture	14%	Transport	5%	Waste	3%	<ul style="list-style-type: none"> • Decreased freshwater availability • Endemic morbidity and mortality due to diarrhoeal disease associated with floods and droughts • Degradation of marine and coastal ecosystems by sea-level rise and temperature increases • Sea-level rise potentially results in displacement of millions of people • Damage to aquaculture industry by sea-water intrusion • Increased threats to the ecological stability of wetlands, mangroves and coral reefs
Sector	Percentage																	
Land-Use Change & Forestry	34%																	
Electricity & Heat	19%																	
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ECA	<table border="1"> <caption>GHG Emissions by Sector - ECA</caption> <thead> <tr> <th>Sector</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Electricity & Heat</td> <td>40%</td> </tr> <tr> <td>Other</td> <td>24%</td> </tr> <tr> <td>Industry</td> <td>15%</td> </tr> <tr> <td>Transport</td> <td>8%</td> </tr> <tr> <td>Agriculture</td> <td>8%</td> </tr> <tr> <td>Land-Use Change & Forestry</td> <td>2%</td> </tr> <tr> <td>Waste</td> <td>3%</td> </tr> </tbody> </table>	Sector	Percentage	Electricity & Heat	40%	Other	24%	Industry	15%	Transport	8%	Agriculture	8%	Land-Use Change & Forestry	2%	Waste	3%	<ul style="list-style-type: none"> • Increased climate-related hazards including prolonged droughts, more frequent storms and floods, and fire risk • Coastal floods and erosion due to sea-level rise • Increased health risks due to more frequent heatwaves, flooding and greater exposure to vector- and food-borne diseases • Higher water stress • Decline of forest productivity
Sector	Percentage																	
Electricity & Heat	40%																	
Other	24%																	
Industry	15%																	
Transport	8%																	
Agriculture	8%																	
Land-Use Change & Forestry	2%																	
Waste	3%																	

⁵ Note: Data on key impacts is from regional climate change business strategies; data on emissions is from WRI 2007.

Regions	GHGs by sector	Issues/Key impacts																
MNA	<table border="1"> <caption>GHGs by sector for MNA</caption> <thead> <tr> <th>Sector</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Electricity & Heat</td> <td>33%</td> </tr> <tr> <td>Industry</td> <td>21%</td> </tr> <tr> <td>Transport</td> <td>16%</td> </tr> <tr> <td>Other</td> <td>20%</td> </tr> <tr> <td>Agriculture</td> <td>5%</td> </tr> <tr> <td>Waste</td> <td>4%</td> </tr> <tr> <td>Land-Use Change & Forestry</td> <td>1%</td> </tr> </tbody> </table>	Sector	Percentage	Electricity & Heat	33%	Industry	21%	Transport	16%	Other	20%	Agriculture	5%	Waste	4%	Land-Use Change & Forestry	1%	<ul style="list-style-type: none"> Increased occurrence of droughts and water scarcity More widely fluctuation of agricultural yields, especially in rain-fed areas Worsening of public health due to heat waves, decreasing water and air quality, and ground ozone formation Sea level rise and its impacts on agricultural, low-lying coastal areas and wetlands
Sector	Percentage																	
Electricity & Heat	33%																	
Industry	21%																	
Transport	16%																	
Other	20%																	
Agriculture	5%																	
Waste	4%																	
Land-Use Change & Forestry	1%																	
LAC	<table border="1"> <caption>GHGs by sector for LAC</caption> <thead> <tr> <th>Sector</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Land-Use Change & Forestry</td> <td>49%</td> </tr> <tr> <td>Agriculture</td> <td>20%</td> </tr> <tr> <td>Transport</td> <td>8%</td> </tr> <tr> <td>Other</td> <td>6%</td> </tr> <tr> <td>Industry</td> <td>7%</td> </tr> <tr> <td>Electricity & Heat</td> <td>7%</td> </tr> <tr> <td>Waste</td> <td>3%</td> </tr> </tbody> </table>	Sector	Percentage	Land-Use Change & Forestry	49%	Agriculture	20%	Transport	8%	Other	6%	Industry	7%	Electricity & Heat	7%	Waste	3%	<ul style="list-style-type: none"> Decreased water availability in many water scarce regions and impact on high mountain ecosystems Reduction in agricultural productivity Distortion of the functioning of ecosystems, including coral reefs, wetlands and mangrove, forests, and so on Large-scale displacement of populations due to increased extreme events and sea-level rise Health impacts e.g., heat stress mortality and greater exposure to vector-borne diseases
Sector	Percentage																	
Land-Use Change & Forestry	49%																	
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SAR	<table border="1"> <caption>GHGs by sector for SAR</caption> <thead> <tr> <th>Sector</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Electricity & Heat</td> <td>29%</td> </tr> <tr> <td>Agriculture</td> <td>26%</td> </tr> <tr> <td>Industry</td> <td>15%</td> </tr> <tr> <td>Other</td> <td>10%</td> </tr> <tr> <td>Land-Use Change & Forestry</td> <td>7%</td> </tr> <tr> <td>Waste</td> <td>7%</td> </tr> <tr> <td>Transport</td> <td>6%</td> </tr> </tbody> </table>	Sector	Percentage	Electricity & Heat	29%	Agriculture	26%	Industry	15%	Other	10%	Land-Use Change & Forestry	7%	Waste	7%	Transport	6%	<ul style="list-style-type: none"> Increased intensity and frequency of storm surges, cyclones, floods and droughts Negative impact on agricultural yields particularly in the arid zones and flood affected areas Decrease in river flows in the Himalayan countries, unreliable supplies of fresh water and the need for management of shared trans-boundary systems Sea level rise and its impact on coastal livelihood through flood, damage on groundwater aquifers, loss of wetlands and ecosystems Lack of scientific information on the consequences of Himalayan snow melt and associated risks and climate change impact on biodiversity and ecosystems
Sector	Percentage																	
Electricity & Heat	29%																	
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Land-Use Change & Forestry	7%																	
Waste	7%																	
Transport	6%																	

ANNEX 2. STRATEGIC FRAMEWORK ON CLIMATE CHANGE AND DEVELOPMENT: DRAFT OUTLINE

A. Climate Change and Development

1. Status of climate science/scientific consensus
2. Mitigation- Adaptation-Development linkages
3. Priorities of WBG client countries and support needs

B. The Need for a WBG Strategy

1. Emerging global consensus on enhanced multilateral action
2. WBG experience and comparative advantage
3. Justification for increased WBG role and a comprehensive strategy

C. WBG Vision and Strategic Objectives

D. Results Framework: Outcomes, Outputs, Inputs and Indicators

E. Framework for Action: Towards climate resilient future

- Integrating adaptation to climate change and low-carbon growth opportunities into development strategies
 - Aligning with Regional and Country Strategies
 - Scaling Up Opportunities in Sectoral Programs
 - Priorities for IDA countries
 - Agenda for Middle-Income Countries
 - Knowledge Sharing, Advocacy and Capacity Building
- Stepping up Policy Research and Advice
- Supporting Technology Acceleration
- Facilitating Development of New Market Mechanisms
- Creating an Enabling Environment for Private Sector
- Meeting the Financing Challenge

F. Collaborating with the global community

G. Addressing internal needs and constraints