

The Multilateral Development Banks and the Climate Change Agenda

A Joint Report



European Bank
for Reconstruction and Development



**European
Investment
Bank**



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Abbreviations and Acronyms

AAAs: Analytic Advisory Services
ACP: Africa, Caribbean and Pacific countries
ADB: Asian Development Bank
AfDB: African Development Bank
APCF: Asia Pacific Carbon Fund
BRT: Bus Rapid Transit
CAI-Asia: Clean Air Initiative for Asian Cities
CARLA: Malawi Climate Adaptation for Rural Livelihoods and Agriculture Project
CCFF: Climate Change Financing Facility (EIB)
CCS: carbon dioxide capture and storage
CDCF: Community Development Carbon Fund
CDM: Clean Development Mechanism
CEACAFA: Clean Energy Access and Climate Adaptation Fund for Africa program (AfDB)
CEEP: Clean Energy and Environment Program (ADB)
CEFPF: Clean Energy Financing Partnership Facility (ADB)
CEIF: Clean Energy Investment Framework
CERs: Certified Emission Reductions
CF-Assist: Carbon Finance Assist
CFE Carbon Fund for Europe
CHP: Combined Heat and Power
CIS: Commonwealth of Independent States
CLIMAP: Climate Change Adaptation Program for the Pacific
ClimDev: Africa Action plan for Africa on Climate Information for Development Needs
CMI: Carbon Market Initiative (ADB)
CNG: compressed natural gas
COP: Conference of Parties (to UNFCCC)
COP: Corporate Operational Policy (EIB)
CPF: Carbon Partnership Facility
DANIDA: Danish International Development Agency
DMCs: Developing Member Countries
EBRD: European Bank for Reconstruction and Development
EE: and energy efficiency
EEfSD: Energy Efficiency for Sustainable Development (WBG)
EEI energy efficiency initiative
EIB: European Investment Bank
ESMAP: Energy Sector Management Assistance Program
ESW: Economic Sector Work
EU: European Union
FCPF: Forest Carbon Partnership Facility
FINESSE Financing Energy Services for Small Scale Energy Users (AfDB)
FLEG: Forest Law Enforcement and Governance
FY: Fiscal Year
G8 + 5 countries: China, India, Mexico, Brazil, and South Africa

GEF: Global Environment Facility
 GGFR: Global Gas Flaring Reduction program (World Bank)
 GHG: greenhouse gas
 GMS: Greater Mekong Subregion
 GoI: Government of India
 HEST: higher education, science, and technology strategy (AfDB)
 IBRD: International Bank for Reconstruction and Development
 IDA: International Development Agency
 IDB: Inter-American Development Bank
 IFC: International Financial Corporation
 IFIs: international financial institutions
 IGCC: Integrated Gasification Combined Cycle
 IPPs: Independent Power Projects
 IREDA: Indian Renewable Energy Development Agency
 KfW: Kreditanstalt für Wiederaufbau
 LAC: Latin America and the Caribbean department (World Bank)
 LCR: Latin America and Caribbean Region
 LFG: LandFill Gas
 MCCF: Multilateral Carbon Credit Fund
 MDBs: Multilateral Development Banks
 MDGs: Millennium Development Goals
 MFI–WGE: Multilateral Financial Institutions–Working Group on the Environment
 MRT: Mass Rapid Transport
 NAPA: National Adaptation Programme of Action of Malawi
 NF: Nairobi Framework
 NGOs: nongovernmental organizations
 NLNG: Nigeria Liquefied Natural Gas
 NMT: Non-motorized transport
 PROFOR: Proposals Program on Forests
 PSUTA: Partnership for Sustainable Urban Transport in Asia
 PV: solar Photo Voltaic
 RE: renewable energy
 REACH: Renewable Energy, Energy Efficiency and Climate Change (ADB)
 REACH: Renewable Energy, Energy Efficiency and Climate Change program
 REDD: Reducing emissions from deforestation and degradation
 RMCs: Regional Member Countries
 RWSSI: Rural Water Supply and Sanitation Initiative (World Bank)
 SBSTA: Subsidiary Body for Scientific and Technological Advice (UNFCCC)
 SECCI: Sustainable Energy and Climate Change Initiative (IDB)
 SEI: Sustainable Energy Initiative (EBRD)
 SIDA: Swedish International Development Cooperation Authority
 SMEs: small and medium enterprises
 SSA: sub-Saharan Africa
 STI: Sustainable Transport Initiative
 SUMA: Sustainable Urban Mobility in Asia
 SWM: Solid Waste Management

TA: Technical assistance

TAOS: The Arbiter Of Storms hazard model

UNFCCC: United Nations Framework Convention on Climate Change

WBG: World Bank Group

ZETP: Zero Emissions Technology Platform

Summary

Background

- i. This joint report on the current and planned climate change mitigation and adaptation activities of the Multilateral Development Banks (MDBs) has a number of specific purposes. These include (a) providing the MDBs' shareholders and stakeholders with a summary and overview of the ongoing and planned work of the MDBs on climate change, (b) helping to strengthen the cooperation between the MDBs on these issues, and (c) furthering the process of reaching common understandings on key methodologies such as calculation of carbon footprints, climate risk assessment tools, and the development of measurable indicators of progress by the MDBs in implementing their climate change agenda.
- ii. Since the early 1990s the MDBs, individually and collectively, have recognized the challenge of climate change and its potentially adverse implications for their development and poverty-reduction agendas. For example, virtually all the MDBs have included energy efficiency as key a component of their development strategies for many years. However, in the period following the Gleneagles communiqué all the MDBs have revisited their climate change strategies and have embarked on major new initiatives designed to help their clients mitigate the impact of past and future development programs on climate change. In those regions where the impact of global warming is already apparent, the MDBs are also increasingly helping their clients to adapt to the new environment. Highlights of these activities are detailed below.

Transition to a Low-Carbon Economy: The Mitigation Agenda

- iii. Energy growth is critical for economic development and poverty alleviation. Many developing countries are in the process of rapidly expanding programs designed to increase energy access, and the MDBs have adjusted their own priorities to support these efforts. However, these same countries—in line with the United Nations Framework Convention on Climate Change's (UNFCCC) principle of "common but differentiated responsibilities"—are already beginning to take action to shift their economic growth strategies to include technology and management options that will minimize greenhouse gas (GHG) generation while maintaining social and economic development objectives. Recent examples include China's National Climate Change Program, Mexico's National Climate Change Strategy, and India's Integrated Energy Policy. The MDBs have, in turn, adjusted their programs to support these efforts.
- iv. All the MDBs are giving priority to energy efficiency. Ongoing and planned interventions include (a) substantially increasing their lending activities in this area, (b) screening investment pipelines for energy efficiency opportunities early in the project cycle, (c) promoting energy audits, (c) being willing to finance an increased share of total costs of energy-efficiency projects, (d) targeting key countries with the highest potential

impact for efficiency gains, and (e) helping clients to identify and remove institutional, regulatory, and policy barriers to efficiency gains.

v. A broad range of proven renewable energy technologies are now available, several of which are commercially viable and have significant potential to improve energy access in the developing countries. Therefore, bringing these small-scale technologies online in full market volumes is a key priority for the MDBs. These interventions include investment support as well as steps to tackle a variety of policy issues designed to eliminate biases against renewables (e.g., fossil fuel subsidies and inequitable access to transmission grids). They also increasingly include more proactive support for renewables, such as promoting regulatory and policy regimes that actively encourage renewables, capacity building, identifying local renewable resources, technology adaptation, and knowledge transfer.

vi. The MDBs are also pursuing investment and analytical support designed to decrease emissions from thermal energy sources. A number of interventions are being pursued, including (a) thermal power plant rehabilitation, (b) transmission and distribution network efficiency improvements, (c) upgrading of efficiency of new thermal power plants, (d) early retirement of inefficient plants with state-of-the-art facilities, (e) support for carbon capture and storage, (e) gas flaring reduction, and (f) methane release reduction. Methane capture as part of solid waste management programs offers one of the most financially attractive climate-change mitigation options. Given that such methane capture has the potential to be rapidly mainstreamed in the urban strategies for developing countries, several of the MDBs are adjusting their priorities to respond to this opportunity.

vii. The transport sector contributes about 14 percent of global GHG emissions, making this a key sector for climate-change interventions. The strong connection between economic growth and transport-generated greenhouse gases can be moderated over time by changes in travel behavior, logistics decisions, technology choices, and transport modes. These factors can, in turn, be influenced by planning, fiscal, and regulatory measures, as well as through public investments in infrastructure. The MDBs are currently reviewing their transport strategies and programs with a view to making them more climate friendly.

viii. Reducing emissions from deforestation and degradation (REDD) offers particularly important opportunities for mitigating greenhouse gases in developing countries. Emissions from deforestation and land-use changes are estimated to account for more than a third of their total emissions each year. The MDBs' interventions in this area have so far been quite modest, but they include promoting special financing mechanisms, capacity-building and piloting new forest conservation approaches.

ix. All the MDBs have embarked on efforts to catalyze low-carbon investments through new financial instruments which can mobilize additional funding, promote innovation, and help fund the incremental costs of these projects. These efforts include support for the further development of the carbon market. The MDBs are currently

considering additional financing facilities. For example, a joint MDB/ private-sector working party has identified the need for project-specific support in buying down the substantial, up-front, *additional* costs of precommercial technologies that have the potential to significantly reduce future growth in emissions, e.g., Integrated Gasification Combined Cycle (IGCC), carbon capture and storage technologies, and biofuels.

x. In determining their country priorities, the MDBs have taken into account the differing magnitudes of Green House Gas (GHG) emissions by individual nations. For example, over half of the GHG emissions in developing countries come from the so-called G8 + 5 countries: China, India, Mexico, Brazil, and South Africa. The MDBs are therefore making a special effort to support the high-impact countries in developing and implementing low-carbon trajectories.

Adaptation to Climate Variability and Change

xi. The earth's climate is already changing because of human activities. Developing countries, particularly in sub-Saharan Africa (SSA), are suffering the greatest impact from climate-related disasters, which threaten to undermine their development. Climate change thus has serious implications for the MDBs' poverty-reduction efforts. It will impact areas of major economic and social importance for developing countries, such as water availability, agriculture, health, the durability of major infrastructure, and the sustainable use of natural resources. The MDBs whose member countries will be most affected by climate change are making efforts to help the countries adapt to climate-change variability through regional and country policy and investment interventions. They are also attempting to expand their knowledge of climate risk management, build more comprehensive screening tools, and develop best-practices guidance to support their clients' long-term sustainable development goals. While much analytic work has been undertaken, the current MDB financial commitment to adaptation activities remains modest; the MDBs as a group are reviewing ways in which their collective efforts on adaptation can be increased.

Working Together

xii. As highlighted above, in the post-Glencoe period the MDBs have intensified joint efforts on both climate change mitigation and adaptation. In particular, each MDB has consulted with its sister institutions in developing/revising its overall climate change and energy strategies to respond to the new global priorities. The result is a consistent set of policies, programs, and instruments across the international financial institutions. Additional collaborative efforts are planned. For example, joint work on new initiatives in energy efficiency, renewables, new financial instruments, and adaptation are currently underway. In addition, they are looking at ways to better integrate their policy and regulatory advisory work with their support for private-sector investments. The MDBs also recognize the need to collectively scale up their activities in areas such as reducing carbon emissions in transport, deforestation, and adaptation. The last is a particularly urgent agenda time for those MDBs whose clients are being most seriously impacted by climate change.

xiii. Another area where the MDBs have agreed to collaborate is in developing a harmonized approach to assessment and reporting of portfolio GHG emissions. Based on the outcome of several ongoing studies, it is expected that the MDBs will agree on a standard set of practices with respect to carbon footprint measurement in the near future.

xiv. All the MDBs and their shareholders have recognized the importance of setting monitorable targets if they are to achieve their climate change agenda. In this connection, each MDB has set specific benchmarks for increased levels of investment support and policy and advisory work. While these goals will be critical in assessing their collective and individual performance, they are output as opposed to outcome targets; they do not measure the carbon impact of the MDBs' programs on the ground. Over time, and as the MDBs gear up their operational activities on climate change, they plan to jointly articulate a clear set of outcome targets.

xv. As the MDBs shift their emphasis from strategy formulation to implementation, it is important that the lessons of experience—for example, energy efficiency, carbon capture and storage, and securing the right balance between policy, regulatory, sector and project interventions designed to mitigate climate change—are promptly shared across the institutions and, even more important, with their clients. To this end, the MDBs are currently exploring mechanisms designed to ensure such best-practice exchanges.

xvi. Given the rapid expansion in the MDBs' climate change activities, it is becoming increasingly important that each knows exactly what the others are doing at the operational level. In this connection, the MDBs have agreed to continuously update the set of templates that summarize the climate change activities of each MDB and were prepared for this report. They are accessible at <http://www.cleanenergywiki.org>.

xvii. The heads of the environment departments of the MDBs meet twice a year, at the Multilateral Financial Institutions–Working Group on the Environment (MFI–WGE), to exchange information on their respective programs, agree on mutual priorities, etc. In addition, ad hoc meetings on special topics are a frequent occurrence. No additional formal meetings are planned; however, the MDBs plan to strengthen the MFI–WGE framework to ensure a more systematic coverage of their climate-change activities.

Introduction

1. The 2005 Gleneagles communiqué on climate change recognized the “serious and linked challenges of tackling climate change, promoting clean energy, and achieving sustainable development globally.” The communiqué encouraged the MDBs to increase dialogue with client countries on climate-change mitigation and adaptation activities. The World Bank was requested to take leadership in developing a framework for clean energy and development, including investments and financing. In response to this call, all the MDBs have finalized new strategy papers and commenced implementation of their new initiatives, policies, and programs.

2. This joint report on the current and planned programs for mitigation and adaptation is part of an ongoing effort by the MDBs to continually explore synergies, identify gaps, and agree on joint activities that would accelerate developing countries’ (a) low-carbon economic growth, (b) access to appropriate and affordable technologies, (c) access to carbon finance, and (d) shifts in development trajectories that are adaptive to climate change and variability.

3. It is hoped that this joint report could lead to a stronger overall global framework of actions by the MDBs, including helping to ensure that their efforts are mutually supportive and that there are no critical gaps. It will also help to further refine a set of targets against which progress can be monitored by key stakeholders.

4. This report has a number of specific purposes:

- providing the MDBs’ shareholders and stakeholders with a summary and overview of the ongoing and planned work of the MDBs on climate change and adaptation
- further strengthening the cooperation among the MDBs on the climate-change agenda, including the identification of gaps in their collective efforts together with opportunities for more systematic cooperation and leveraging of each others efforts
- helping to develop a set of measurable indicators that would allow key stakeholders to monitor overall progress and identify problems
- furthering the process of reaching common understanding on key methodologies, e.g., calculation of carbon footprints, climate risk assessment tools
- encouraging the sharing of the lessons of experience and best practices across the MDBs.

5. This report will not analyze the substantive technical and operational issues that have to be tackled by the MDBs as part of their action on climate change (these have been adequately covered in many reports). Rather, it will highlight what each MDB is undertaking or planning in the key thematic areas.

6. The report has also provided the basis for developing a database template that is acceptable to all the MDBs as a means to exchange information on their climate change activities on an ongoing basis. These templates, which will be regularly updated, are

accessible at www.worldbank.org/environment/ccandmdb. The joint report is to be utilized as “deemed fit” by the MDBs. For example, the World Bank is utilizing the findings as an input to the Clean Energy Investment Framework (CEIF) report prepared for its 2007 annual meetings and for the December 2007 Bali Conference of Parties (COP), as well as the Spring 2008 meetings of the Development Committee.

MDBs’ Commitment to the Challenge of Climate Change

7. The MDBs, individually and collectively, recognized the challenge of climate change and its potentially adverse implications for their respective development, transition, and poverty-reduction agendas well before the Gleneagles summit meeting. For example, virtually all the MDBs have included energy efficiency as a key component of their development strategies and assistance efforts since the early 1990s. In the period following the Gleneagles communiqué, all the MDBs have defined new initiatives designed to help their clients mitigate the impact of their past and future development programs on climate change. In those regions where the impact of global warming is already apparent, the MDBs are also increasingly helping their clients to adapt to the new, higher-risk environment. As part of this process the MDBs have set themselves a number of targets:

- The European Bank for Reconstruction and Development’s (EBRD) Sustainable Energy Initiative (SEI) commits the institution to more than doubling its investments in energy efficiency and cleaner energy during the 2006–2008 period to over €1.5 billion in projects, with total costs of over €5 billion.
- The Asian Development Bank (ADB) is in the process of expanding its clean energy operations to reach US\$1 billion a year.
- The European Investment Bank (EIB) has adopted ambitious renewable energy targets, has adjusted its product offering so as to enhance its support for climate change mitigation, and works closely with the EU Commission’s climate-change policy agenda, including support for the EU’s flagship program that plans to support up to 12 carbon capture and storage power plants.
- The African Development Bank (AfDB) has just announced a program to provide financial support to 5 to 10 climate “adaptation” projects a year by 2010.
- The Inter-American Development Bank (IDB) is in the process of establishing targets for expanding its sustainable energy operations to reach up to US\$1.5 billion per year over the period of 2008-2012.
- The World Bank Group (WBG) is committed to increasing its energy efficiency and renewable lending by 20 percent a year.

8. Further examples of the MDBs’ response to the G-8 challenge are provided below.

9. One of the most important and enduring challenges in the countries of Central and Eastern Europe and the Commonwealth of Independent States (CIS) is to address their inefficient use of energy, a legacy of the former command economy that undermines the

competitiveness of enterprises and economies, threatens energy security, and contributes disproportionately to carbon emissions. In response to the call from the G-8, the EBRD launched its SEI, through which it proposes to more than double its energy efficiency and cleaner energy investments in 2006-2008. The SEI was presented at the EBRD's 15th Annual Meeting held in London on 22 May 2006, where it was broadly supported by the Bank's shareholders. The SEI reflects the conditions and challenges of its countries of operations and its specific experience and comparative advantage. It has been defined within the broad consultative process established to develop an Investment Framework for Clean Energy and Development, taking account of the paper prepared by the World Bank for the Spring 2006 meetings of the Development Committee.

10. In parallel to the call by the G-8, increased focus on the challenges of climate change has moved energy policy to the top of the European Union (EU) agenda. Energy has become a key item in the EU policy agenda, in particular following the release in March of the green paper "European Strategy for Sustainable, Competitive and Secure Energy." The EIB has been associated with these developments and, in parallel, has launched several internal actions. On this basis, and following the presentation in January 2006 of the Energy Review, the Board of the EIB approved the integration of energy as a specific objective in the Corporate Operational Policy for 2007-2009, with appropriate guidelines and monitoring. The EIB commitment is linked to the EU targets to achieve at least a 20 percent reduction of greenhouse gas emissions by 2020, compared to 1990. Specifically there is a binding target of a 20 percent share of renewable energy in overall EU energy consumption by 2020. This target is supplemented by a binding minimum target of 10 percent for the share of biofuels in the petrol and diesel consumption for transport. In addition, an energy efficiency target has been established in the EU to achieve the objective of saving 20 percent of energy consumption, compared to projections for 2020.

11. In Asia, the ADB is committed to, and currently promoting, greater use of clean energy in its Developing Member Countries (DMCs). The ADB recognizes the increased challenges of ensuring energy security and the need to address environmental degradation and climate change if Asia is to maintain its current rate of economic growth. Thus, the ADB's medium-term strategy identifies managing the environment as one of five strategic priorities; promotion of energy efficiency in order to lower the carbon intensity of DMCs is specifically named as one of two interventions. The ADB's new energy strategy is currently being prepared and drafts indicate that even greater priority will be afforded to renewable energy and energy efficiency. To drive this agenda, and in line with the investment framework for clean energy developed as a response to the call by the G-8 for MDBs, the ADB has also put in place a Clean Energy and Environment Program (CE&EP) which includes (a) an energy efficiency initiative (EEI) launched in July 2005 to expand the ADB's operations in clean energy to US\$1 billion a year; (b) a carbon market initiative (CMI) approved in November 2006; (c) a sustainable transport initiative (STI); (d) climate-change adaptation activities; (e) establishing regional knowledge hubs to act as think tanks for the ADB and its DMCs on renewable energy, climate change and 3R (reduce, reuse and recycle); (f) providing access to modern energy services following a low-carbon development path under the Energy for All Initiative; (g)

the Renewable Energy, Energy Efficiency and Climate Change (REACH program, launched in 2002; and (h) updating the ADB's energy strategy, which emphasizes acceleration of the widespread application of renewable energy (RE) and energy efficiency (EE).

12. In September 2005, the Development Committee requested the World Bank to develop an Investment Framework for Clean Energy and Development in the context of the Gleneagles communiqué on Climate Change, Clean Energy and Sustainable Development that was issued in July 2005. The World Bank presented the outlines of key elements associated with such a work program at the April 2006 Spring Meetings of the Development Committee in a paper titled “Clean Energy and Development: Towards an Investment Framework.” Progress on this work was reported to the Development Committee at the Annual Meetings in Singapore in September 2006 in a document titled “An Investment Framework for Clean Energy and Development: A Progress Report.” Another progress report was presented to the development committee in March 2007: “Clean Energy for Development Investment Framework: World Bank Group Action Plan.” The Bank Group’s action plan includes (a) the further development and implementation of sector strategies for energy efficiency, renewable energy, and transportation (b) implementation of low-carbon projects funded by the IBRD/IDA, IFC, Global Environment Facility (GEF), and carbon finance, often together, and with an emphasis on leveraging the private sector; (c) a series of country case studies for the G-8+5 countries (Brazil, China, India, Mexico, and South Africa) to assess the opportunities to transition to a low carbon economy, followed by the development of a set of action plans for potential implementation, and (d) facilitating the further development of the carbon market, and innovative ways to combine existing financial instruments. A follow-up progress report on the Bank Group’s action plan was prepared in September 2007.

13. The IDB has launched its Sustainable Energy and Climate Change Initiative (SECCI) to help countries address the challenge of climate change and its impact on the region’s development and poverty-reduction agendas. Approved by the IDB Board of Directors in March 2007, SECCI is a bank-wide initiative that complements the Bank’s existing efforts in energy. As such, it is focused on promoting renewable energy, energy efficiency, and climate change mitigation and adaptation. The strategic objectives of the initiative are to (a) provide Latin America and the Caribbean with new levels of assistance and cooperation to expand the application of renewable energy and energy efficiency technologies; (b) expand access to international carbon finance; and (c) to support climate change adaptation strategies.

14. The initiative focuses on (a) scaling up Bank investments in energy efficiency and renewable energy (including biofuels, solar, wind, and other sources); (b) integrating policy and institutional reform with project financing for market transformation; (c) mainstreaming energy efficiency and renewable energy investment across sectors; (d) refining and expanding financing tools; (e) accessing international carbon finance through capacity building, programmatic clean development mechanism (CDM) initiatives and lowering of transaction costs; (f) addressing adaptation needs in LAC

countries and IDB-financed projects; and (g) collaborating and forming partnerships with the public and private sectors in LAC, donor agencies and other international financial institutions.

15. Although Africa is the continent least responsible for climate change—by generating the lowest GHG emissions—it is particularly vulnerable to climate change (including current climate variability) risks: lower agricultural production levels, increased frequency of natural disasters, worsening food security, increased incidence of both floods and droughts, spreading of vector borne diseases, and higher risks of conflicts over scarce land and water resources. The continent is particularly vulnerable to climate change due to its widespread poverty, unsustainable use of natural resources, and overdependence on rain-fed agriculture. In responding to these threats, it is increasingly clear that climate adaptation strategies must be integrated into African countries' development agendas. Accordingly, the AfDB has, on its part, recently finalized the Clean Energy Investment Framework for Africa, which recommends that African countries need to focus greater effort and resources on expanding energy access. At the same time, within the scope of the principle of minimum long-term marginal cost, all efforts should be made to make the best use of low-carbon energy technologies, increasingly taking advantage of carbon financing opportunities. With respect to climate adaptation, the AfDB already has a number of climate-adaptation projects in preparation and has recently started work on a new climate risk management and climate adaptation policy.

16. The MDBs thus share a common vision regarding approaches and actions to tackle the challenge posed by climate change. Prior to Gleneagles they had a long history of close cooperation in such areas as energy efficiency, renewable energy, clean coal technologies, urban transport, forestation, and environmental protection, all of which have a direct impact on climate change. The joint efforts have accelerated and become much more intense in the post-Gleneagles period. In particular, each MDB has consulted with its sister institutions in developing and revising its overall climate change and energy strategies to respond to the new global priorities. While much more needs to be done, there is an emerging, consistent set of policies, programs, and instruments across the MDBs. Additional initiatives are being taken to increase the level of collaboration among the MDBs on climate change activities; these are seen to be particularly important as the MDBs move from strategy formulation to implementation.

Transition to a Low-Carbon Economy: The Mitigation Agenda

17. Energy growth is critical for economic development and poverty alleviation. Accelerating access to affordable, modern energy for the poorest is critical to meeting the Millennium Development Goals (MDGs). There is currently a large financing gap in the energy sector—about US\$65 billion a year, or about 40 per cent of the actual needs for electricity generation in the developing countries. The access problem is most acute in SSA and South Asia. For example, the current rate of new connections in SSA (less than 1 per cent) is not keeping pace with new household formation (1.9 per cent). Many

countries particularly in SSA and South Asia are in the process of rapidly expanding their programs designed to increase energy access and the MDBs (for example, the AfDB) have adjusted their own priorities to support these efforts. However, developing countries—in line with the UNFCCC principle of “common but differentiated responsibilities”—are beginning to take action to shift their economic growth strategies to include technology and management options that will minimize GHG generation while maintaining social and economic development objectives. Recent examples include China’s National Climate Change Program, Mexico’s National Climate Change Strategy, and India’s Integrated Energy Policy. This reflects the fact that for these and other developing countries, sustainable development, economic growth, and poverty reduction remain paramount issues. This is also acknowledged by the G-8’s recent Heiligendamm communiqué. These actions represent an important start, but it is clear that much needs to be done.

Energy Efficiency

18. By reducing the amount of primary energy resources needed to deliver a given amount of modern energy service, energy efficiency helps to mitigate global and local environmental impacts of fossil fuels. Energy-efficiency measures are often the lowest-cost options available for a country to mitigate the impacts of climate change. Energy efficiency is also attractive, as it increases economic competitiveness and alleviates the vulnerability to disruptions in energy markets.

19. The EBRD has been recognized by other MDBs as a leader in promoting and financing energy efficiency, and this is a key strategic orientation of the bank’s new Capital Resources Review (five-year strategy for 2006–2010) and Energy Operations Policy. The EBRD’s SEI proposes to more than double the investment in energy efficiency and cleaner energy across its region of operations. The EBRD will seek to invest up to €1.5 billion in the context of the SEI over 2006–2008, catalyzing total investment of around €5 billion. Together with the development of the SEI, the EBRD has taken a number of steps to fully mainstream its energy-efficiency activities across its sector and geographic teams. This has included using the corporate planning function to fully integrate its energy-efficiency priorities into its line operations. In this connection the investment pipeline is systematically screened so as to identify energy-efficiency opportunities early in the project cycle.

20. The specific components of the EBRD’s SEI have been defined based on a sector assessment of greenhouse gas emissions in the region, of reduction potential, of the extent and complexity of barriers to increased investment for emissions reduction, and of the level of bank experience and operational capacity. Based on this assessment, the SEI aims to accelerate the pace of direct investment in energy-efficiency projects across industrial sectors. The SEI supports the expanded reach of the bank’s energy audit program for large-energy users in the countries of operations and implementation support in the form of energy management training to (a) ensure that sustained energy-efficiency gains are achieved, and (b) expand the development and implementation of sustainable energy financing facilities to small and medium-sized enterprises and to the residential

sector across its countries of operations. The SEI supports market studies to identify specific energy-efficiency requirements in each target country, the development of skills in local banks to assess energy efficiency projects, and achievement of energy-efficiency savings and small renewable-energy investments.

21. Energy efficiency has been an important consideration in the EIB's lending since the 1970s oil shocks, though it has gained more prominence, given the alignment with the EU policy objective of achieving 20 percent reduction in energy consumption by 2020. Energy efficiency is mainstreamed into the EIB's decision-making, and most of the EIB's projects result in an improvement in energy efficiency due to the simple fact that they usually incorporate the most modern technologies. However, the EIB only seeks to justify a loan on "energy efficiency" grounds when there is significant (at least 20 percent reduction in energy consumption compared to the situation before the project was implemented. For projects with such significant EE contribution, the EIB can now finance up to 75 percent of total cost. Dedicated EE credit lines and financing partnerships are also being developed, including grouped investments in buildings and small and medium enterprises (SMEs). Technical assistance will be involved, for example, for energy audits, when funds are available. Lending to CHP and district heating will be expanded, especially in the new Member States.

22. The ADB has established a comprehensive CE&EP to assist its DMCs to achieve significant, measurable change in their energy-use patterns and secure a sustainable, low-carbon energy future. A pivotal component of the CE&EP is the energy efficiency initiative that was launched in July 2005 and targets to expand the ADB's operations in clean energy to US\$1 billion per year.

23. The EEI is being implemented in three phases. Phase I, the initiation phase, was completed in June 2006 with endorsement by ADB management of the draft EEI report, which firmly establishes the rationale for expanded and sustained ADB action and energy efficiency-related investment, defines the general principles of the energy efficiency investment and action plan, and provides priorities and a framework for next steps. The ADB has identified the People's Republic of China, India, Indonesia, Pakistan, the Philippines, and Viet Nam as priority DMCs, with the potential to make greatest impact toward reducing CO₂ emissions in Asia and the Pacific. Under Phase II, which is ongoing, the ADB has been conducting consultative meetings in these countries to learn firsthand from clean energy-market stakeholders the barriers, catalyzing conditions, and immediate investment opportunities prevailing in each DMC market as a prerequisite step to local clean-energy project pipeline development. In some of these DMCs, ADB is providing assistance in the formulation of a broader strategic framework for external assistance or new legislation intended to accelerate the implementation of new EE and other clean energy projects. ADB has made available US\$2.9 million to deliver the following outputs from October 2006 to December 2008: (a) country action plans and project pipelines for clean energy investments in DMCs, (b) design and establishment of Clean Energy Financing Partnership Facility (CEFPF), and (c) development of the necessary management structure and capacity building in ADB to scale-up as well as monitor and evaluate activities implemented under EEI. Work undertaken thus far under

the EEI has already led to increase in the ADB's investments in clean energy. As an example, between 2003 and 2006, the ADB's total investments on energy-efficiency projects totaled almost US\$685 million and the pipeline for energy-efficiency projects for 2007–2009 is almost US\$1.5 billion. The ADB established the CEFPP in April 2007. It is designed to finance (a) smaller EE investments that require quick and efficient transactions; (b) technology-transfer costs of clean technologies for a small number of high demonstration impact, large interventions that will catalyze deployment of clean energy technologies; and (c) grant assistance for activities such as developing the knowledge base and incentive mechanisms, advocacy, institutional capacity building, project preparation, and establishment of the monitoring and evaluation mechanisms. The strategies and action plans will be implemented in Phase III (2008–2010).

24. The WBG has been active in promoting energy efficiency since the early 1990s. Following the publication of the World Bank policy paper “Energy Efficiency and Conservation in the Developing World,” energy efficiency issues were mainstreamed into country policy dialogue and World Bank financial instruments were deployed in support of energy-efficiency interventions along the entire energy supply chain. For the past 16 years, the WBG has been engaged in promoting energy efficiency, having financed investments totaling US\$2.2 billion for over 100 projects in more than 40 countries. The projects span all regions, with a significant concentration in Europe and Central Asia, and East Asia and Pacific, and in a few sectors, in particular the delivery of district heating and electric power services. In FY2006, the WBG committed US\$490 million for energy-efficiency projects that addressed the full range of end-use and supply-side opportunities and were also designed to help remove institutional, regulatory, financial, and technical barriers.

25. The WBG's commitment to energy efficiency has been further reinforced through the key role it is playing in leading the global cooperative efforts to reduce GHG emissions through the Clean Energy Investment Framework. In this regard, an Energy Efficiency for Sustainable Development (EEfSD) action plan is being prepared by the Bank, designed to scale up the World Bank's energy-efficiency operations in client countries. These interventions are structured along four tracks to permit countries to take advantage of energy-efficiency opportunities in priority sectors: Track 1–Integrating Energy Efficiency within Economic and Sector Work, Track 2–Mainstreaming Energy Efficiency in Investment Operations, Track 3–Improving Internal Operational, Learning and Analytic Capacity, and Track 4–Monitoring, Evaluation, and Outreach.

26. The EEfSD strategy comprises interventions at three levels: (a) policy and regulatory, (b) sector and subsector and (c) end-use equipment and appliances. The emphasis is on scaling up on the demand side, in addition to continuing the work on supply-side efficiency improvements. Lighting Africa, a WBG program developed to increase access to modern lighting services in SSA, recently received the necessary funding for full mobilization. Its goal is catalytic: to mobilize the private sector to reach 250 million “energy-poor” customers by 2030 with low-cost, reliable, affordable lighting services in support of achieving the MDGs. The program is designed to facilitate the entry of efficient lighting programs as a WBG lending product, starting in FY08.

27. The IFC has successfully pioneered clean-energy financing through financial intermediaries with GEF and other donor support for more than a decade. Projects in Eastern Europe, Russia, China, and (soon) the Philippines rely on a combination of technical assistance and partial risk guarantees to engage local banks in clean-energy lending. This approach is being internalized by IFC's Financial Markets Group, which has set a target of US\$500 million in annual commitments for such projects by 2009. IFC's performance standards require identification, quantification, and reporting of projects resulting in GHG emissions of 100,000 tons CO₂ per year (directly or indirectly through electricity consumption).

28. The IDB is working to mainstream energy efficiency in IDB projects. Each new project is assessed for its energy-efficiency potential. Where feasible, the IDB is offering an integrated energy efficiency program, which includes an audit as well as support for investment in efficiency measures, maintenance, and training. Such audits have been completed for projects in the water sector, various industrial sectors, and thermal power plants. The bank is also providing country-level assistance in assessing energy-efficiency opportunities in key sectors. The IDB is financing energy efficiency in water-pumping systems in El Salvador, and efficiency improvements in lighting in the residential, service, and commercial sectors in Central America and Chile. It is collaborating with commercial banks and energy-services companies on cofinancing energy efficiency in public buildings in major cities in Latin America. The IDB also is providing assistance to countries in reviewing regulatory, institutional, and financial frameworks for energy efficiency in order to create a proper environment for investments, as well as financing pilot projects for the application of emerging energy-efficiency technologies. In addition, it is working together with the World Bank and the International Energy Agency in developing energy-efficiency indicators in Brazil and Mexico in order to provide important baseline information on energy consumption and efficiency. Finally, the IDB in the past year has financed a number of projects to develop innovative business models for energy-efficiency services.

29. As part of the proposed Clean Energy Access and Climate Adaptation Fund for Africa (CEACAFA) program, the AfDB will progressively look at energy efficiency issues related to generation and distribution of electricity, particularly as part of its ongoing support to the regional power pools. AfDB will support clean-stove technologies, capacity-building for energy-efficiency audits and appliance-standards regulations, as well as assist in the preparation of energy-efficiency projects (e.g., energy-efficient lighting). In particular, the CEACAFA will be focused on policy and regulatory issues relating to supply-side energy efficiency and demand management. The AfDB, in collaboration with the World Bank and bilateral agencies, will provide financing and technical assistance to African governments and local authorities to strengthen the efficiency aspects of energy policy and regulatory frameworks and implementation capacities. On the energy supply side, support (financing, advisory services, technical assistance, capacity building) will be provided to energy and power utilities to undertake energy-efficiency audits and devise and implement strategies to enhance technical efficiency at the generation, transportation, storage, and local distribution stages of

electricity and fuel supplies. Particular attention will be paid to enhancing the efficient functioning of regional power pools, energy markets, and fuel supply systems.

30. On the demand side, the AfDB will promote the levying and collection of adequate user fees by utilities (including sound subsidies for poor segments of the population) as a key instrument in promoting energy efficiency and conservation. Support will be given to government efforts to set and monitor energy efficiency, safety, and health standards for appliances used in domestic and micro- to small business establishments (including agro-industry and light manufacturing). Under the AfDB's higher education, science, and technology strategy (HEST), support will be provided for strengthening vocational training programs to generate skilled labour for proper maintenance of mechanical appliances. The Bank will support government programmes and efforts of nongovernmental organizations (NGOs) to introduce more efficient and cleaner (smokeless) wood, charcoal, and coal cook-stoves in the rural areas where households continue to rely on these sources of energy for food preparation. Also, as a demand-side efficiency measure, the Bank will finance government programs to phase out incandescent bulbs and replace them with low-energy compact fluorescent lights, and will consider extending financing on commercial terms to private enterprises keen on building production and distribution capacity for such bulbs in African countries.

Renewable Energy

31. A broad range of proven renewable energy technologies are now available of which a few have reached commercially viability and have significant potential to improve energy access in the developing countries. Bringing these small-scale technologies online in full market volumes therefore is a key priority for the MDBs. These interventions include investment support and steps to tackle a variety of policy issues designed to eliminate biases against renewables—e.g., fossil fuel subsidies and inequitable access to transmission grids. They also increasingly include more proactive support for renewables, such as promoting regulatory and policy regimes that actively encourage renewables, capacity building, identifying local renewable resources, technology adaptation, and knowledge transfer.

32. The World Bank has played an active role in promoting renewable energy since 1990, providing US\$ 7.2 billion in financing (US\$2.7 billion excluding hydropower >10 MW). In 2004, the Bank committed to increasing its lending by 20 percent each year till 2009. The Bank's renewable-energy projects are spread around the world, with a significant focus in Asia, Africa, and Latin America. The WBG's work on renewable energy is pursuing a two-pronged approach targeting: on one hand, the supply of energy in the short to medium run, and on the other hand, providing assistance to developing policy and building capacities for scale-up of renewable energy use. In FY07, the total lending for new renewable energy projects was US\$421 million. Investments, policy support and training, capacity building, and knowledge dissemination are key activities to increase the use of renewable energy. Economic Sector Work (ESW) and Analytic Advisory Services (AAAs) are under way, with the support of the Energy Sector Management Assistance Program (ESMAP) to strengthen the policy and institutional

frameworks for developing long-term energy development plans, including formulating laws and regulations for encouraging greater use of renewable energy. Hydropower investments will include rehabilitation of existing plants, small run-of-river plants, and multipurpose hydropower plants with reservoirs. These types of projects can demonstrate the significant impact that partnerships between the WBG, government, and the private sector can make in this effort. Box 1 below showcases three private sector-oriented WPG projects based on conventional as well as new renewable energy sources.

Box 1: World Bank Group Support for Private-Sector Participation in Renewable Energy Projects

The WBG has a range of instruments to support private-sector participation in renewable energy projects: IFC lending and investment products for the private sector, GEF, and carbon financing, as well as Bank guarantee instruments for both debt and equity. The following are three examples of such interventions:

The Nam Theun 2 Project in Laos is designed to supply 1,070 MW of renewable energy electricity to both Thailand (995 MW) and Laos (75 MW). The project is sponsored by Electricite de France, the Italian-Thai Development Public Company Limited and Electricity Generating Public Company of Thailand. The total project cost is estimated to be US\$1.45 billion, including contingencies, with US\$450 million of equity financing and US\$1 billion of debt. The international dollar lenders to the project indicated that without adequate political risk mitigation, they would not be able to support the international lending package. The WBG and ADB cooperated in providing the multilateral guarantees and modest direct lending needed to bridge the financing gap.

In partnership with GEF and donor countries, the IFC is helping local financial institutions fund RE and EE projects in Eastern and Central Europe, Russia, and China as part of its response to climate change. The IFC program provides a variety of services and financial resources to local banks and companies that invest in new technologies. The program consists of: advisory services to banks and borrowers on RE and EE projects; lines of credit and IFC/GEF partial guarantees for local banks and leasing companies; facilitating partnerships between local banks and project developers; standardized transactions for banks and developers. As of June 2006, a US\$70 million portfolio of RE and EE projects has been funded, including small scale hydropower, building retrofits to improve their energy efficiency, biomass-fired boilers, and energy efficiency in schools.

The US\$108 million in IDA credits to the Indian Renewable Energy Development Agency (IREDA) for renewable energy financing and institutional development support leveraged nearly US\$200 million in cofinancing from the private sector. The IREDA project contributed to increasing renewable energy share of power generation capacity in India from about 0.1 percent of total generation capacity in 1992 at project initiation to 3 percent by March 2001 at project end.

With additional parallel financing from developers and other commercial financial institutions, nearly 3,000 MW of wind, small hydro, biomass, and solar photovoltaic power systems were in operation by March 2001, compared to about 100 MW in 1992. By the end of the project IREDA had committed financing of Rs 47 billion to nearly 1,500 projects accounting for 1,720 MW. Subsequently the Bank approved a follow-up project, the Second Renewable Resources Development Project that provides IREDA with financing from an IDA credit and IBRD loan of US\$130 million to support small hydro and energy efficiency investments that leveraged an additional US\$170 million from other sources. With additional parallel financing from the private sector, as of March 2006 IREDA had approved 1,783 renewable-energy and energy-efficiency projects, and committed Re 74.5 billion in loans (about US\$1.5 billion) to support clean energy capacity of 2,707 MW that annually displaces 1.3 million tons of coal equivalent.

33. Reflecting Europe's early commitment to renewable energy and European leadership in much of the RE market, the EIB has been actively engaged in financing renewables for over a decade, both inside and outside the EU. The EIB has nonetheless stepped up its involvement in financing renewable-energy projects following recent EU policy initiatives. RE investments within the EU are often driven by strongly supportive national policy frameworks, sometimes entailing financial subsidies (e.g., grants and/or regulations such as guaranteed off-take prices). In 2005–2006 the EIB's lending for renewables was around €500 million annually, the majority of this within the EU. Outside the EU the largest lending area for renewables was the ACP group of countries. In the framework of its 2007/10 Corporate Operational Policy, the EIB has established challenging targets for its support for renewable-energy, and is committed to annual lending of not less than €600-€800 million for renewable energy projects. This represents a major step up of the Bank's renewables lending activity; an increase of some 60 percent over recent years. In the first six months of 2007, however, the EIB signed renewable energy loans in excess of €900 million, of which €700 million was in the EU, and mobilised total investment of some €4,000 million (that is, a multiplier of 4x). A further target is that 50 percent of its lending to electricity generation will be to finance RE technologies. This has been supported by the adoption of more selective criteria for the financing of coal-fired plants and encouraging state-of-the-art technology such as carbon capture and storage.

34. New funding instruments are being developed by the EIB to address market needs for project finance for small, onshore wind farms and, increasingly, large-scale, offshore farms. The EIB has also initiated a programme of investments in privately managed investment funds as a means to provide equity funding to the renewables sector (principally wind, biomass, and solar generation, as well as biodiesel production). The first transaction under the initiative (a €25 million investment in a Spanish fund as the cornerstone investor) has been closed and others will follow in the remainder of 2007. Further transactions, with a broader geographic focus, are being actively developed by the EIB in partnership with the private sector.

35. One of the key objectives of the EBRD's SEI is to promote, support, and invest in the development of renewable energy capacity in the region of operations. The SEI supports legal assistance to establish the basic regulatory framework for renewable energy, technical assistance for renewable energy project scoping and environmental impact assessment, an updated technical assessment of renewable energy potential, and training for local banks and project developers.

36. As part of its renewed effort under SECCI, the IDB is working with countries in the Latin America and the Caribbean (LAC) region to develop strategies for low-carbon energy sources, including assessment of renewable energy potential and appropriate policy frameworks and incentives, as well as financing investments in renewable energy such as hydropower, geothermal, wind energy, rural electrification, and biofuels. A landmark study on the state of biofuel development in LAC, "A Blueprint for Green Energy in the Americas," was produced to help establish an informed approach to the development of biofuels potential, taking into account opportunities for meeting needs for

energy and rural development, as well as related social and environmental concerns. The IDB is working with several countries, including Chile, Peru, Brazil, Colombia, Costa Rica, Honduras, Guatemala, Panama, El Salvador, Paraguay, and Guyana, in developing regulatory frameworks to create better scaling-up conditions and to attract private-sector investment in these areas. The IDB is also, in collaboration with the World Bank, developing a renewable energy toolkit as an operational guide and sourcebook specifically targeted to LAC. The purpose of the toolkit is to promote the development of RE projects and investments and broaden the portfolio in renewable energy.

37. Since 2004, the AfDB has been implementing the FINESSEⁱ Africa programme, a Dutch government-funded initiative that seeks to increase financing of renewable energy and energy efficiency projects by the Bank, through building requisite capacity within the Bank and in the Regional Member Countries (RMCs), updating the bank's existing Energy Sector policy, and assisting operations departments in identifying and developing RE and EE projects and project components. The FINESSE program has already resulted in a number of Board-approved projects that feature a renewable energy component, such as a rural water supply using solar water pumps in Madagascar, and solar photo voltaic (PV) for schools and boarding facilities in Uganda, as well as inclusion of a renewable-energy component (solar PV, hydropower, and grid extension) in an agricultural infrastructure improvement program, also in Uganda.

38. As part of the FINESSE program, an Africa-wide assessment has been made of the status of renewable energy and energy efficiency, with a focus on needed activities to accelerate investment in these areas. This study also proposes priorities for renewable energy technologies for different regions. The current FINESSE program is reaching the end of its current implementation period. As a follow-up to FINESSE the AfDB is currently developing a broader program on clean energy access and climate adaptation (to be financed through the planned CEACAFA. This new initiative will be funded through an initial contribution by the Dutch government and opened to additional funds from other donors. The program is currently in the early stages of development, but is intended to support both public- and private-sector projects in cleaner use of fossil fuels, renewable energy, energy efficiency, carbon financing, and increasing access to energy, as well as promoting climate change and climate adaptation activities.

39. At the moment the AfDB has generated a substantial pipeline and portfolio of renewable energy projects, partly as ongoing investments, partly due to assistance from FINESSE and support from Danish International Development Agency (DANIDA) technical assistance. Next to a portfolio of approximately US\$950 million, a pipeline has been developed including 921 MW wind-energy projects, 283 MW of small hydropower, 410 MW of cogeneration, 480 MW geothermal and over 150,000 kl/year of biodiesel projects. At the same time, in collaboration with the United Nations Environment Programme (UNEP), two important projects: (a) development of cogeneration in seven countries (Ethiopia, Kenya, Malawi, Sudan, Swaziland, Tanzania, and Uganda), and (b) development of small and medium-size hydropower in eight countries (Kenya, Tanzania, Uganda, Zambia, Mozambique, Malawi, Rwanda, and Burundi) are about to be launched.

40. The ADB is assisting its DMCs to increase the share of renewable energy projects in the energy mix and increase access to electricity and other modern forms of energy following low-carbon path. The ADB made an investment of US\$204 million in 2003–2006 in renewable energy and the pipeline of renewable energy projects for 2007–2009 is almost US\$1.1 billion. The ADB brought together several trust funds provided by the governments of Canada, Denmark, Finland, and the Netherlands to establish the Renewable Energy, Energy Efficiency and Climate Change (REACH) program. It assisted DMC in addressing policy, market, financial, and structural barriers against renewable energy and energy efficiency, and developing institutional capacity and technical capability of governments and local institutions.

Decreasing Carbon Emissions from Power Plants and Oil and Gas Facilities

41. In order to focus their mitigation efforts, the MDBs are also pursuing investment and analytical support designed to decrease emissions from thermal energy sources. A number of interventions are being pursued, including thermal power plant rehabilitation, transmission and distribution network efficiency improvements, upgrading of efficiency of new thermal power plants, early retirement and replacement of inefficient plants with state-of-the-art facilities, support for carbon capture and storage, gas flaring reduction, and methane release reduction.

42. At the World Bank, specific projects are already under preparation for thermal power plant upgrades in India and China. The EIB also has an active portfolio of power plant upgrades and, as noted earlier, has recently adopted a more stringent set of criteria concerning its financing of thermal plants generally, including upgrades and life extensions.

43. The ADB is currently developing a new energy strategy. This strategy will encourage DMCs to adopt available, cleaner thermal-power technologies. In this connection, the ADB will assist DMCs in collaborating with developed countries for transfer of new and better technologies that can move from the development stage to deployment stage.

44. The EBRD's SEI supports in particular studies to recommend rehabilitation and refurbishment or fuel-switching strategies at large thermal power plants, to evaluate the potential of "clean coal technologies" for EBRD countries of operations, and to review opportunities for, and barriers to, projects that reduce gas flaring. The EBRD is already implementing power plant rehabilitation projects such as the one described below in Box 2. Given the high level of energy consumption of the large district heating networks in the cities of its countries of operations, the EBRD has also placed a particular emphasis in the context of the SEI to increase the energy efficiency of district heating operations. EIB is also expanding lending to CHP and district heating, especially in the new Member States.

Box 2. Azadres Power Project in Azerbaijan (2006)

The EBRD provided a US\$115 million sovereign guaranteed loan to fund the rehabilitation of Azerbaijan's largest thermal power plant, with 2,640 MW nameplate capacity. The project will restore plant efficiency, availability, and capacity with an extensive refurbishment of seven out of eight units onsite, together with the repair and modernization of the flue gas chimney and cooling water tunnel. The plant, based in Mingechaur, provides over 40 percent of Azeri generation capacity but operates significantly below technical capacity, due to growing inefficiencies. The project could save over 8 million tonnes of CO₂ per annum and is seeking qualification under the clean development mechanism. In conjunction with the loan, the EBRD has sourced technical assistance to support regulatory reform in the power sector.

45. The EU considers carbon dioxide capture and storage (CCS) an important option in a broad portfolio of measures to reduce CO₂ emissions. It is driving forward an initiative to accelerate the development and earliest possible adoption of CCS, working closely with the energy industry and potential technology partners, primarily through the Zero Emissions Technology Platform (ZETP), a vehicle to encourage cooperation and information sharing. The primary aims are to demonstrate the viability of those technologies, or combinations of technologies, where this is still required, to derive some initial experience with the real costs of these technologies, and to develop some regulatory and financial models for CCS. At the heart of this initiative are plans for a flagship programme of perhaps 12 industrial-scale, sustainable fossil fuel-fired power plants (including carbon capture facilities), with the associated carbon transport and storage infrastructure to be commissioned by 2015. It is intended that China and/or India should host at least one such flagship plant. The EIB is working with the European Commission and the ZETP, with particular regard to the development of appropriate financial support mechanisms for the flagship program. Given total costs, which could be on the order of US\$10 billion, there will inevitably be significant recourse to market-based financial mechanisms.

46. The World Bank's Global Gas Flaring Reduction program (GGFR) Phase II 2007–09 focuses on high-impact flaring countries and regions such as Russia, the Middle East, and the Gulf of Guinea. Gas flaring reduction projects under preparation include the Danilovsk gas-to-power JI project in Russia and the AFAM gas-to-power project in Nigeria. The Medco Kaji gas-to-LPG demonstration project in Indonesia is undergoing validation. Brazil's Petrobras, in collaboration with GGFR, agreed to explore gas flaring reduction opportunities.

47. The Clean Energy and Development Investment Framework of the AfDB emphasizes on increased use of gas for power production and clean coal power generation. Good examples of opportunities to increase use of gas in power production are the West African Gas Pipeline project and the Nigeria Liquefied Natural Gas (NLNG) projects cofinanced by the World Bank. The latter enables gas produced as a byproduct of Nigerian oil production to be exported to Ghana, Togo, and Benin.

48. There appear to be significant opportunities for the MDBs to further leverage their collective efforts on thermal power and to help their clients achieve significant GHG reductions per megawatt. Thermal plants, particularly those using coal, will remain the

principal source of power in countries such as India and China for the foreseeable future. The MDBs are therefore committed to remain focused on these issues.

Methane Capture

48. Methane capture as part of solid waste management programs offers one of the most financially attractive climate-change mitigation options. Methane capture option has the potential to be rapidly mainstreamed in the urban strategies for developing countries as shown in Box 3.

49. MDBs have initiated programs to provide analytic support for landfill methane capture programs. For example, the World Bank ESMAP program is supporting a two-phased land fill gas initiative in its Latin American and Caribbean Region (LCR). The first phase aims to assist LCR client countries to better understand the best-practice business models and institutional arrangements for development of nonconventional energy sources at large city landfills in the LCR region by means of LFG recovery and utilization systems. This would be accomplished through documentation and dissemination of best practices and sound technical guidance. Discussions with the task teams of the two LCR pilot LFG-to-energy projects, which still have to be implemented, indicate that there is a lack of already-compiled, easily accessible knowledge about this subject. The second phase aims to identify potential new projects that could form the basis of a regional Bank program and carry out pre-investment work at each site. The EIB is focusing on similar landfill as well as wastewater treatment investments, particularly in the Southern Mediterranean region.

Box 3. Tunisia Municipal Solid Waste Management

This US\$27 million IBRD-financed project assists the Tunisian government in developing the key elements of environmentally and financially sustainable municipal solid waste management. The project includes assistance to improved solid waste management at the national and local levels and rehabilitation of environmentally harmful dumpsites into modern landfills with biogas collection and utilization capacity. These actions will enable the Tunisian government to access additional revenue through the CDM, thus improving cost recovery for the Solid Waste Management (SWM) sector. Institutional support and capacity building will support the establishment of national coordination of the SWM sector plus a decentralized municipal solid waste management system at the regional and inter-municipal level focused on introducing modern SWM management as well as measures to achieve cost optimization and cost recovery.

The project will finance construction of a fifth cell in the Djebel Chekir landfill (the largest landfill in Tunisia) including the construction and operation of a biogas management system, and nine new landfills designed along the principles of sustainable management of municipal solid waste in Bizerte, Nabeul, Sousse, Monastir, Kairouan, Sfax, Gabes, Jerba, and Medinine.

Project outcomes include institutional strengthening of the sector, policy instruments for sustainable waste management, introduction of a national cost recovery system, outreach and communication to change citizens' behaviors, and incremental revenue generation from reductions in greenhouse gas emissions.

49. The IDB has developed a series of assessments of opportunities for landfill gas capture and energy generation potential, including an evaluation of waste disposal

systems and landfill conditions in Central America, and initial assessments of carbon potential in specific landfill sites in the region. As a result of these assessments, the Bank is now assisting countries in the preparation of methane capture projects for financing under the CDM. The Bank also commissioned an economic assessment of methane capture and its use for energy generation, taking a wide sample of landfills across the region. This information was used as input for the development of a screening tool that is helping project sponsors in the region and project teams in the Bank carry out preliminary assessments of carbon potential in landfills. The IDB is also engaging resources in developing landfill-gas-to-energy projects with CDM components for a number of cities in Latin America.

50. The ADB has also supported several coalmine methane extraction and utilization projects in China. One of them is the Fuxin Coalmine Methane Utilization Project in Liaoning Province. It has improved safety conditions in the community and supplies methane to residents and nearby industries. It was seen as a viable carbon investment opportunity and through the ADB's credit marketing facility, attracted strong interest from buyers. The ADB has also supported numerous landfill gas projects, as well as methane capture and utilization projects in agricultural waste. The ADB and the World Bank are active members of the Methane to Markets Partnership promoted by the U.S. Environmental Protection Agency.

Reducing Carbon Emissions in Transport

51. Estimates indicate that the transport sector contributes about 14 percent of global emissions, making this a key sector for climate-change interventions. In 2002 the transport sector accounted for 21 percent of worldwide energy consumption and is projected to generate over 60 percent of the increase in total energy use through 2025. The strong connection between economic growth and transport-generated greenhouse gases can be moderated over time by changes in travel behavior, logistics decisions, technology choices, and transport modes. These factors can, in turn, be influenced by planning, fiscal, and regulatory measures, as well as through public investments in infrastructure. The MDBs are currently reviewing their transport strategies and programs with a view to making them more climate friendly.

52. One of the pillars of the ADB Clean Energy and Environment Program (CE&EP) is the Sustainable Transport Initiative (STI), which will develop a coherent development framework to deliver modalities for effective and efficient transport systems. The transport sector is currently the largest contributor to greenhouse gases in Asia and is the fastest-growing sector in terms of contributions. In 2006, the ADB undertook analytical work that will lead to the formulation of a policy framework to guide investments and address energy efficiency and climate change in the transport sector in Asia. The study report, "Energy Efficiency and Climate Change Considerations for On-road Transport," represents one of the first comprehensive efforts to analyze the relationship between the transport sector and climate change in Asia over the next 25 years. The results of the analysis make it clear that even the most optimistic scenarios, which incorporate all expected technological improvements, will lead to a tripling of CO₂ emissions over this

period. The study concludes that a paradigm shift, resulting in a new Asian consensus on economic development mobility, will be required to guide policy making and investment decisions in urban development and transport. To accomplish the vision, the study recommends a number of policy interventions to improve energy efficiency in transport (Box 4).

Box 4: . Principal Policy Interventions to Reduce GHG Emissions

- Integrate urban reform, land use planning, and transport planning
- Adopt integrated transportation systems to promote energy-efficient modes of transport
- Improve vehicle engines and fuel technology
- Use fiscal measures to influence travel behavior patterns

53. As part of the STI, the ADB is currently implementing a regional technical assistance program which will develop (a) a strategic development framework for sustainable urban transport, (b) a set of effective investment programs to support efficient urban transport systems, and (c) a set of innovative financing options. The work will also identify specific investment programs in the ADB’s project pipeline and ensure the enabling environment is conducive to successful implementation. Project selection for review under the Sustainable Urban Transport project incorporates climate-change implications of mobility and includes integrated public-transport systems, BRT, urban metro, bus-route franchise optimization, traffic management and rail-based freight terminals. Parallel work within the ADB is examining revised methodologies to enhance investment decisions to fully incorporate climate-change impacts in the project evaluation process.

54. Phase II and Phase III regional technical assistances under the STI will be implemented during 2008-2010 and have an increased focus on energy efficiency in transport to help identify and implement needed policy updates and relevant institutional capacity building, while assisting with the financial structures of transport infrastructure and public transport systems.

55. In late 2005 the ADB initiated preparation of a study entitled, “A Roadmap for Cleaner Fuels and Vehicles in Asia,” which assessed links between fuel quality and air emissions. The report will be published in 2007, and the key findings are expected to include the need for attention to integrating fuel quality and vehicle emissions standard, regulating fuel quality specifications, updating fuel refining in Asia for the introduction of cleaner fuels, and fiscal measures to ensure uptake of cleaner fuels.

Box 5: Sustainable Urban Mobility in Asia (SUMA)

The Sustainable Urban Mobility in Asia (SUMA) program focuses on improving urban air quality, improving road safety, and reducing transport's contribution to climate change. This will be accomplished primarily through assistance to Asian countries and cities in strengthening the formulation and implementation of sustainable transport policies and projects.

The SUMA program, funded by the Swedish International Development Cooperation Authority (SIDA), is being implemented by the ADB through the Clean Air Initiative for Asian Cities (CAI-Asia) and in partnership with other leading international organizations promoting sustainable urban transport. Activities being undertaken in SUMA include (a) a study on motorized two- and three-wheelers in Asia and how these modes can be better integrated in the urban traffic systems; (b) assisting the city of Ahmedabad, India, to develop a BRT operations and business plan; (c) how cycling and NMT can be integrated into urban and transportation planning of cities; (d) a capacity building program to develop future trainers on a range of topics such as mass rapid transit options, nonmotorized transportation planning, transportation demand management, and financing sustainable urban transport; (e) develop a national framework and action plan for the Philippines on environmentally sustainable transportation; (f) environmental impacts of electric bikes in China; and (g) the development of social impact assessment guidelines that can be used for urban transportation projects.

56. The ADB has been continuously involved in the integration of air-quality management and sustainable transport into the economic and social strategies, policies, programs, and projects of its DMCs. CAI-Asia, established in 2001 with support from the ADB, has taken the sustainable urban-transport agenda forward with the Partnership for Sustainable Urban Transport in Asia (PSUTA) program and SUMA program (see Box 5). The PSUTA project undertook case studies to examine transport impacts on pollution, congestion, and safety in Hanoi, Pune, and Xian.

57. The World Bank is currently finalizing an update of its transport infrastructure strategy, originally approved in 2002, with a view to reducing the sector's contribution to climate change. Interventions will include (a) restraining transport energy consumption, (b) assessing and controlling transport emissions, (c) promoting shifts to low carbon modes, and (d) establishing guidelines for environmentally effective transport planning and decision-making. Several new projects designed to reduce CO₂ emissions in transport have been initiated, for example, the KSRTC Bus Biofuel and Maintenance Program for India will support engine tuning and tire replacement, replacements of water induction kits, and the introduction of biofuels. The Trans Santiago Urban Transport Modernization Plan will support the introduction of low-emission busses—compressed natural gas (CNG), hybrid, or electric engine technologies; a clean-energy component designed to improve the efficiency of onboard engines is a central element of an inland waterway project in Bangladesh.

58. The EBRD is developing investment opportunities to reduce municipal infrastructure emissions with a particular focus on urban transport. The SEI supports feasibility studies and institutional strengthening (with special attention to tariff reform and measures to improve affordability), and assistance to develop Land-Use-Mobility policies and/or Sustainable Transport Strategies in various cities of the region. There is a

major opportunity to build upon the significant public transport networks existing in most Eastern European cities to reduce the carbon emissions related to urban transportation.

59. The AfDB will focus on transport systems improvement, including the selective support of Mass Rapid Transport (MRT) investments, including low-emission bus rapid transit networks and high-speed electric-powered light rail networks, especially in mega cities such as Addis Ababa, Cairo, Johannesburg, Lagos, Kinshasa, and Nairobi. Mass transit combined with adequate road pricing and nonmotorized, transport-friendly urban planning will reduce traffic congestion and contribute to more effective vehicle and traffic maintenance and policing.

60. The IDB has been expanding its support of BRT systems, with over 10 operations in nine countries. The bank is preparing an additional eight BRT operations. The bank has engaged resources for the assessment of carbon reduction potential and CDM opportunities in urban transport. The IDB has also financing efforts to address key methodological challenges in building up CDM projects in urban transport (focusing on baseline development and additionality), and is now identifying carbon finance opportunities in urban transport projects in a number of mid-size cities in LAC.

Reducing Emissions through Reforestation and Avoided Deforestation

61. Reduced emissions from REDD are particularly important opportunities for mitigating greenhouse gases in developing countries. Emissions from deforestation and land-use changes are estimated to account for more than a third of total emissions each year from developing countries. Using carbon markets to provide long-term incentives for curbing deforestation is widely cited as an attractive option. Progress on reducing deforestation will have both mitigation and adaptive value for developing countries.

62. The World Bank's BioCarbon Fund was set up in 2004 to deliver cost-effective emission reductions through carbon sequestration, while promoting biodiversity conservation and poverty alleviation. The fund is composed of two tranches: Tranche 1 started operations in May 2004, has a total capital of US\$53.8 million, and is closed to further participation. Tranche 2 became operational in March 2007. Tranches 1 and 2 are mainly supporting afforestation and reforestation projects eligible under the Kyoto Protocol; however, they also support pilot projects that avoid deforestation, currently **not** Kyoto compliant.

63. In the area of avoided deforestation, the World Bank has been working closely with donor and developing countries, international organizations, and the private sector to design the Forest Carbon Partnership Facility (FCPF). The FCPF aims to assist IDA and IBRD member countries in their efforts to reduce emissions from REDD. It will work to develop new mechanisms (both market and non-market) for countries to avoid deforestation and degradation, which are not currently addressed through the carbon market. The FCPF will provide significant resources for capacity-building and technical assistance, as well as a fund for piloting incentives and the purchase of carbon assets. As of the end of September 2007, the FCPF has been approved by the World Bank Board

and about 20 developing countries have expressed their interest in participating. A number of existing programs are also providing support to REDD activities, such as PROFORⁱⁱ and FLEG.ⁱⁱⁱ In addition, regional programs such as the Pilot Program/G-7 in Brazil are intended to develop capacity for successful implementation of any program that would compensate developing countries for reducing emissions from deforestation.

64. Under Tranche 2 of the BioCarbon Fund, the World Bank has initiated analytical work on how to develop CDM-eligible programs for conserving soil carbon in agricultural areas and rangelands. A pilot operation is being planned to be undertaken in SSA. Agricultural wastes—from crop residues and from liquid and solid waste from livestock and industrial food production—are a significant source of GHG emissions. The Bank is supporting a broad range of projects to utilize such wastes while reducing GHG emissions, such as the use of rice husks and sugar cane bagasse for energy generation. Several related projects were prepared and contracted in FY 07 under the WB-administered carbon funds, including a demonstration in Nepal that carbon finance revenues can completely guarantee finance for biodigesters at a farm level through programs implemented at the national level.

65. In June 2007 the IDB organized a regional workshop on technical and scientific aspects of avoided deforestation relevant to LAC. The purpose was to gather policy makers, scientists, and NGOs from the region to enhance the understanding of the benefits of and opportunities for reducing emissions from deforestation and degradation in LAC. As a follow-up, the Bank is preparing technical assistance for countries to support the development of methodologies and capacity building on a pilot basis that will enable the use of carbon financing for lowering GHG emissions related to avoided or reduced deforestation.

66. The ADB is initiating work on REDD in Southeast Asia under its Greater Mekong Subregion (GMS) Core Environment Program and a planned rainforest conservation activity in Borneo. Under the GMS program, the Biodiversity Corridors Initiative is testing conservation approaches on lands outside of formal protected areas, including options for the use of carbon finance to encourage forest protection and land-use practices to reduce greenhouse gas emissions, provide local livelihoods, and conserve biodiversity. In Borneo, the ADB is working with government agencies and NGOs to develop and implement plans for conservation of remaining upland forests, including the potential application of REDD approaches attracting carbon financing.

67. The EIB has is actively considering possible ways in which it could intervene in this complex sector. It has contributed financially to a small but growing number of forestation and reforestation schemes. It is following the World Bank-led work on a Forest Carbon Partnership Facility, and has initiated, with a group of European private-sector entities, a joint review of the market opportunity for an ecosystems fund.

68. Relative to the importance of land-use change and deforestation for global GHG emissions, the MDBs' efforts in this area are still modest. However, they are committed to raise the priority of this subsector and to develop a set of appropriate interventions.

New Financial Instruments and Methodologies for Carbon Financing

69. All the MDBs have embarked on efforts to catalyze low-carbon investments through the mobilization of funding that can promote innovation and help fund the incremental costs of these projects. These efforts include innovative financial products and support for the further development of the carbon market.
70. The World Bank Group since 2000 has pioneered the carbon market and contributed to its emergence, evolution, and growth by managing a number of carbon funds and facilities, today reaching over US\$2 billion in value. Based on this experience, the WBG continues to facilitate the expansion of the carbon market by continuing to act as trustee for carbon funds and facilities, developing new methodologies, and testing new approaches to structuring and financing carbon asset creation.
71. Two important new facilities have recently been approved by the Board. The first, the Carbon Partnership Facility (CPF), will provide funds for carbon asset development and purchase emission reductions well beyond the current commitment period of the Kyoto Protocol, emphasizing programmatic and sector-based approaches that would deliver significantly larger reductions in GHG emissions and promote lower-carbon development paths in developing and transition economies. The CPF governance structure is aimed at bringing together both the buyers and sellers of carbon assets in a partnership. Furthermore, the new facility is expected to contribute to continuity in the carbon market while international negotiations of a post 2012 regime continue under the UNFCCC and to provide practical experiences that could assist regulators in developing a legal, regulatory, and institutional framework for greenhouse gas mitigation efforts.
72. The second new facility, the Forest Carbon Partnership Facility (FCPF), aims to assist IDA and IBRD member countries in their efforts to reduce emissions from REDD. The FCPF will work to develop mechanisms (both market and nonmarket) to provide incentives to avoid deforestation and degradation, which are not currently addressed through the carbon market. The FCPF will include significant resources through a Readiness Mechanism for capacity-building and technical assistance, as well as a fund for piloting incentives and the purchase of carbon assets. Other innovative approaches the Bank is developing in cooperation with its client countries include green investment schemes in Central and Eastern European countries, which will channel the revenues from emissions trading to further emission-reducing activities and development of mechanisms to improve carbon price discovery through the use, for example, of auctions of emission reduction credits. The IFC is also promoting a new product, the Carbon Delivery Guarantee, to guarantee delivery of carbon credits from projects in developing countries to companies and financial institutions in industrialized countries, thereby enhancing the value for sellers while eliminating project delivery risk for buyers.
73. The EBRD will support the development of the carbon market in the countries of operations, in addition to establishing the Multilateral Carbon Credit Fund (MCCF) in partnership with the EIB. The SEI supports project preparation of complex transactions,

climate workshops in the region, and adoption of approval procedures for projects under the Kyoto Protocol's Joint Implementation and Clean Development Mechanism.

74. The EIB has significantly raised its profile in the carbon sector, with three funds operational as of mid-2007, all in partnership with other MDBs, and each targeting a niche in the market. The first of these is the above-mentioned €165 million MCCF with the EBRD, the second was the €50 million Carbon Fund for Europe (CFE) with the World Bank, and the third was the €100 million EIB/KfW Carbon Programme. In addition, since early 2007 the EIB has brought together a group of European public-sector financial institutions with a view to establishing a €100 million fund that would seek to render carbon credits a more valuable and effective project-finance instrument by exclusively targeting the post-2012 stream of credits from Kyoto-compliant projects. The EIB's Board of Directors has approved its participation, and the other founder participants are expected to have their approvals in place to allow an operational launch by year end.

75. The Carbon Market Initiative (CMI) is one of the ADB's new initiatives under its Clean Energy and Environment Program that supports the development of clean energy, energy efficiency, and other GHG abatement projects in developing countries in Asia and the Pacific that are eligible under the CDM of the Kyoto Protocol. Most of the existing carbon procurement funds provide payment only upon project completion and when the carbon credits are delivered. As a result, many clean-energy projects face a critical upfront financing gap that prevents them from being undertaken in the first place. The ADB proposes to address these barriers through a dedicated comprehensive and integrated CMI. It has three components:

- The Asia Pacific Carbon Fund (APCF), a trust fund of US\$151 million, provides upfront cofinancing for 25–50 percent of future carbon credits from CDM projects in its DMCs.
- The Technical Support Facility provides comprehensive technical support to project sponsors to develop CDM-eligible projects.
- The Credit Marketing Facility provides marketing support services to project sponsors in obtaining optimal prices and sale terms for certified emission reductions (CERs) not purchased by APCF in the open market.

76. The unique combination of ADB-underlying finance, upfront carbon finance, and comprehensive technical assistance aims to boost the number of projects that can contribute to climate change mitigation.

77. The IDB is working with public- and private-sector clients in the region to increase the number of projects eligible for carbon financing and to facilitate access of the LAC region to international carbon markets. In addition to financing the underlying projects, IDB efforts are focused on reducing transaction costs related low carbon projects (carrying out prefeasibility and feasibility studies, supporting the preparation of project documentation related to the CDM project, including development of methodology, and assisting in the marketing of CERs; promoting programmatic and

sector approaches to scale-up the low carbon impacts; and lowering risks for project development and delivery). The IDB also is working with local financial entities to increase domestic and international financial flows and investment in low-carbon projects in the LAC region by setting up lines of credits, providing guarantees to loans granted by local banks, and fostering equity investment in clean-energy funds oriented to identify and develop small and medium low-carbon projects in the region.

78. The AfDB is planning to establish soon a multidonor trust fund dedicated to providing technical assistance to countries to expand energy access, develop renewable energy, promote energy efficiency improvements, and support climate adaptation programs, as well as benefit from international carbon financing opportunities. The CEACAFA will be a multidonor trust fund open to Africa's external development partners—governments, multilateral institutions, NGOs and philanthropies, and private corporations—with a target of raising at least an additional units of account (UAs) 5-10 million for operations in 2008-2012. The CEACAFA program is currently in the early stages of development, and will be structured in line with the recently approved trust fund harmonization and open for contributions by multiple donors.

79. In order to scale-up the participation of Africa in the carbon market, the AfDB is working with the World Bank and other UN agencies under the Nairobi Framework (NF) to improve coordination among the varied capacity-building activities and increase donor funding opportunities (see Box 6 below).

Box 6: The Nairobi Framework (NF)

In November 2006, the NF was established as an interagency capacity-building mechanism focusing on developing the carbon market in Africa. Partner agencies in this framework are the World Bank, UNDP, UNEP, the African Development Bank, and UNFCCC. The framework builds on the work already being done by the UN agencies, including the Bank's Carbon Finance Assist (CF-Assist), and aims at substantially scaling up the participation of Africa in the carbon market through improved coordination among the partner agencies and increased funding by donors.

As an initial activity, the partners have conducted a mapping exercise to identify potential overlaps in the current work, and opportunities for sharing and complementing each other's programs. The World Bank also has undertaken an Africa-wide assessment of potential for carbon-mitigation projects, based on available secondary information. In meetings organized around SBSTA in May 2007, the partners have also agreed upon a number of coordination measures for sharing and enriching the capacity-building activities.

As part of the market development activities in Africa, the World Bank has launched project identification and preparation activities in 16 countries, and signed several emission reduction purchase agreements, especially by the Community Development Carbon Fund (CDCF). Notable projects in this regard are the 85 MW geothermal project in Kenya and the municipal solid waste project in Durban.

Capacity-building programs under CF-Assist have been launched in nine African countries, with a principal focus on CDM project portfolio development and institutional strengthening. As part of this effort, the World Bank supported 23 host countries from Africa to participate in the Carbon Expo, the premier event for the carbon market, and provided them with an opportunity to conduct project transactions with carbon buyers from Europe and Japan. The World Bank also cosponsored a Carbon Finance Investment Forum in South Africa in May 2007, aimed at attracting bankers and mainstream financial institutions into the carbon market.

80. In addition to the above interventions, the MDBs are currently considering new financing facilities. For example a joint MDB and private-sector working party (see below) has identified the need for project-specific support in buying down the substantial, upfront, *additional* costs of precommercial technologies that have the potential to substantially reduce future growth in emissions: for example, IGCC and IGCC with carbon capture and storage technologies. A financing vehicle with multiple windows would offer tailored financing, including grants and concessional and nonconcessional lending, to best meet the needs of the project being considered. The grant element could be funded by donor countries through a combination of cash and pledges. Facilities to support long-term carbon investments through the purchase of emission reductions beyond 2012 and to help reduce deforestation are also at various stages of consideration.

The “High Impact” Countries

81. In determining their country priorities, the MDBs have taken into account the differing magnitudes of CHG emissions by individual nations. For example, over half of the GHG emissions in developing countries come from the so-called G8 + 5 countries—China, India, Mexico, Brazil, and South Africa.

82. In this connection it is important to recognize that all the G8+5 countries have initiated work on developing low-carbon growth strategies. China has recently published its low-carbon strategy to 2010 and will now embark on lengthening that time horizon to 2030. India’s Planning Commission guided the preparation of alternative low-carbon development paths published last year and plans to build upon that work to consolidate the government position by the end of this year. Mexico recently published a National Strategy on Climate Change that forms the basis for deepening the analytical work and facilitating implementation of low-carbon projects. Brazil has created a Secretariat in the Ministry of Environment for Climate Change and is in the early stages of developing a climate change strategy. South Africa established a National Climate Change Response Strategy in 2004 and is currently preparing a long-term climate change mitigation scenario due to be finalized in mid-2008. The World Bank is assisting all the above G8+5 countries in developing these strategies. Specifically, low-carbon growth studies are being currently undertaken in India, China, Mexico, and Brazil and a similar study for South Africa is expected to be initiated soon. The EBRD has been developing comprehensive approaches to major GHG-emitting countries in its region of operations including Russia, Ukraine, and Kazakhstan.

83. The preliminary analysis to identify priority areas for a low-carbon development path already demonstrates the unique GHG reduction potential and key sectors for each country. For example, avoided deforestation, hydropower, and biofuels appear to be some of the key areas for Brazil, whereas the oil and gas and transport sectors are important for Mexico. In the case of India, GHG reductions could potentially involve areas such as coal power plants; hydropower; energy efficiency in commercial buildings, households, and industrial sectors; transport fuel improvements; and land use changes in the agricultural sector (see Box 7). Differences in the GHG reduction opportunities for China and India

are also evident, despite the large, existing use of coal, given the differences in the level of per capita consumption and access to modern fuels. The uniqueness of each country case suggests that a “bottom-up” approach is a crucial complement—for identifying opportunities in terms of country-level, sector-specific mitigation actions—to the existing broad, global-level analysis carried out in the reports discussed above.

Box 7: World Bank Support to Assessing “Low-Carbon” Growth Strategies for India

The Government of India (GoI) requested that the World Bank help assess (a) India’s future GHG emissions across various sources, (b) the costs and local benefits of several alternative scenarios with different emission levels, (c) the incremental costs and other barriers of “lower carbon” growth trajectories, (d) the financial needs in different sectors for adopting technology options and programs, and (e) appropriate financing instruments to meet these needs. The work, led by the GoI’s Planning Commission in coordination with the Ministries including Environment and Forests, Power, New and Renewable Energy, Transport, and Agriculture, as well as agencies, started in December 2006.

The scoping phase of the study has been completed and points to some important features of India’s economy with respect to its GHG emission performance. Based on available data, methane emissions from agricultural activities are the largest source of India’s current GHG emissions. India’s CO₂ emissions, mainly from fuel use, currently account for 55 percent of its total GHG emissions, but the share is rising, as about half of the population currently lack electricity access and energy supply shortfalls constrain its fast economic growth. India has been relatively successful in delinking economic growth and energy use. Recently, economic growth has been increasing 8 percent a year, while commercial energy consumption has been growing just 3.7 percent.

A new model for estimating future GHG emissions under different scenarios and calculating marginal abatement costs—so that the model structure, data inputs, and underlying assumptions will be made as transparent as possible—will be used to generate a cost-effective strategy for further lowering the CO₂ and GHG intensity of the economy at the macro- and sector-levels, and identify opportunities for leveraging financial resources needed to achieve so without compromising growth. The study will also help formulate specific regulatory and investment programs in a range of sectors and develop a strengthened multisectoral program of WBG support. The strategy will highlight the many benefits that India can capture with a well-designed low-carbon strategy, including energy security, rural access through distributed renewable applications, cleaner air in cities and homes, reduced congestion, better waste management, and even less water-intensive agriculture technologies.

Interim results, analyzing GHG scenarios, costs, financial gaps, and available instruments to meet those gaps, for select sectors—thermal power, hydropower, energy use in building and households, and transport fuel economy—are expected to be produced by October 2007. The full analysis and final report will be completed by summer 2008.

84. The EIB has recently approved a multiproject facility of €500 million for China to support projects that contribute to climate-change mitigation. The beneficiaries are government agencies, municipalities, public utilities, and companies, including public-private partnerships (PPPs) that invest in projects that contribute to the avoidance or reduction of GHG emissions through the use of renewable energies, energy efficiency, or the capture and use or storage of GHG.

Adaptation to Climate Variability and Change

85. The earth's climate is already changing because of human activities, primarily the combustion of fossil fuels and land management practices, and is projected to continue to change in the coming decades. Developing countries, and poor people within developing countries, are already suffering the greatest impact from climate-related disasters, which threaten to undermine their development. During the 1990s, an average of 200 million people per year from developing countries were affected by climate-related disasters, whereas only a million or so people from developed countries were affected.

86. Climate change has serious implications for the MDBs' poverty-reduction efforts. It will impact on areas of major economic and social importance for developing countries, such as water availability, agriculture, health, the durability of major infrastructure, and the sustainable use of natural resources. The MDBs whose member countries will be most impacted by climate change are making efforts to help these countries adapt to climate change variability through regional and country-specific programs. Institutions such as the World Bank and the AfDB are also in the process of upgrading their staff capacity in identifying and preparing adaptation activities. The majority of MDBs are now expanding their knowledge of climate risk management, implementing this knowledge in operational programs, and building more comprehensive screening tools and best-practice guidance to support their clients' long-term sustainable-development goals.

Climate Risk and Assessment

87. The majority of the MDBs are now "climate-proofing" projects that are climate sensitive and developing advisory assistance and capacity support mechanisms, as well as preparing systematic institutional and policy responses. This involves the development of screening tools in order to assess and mitigate climate risk in projects. This will not only protect their investments from possible future damage, but is essential for achieving poverty reduction.

88. In the area of climate risk management and assessment, the World Bank is developing robust and easy-to-use information and tools for assessing development projects and programs for potential sensitivities to climate change for Bank and client country staff. The ADB, AfDB, and IDB are also focusing on similar climate risk management initiatives in order to ensure that their operations are resilient to climate risk. The IDB is focusing on disaster risk mitigation and is making headway in mainstreaming disaster risk prevention in its operations. The ADB will assist its member countries in integrating climate change adaptation assessment and responses into broader development and natural resource management decision-making, whenever possible urging that adaptation concerns be combined with efforts to assess risk and reduce vulnerabilities to natural disasters. The ADB is incorporating these concerns into the country environment analyses as part of country strategy and program preparation. This ensures that adaptation issues, where relevant, are included in the ADB's programs of cooperation at the country level.

89. The AfDB will include systematic climate risk management analysis as part of due diligence in country planning and programming, and project preparation. In addition, a new African Development Bank Group Policy on Climate Risk Management and Climate Adaptation is under preparation. The new policy on adaptation is expected to be finalized and presented to the AfDB Board by end of 2008 with proposals for relevant changes in business processes, climate proofing methodologies, staff skills, resource requirements, and other institutional changes to strengthen internal capacities and enhance support to African countries' efforts in climate risk management and adaptation.

90. The IDB has done an initial assessment of the vulnerability of its portfolio to climate-change impacts. The results indicate that a significant number of the Bank's projects could be sensitive to climate change. This is driving the Bank to factor climate-risk concerns into sector policies, country strategies, and project design and implementation. As a first step, the IDB is focusing on integrating adaptation issues in disaster risk prevention in its operations and in country programming, as well as developing guidelines to climate-proof infrastructure investments.

Box 8: IDB Support for Adaptation to Climate Change and Disaster Mitigation: Township Planning Strategies for Storm Surge in the Caribbean

The general objective of the project is (a) to assist Caribbean countries to develop the adaptation strategies required to deal with the impact of natural disasters and severe weather events that are anticipated to occur in association with climate change; and (b) to strengthen their capacity for adaptation to this phenomenon. The specific objective of the project is to develop the capacity and methodology for incorporating risk analysis into the long-term development strategies of town planners and emergency managers.

The project has three components:

Risk Assessment of pilot sites: Storm surge risk assessments have been conducted in two pilot areas—St. Peter Township, Barbados, and Portmore, Jamaica—utilizing applications of the TAOS* storm surge risk assessment model. The risk assessments were prepared in close collaboration with the Caribbean Institute of Meteorology and Hydrology and in consultation with the regional emergency managers, town planners and communities. The study also included (a) an institutional analysis for the implementation of risk management, monitoring and forecasting; (b) proposals for raising awareness; and (c) recommendations for the promotion of improved preparedness through early warning systems, contingency planning and shelters, and potential mitigation investments and cost-effective use of economic incentives for their execution.

Development of Toolkit: A toolkit targeting four types of users—town planners, emergency managers, community groups, and private sector providers of risk transfer services—will be developed. The toolkit will include criteria and guidelines for risk assessments, institutional issues, awareness raising and improved preparedness, and potential prevention and mitigation measures.

Dissemination: The toolkit will be published and disseminated throughout the Caribbean.

* *The Arbiter of Storms.*

91. The EBRD and EIB's region of operations is expected to be less affected by adaptation issues than other regions in the world where climate change may have very significant impacts on the ecology and economy of entire countries. In addition, the sectors of activity of these banks do not correspond to the main areas of adaptation requirements in the region which are mostly of an agricultural nature. Accordingly, the focus of the banks' work in their region of operations is on climate-change mitigation rather than adaptation.

Good-Practice Development

92. Many of the MDBs are undertaking a series of country, regional, and sector studies to build a body of good-practice guidance on managing climate risk. The World Bank will conduct a wide variety of sector and country assessments that include the effects of different climatic conditions on the main sectors of the economy and a review of institutional capacity to manage the climate variability. They will build on existing in-country or Bank-led initiatives, and will be designed to identify specific, achievable, prioritized actions. Particular attention will be given to "low-hanging fruit" opportunities, as well as institutional and governance bottlenecks for the implementation of adaptation measures. The ADB is working with the World Bank on a similar initiative to assess the impacts of climate change in several large Asian coastal cities in terms of local and national economic growth, as well as regional and global economics. The World Bank will also review the role of insurance and other modes of risk transfer as a means of reducing vulnerability to climate change. The AfDB is undertaking a study on the impact of climate change on the Gambia River Basin. In addition, there is a proposal to extend such a study to cover all the river basins in Africa.

Financing Climate Risk (Assessment and Adaptation)

93. The majority of the MDBs will be focusing on mainstreaming climate-change adaptation into development planning, poverty reduction strategies, policy work, and project activities. This involves financing country-level assessments of climate change vulnerability and risk assessments at both the strategy/program and project levels.

94. The World Bank has programmed a number of projects to address known risks to climate change. The lessons learned from these investments, together with the results of a series of pilots directly linked to Bank operations, will provide guidance on how to approach climate risk in upstream analytical and planning processes, as well as in the project and program implementation phase. Much of the work focuses on agricultural and water issues and rural infrastructure, as these are fundamental to poverty reduction in most regions of the world. Not only are they very vulnerable to climate risk, but typically they have had less work done on them than the more spectacular climate threats such as sea-level rise, wind storms, etc. Adaptation-related activity by the World Bank has increased from only about 10 projects and technical assistance and advisory activities before the CEIF to about 40 projects (loan and grant) in 30 countries and 25 technical assistance advising activities.

95. The IFC is in the early stages of identifying appropriate methodologies for evaluating the risks of climate change to its investments and clients. In consultation with experts and other interested IFIs and private companies, the IFC plans to do a series of case studies by June 2008 to test available risk assessment tools, illustrate potential portfolio risks, and explore the feasibility of insurance and other response measures

96. The IDB will integrate climate change adaptation initiatives into its disaster risk prevention activities. This not only includes mainstreaming climate risk in country programming but also investments to reduce vulnerability to climate risk of urban and regional infrastructure. This involves identifying and protecting capital assets at risk to climate-change impacts, preparation of loans to finance risk-reduction investments, and the design and development of vulnerability components and activities in investment loans. The ADB will finance climate risk assessments at both the regional and national level through such programs as the Climate Change Adaptation Program for the Pacific (CLIMAP), which will review climate-change risks (e.g., sea level risk) while producing guidelines for development planners on how to climate-proof coastal infrastructure. The ADB also led the Central Asian Countries Initiative for Land Management, which brings together the five countries of that region to address land-degradation problems, some of which are attributable to climate change. In addition, the ADB is sponsoring climate change risk analysis on natural-resource productivity in the Greater Mekong subregion.

97. Africa is highly vulnerable to climate change, with the areas of particular concern being water resources, agriculture, health, ecosystems and biodiversity, forestry and coastal zones. The longer-term impacts will include changing rainfall patterns affecting agriculture and reducing food security, worsening water security and economic growth prospects, shifting temperature affecting vector diseases, and more challenging hurdles in reaching the MDGs. According to the recent IPCC report, the cost of adaptation in Africa could be as high as 5 to 10 percent of the continent's GDP. The AfDB, in addition to its policy-related work, is preparing a formal proposal on the establishment of a CEACAFA to galvanize its operations in this emerging area. By 2010, the bank expects to be able to provide financial support for 5 to 10 climate-adaptation activities per year in all the WBG's regional member countries. Eligible activities will include the following:

- Increasing public awareness of vulnerability to country-specific climate change, including support to the Action plan for Africa on Climate Information for Development Needs (ClimDev Africa) jointly implemented by UNECA, the AfDB, and GCOS, under the leadership of the African Union
- Building or reinforcing private-sector and public institutional capacities at community, national, and subregional levels to manage increasing climate variability and extreme weather events—including emergency response logistical capabilities, strategic stockpiles (food, medicines, etc.), disaster insurance and re-insurance
- Mitigating the increasing threat of vector and water-borne diseases engendered by rising surface temperatures—by expanding the Bank Group's Rural Water Supply

and Sanitation Initiative (RWSSI)), financing related activities also under the African Water Facility programs, and including support to fight malaria and other water-borne diseases

- Countering rising stress on ecosystems and natural resources, including biodiversity support to concerted efforts to preserve coastal mangrove forests and other wetland ecological systems, efforts to arrest deforestation of mountain slopes and soil erosion, etc.
- Protecting against the increasing threat of extreme weather events and the flooding of coastlands and small islands from the rising sea-level, with accompanying loss of infrastructure; supporting research into more ambient, resilient, safe, energy- and water-efficient housing design and building materials; reviewing possible defenses, for islands and coastal lands, against flooding and the rising sea level
- Climate risk management in Bank Group projects, programs, plans and strategies. This includes, on the one hand, due diligence in AfDB Group projects, and on the other hand, integration of climate risk management in Country Strategy Papers and sector strategies. For projects, systematic climate risk management should be included in the preparation, resulting in all Bank Group operations having sufficient resilience to current climate variability risks and projected climate-change threats and making effective use of opportunities. Over time, this should become systematic good practice in all operations, but in the short term, the CEACAF will support building tools and best practices in selected projects, including:
 - retroproofing previously approved operations still under implementation or post completion (where it is still practical and beneficial)
 - systematic climate risk management in new operations, leading, in high-risk cases, to modified investments, including climate risk management components additional to standard project design. The project-level climate risk management would be implemented through a two-step process: (a) initial—also simple and cheap—tool-based climate risk screening, possibly building on the World Bank’s efforts in this area, and (b) in-depth risk assessment for projects or components at substantial risk (often using specialized consultants).

98. The proposed CEACAF will operate along largely similar modalities as other AfDB multidonor trust funds, the main difference being that the financing for climate adaptation activities under the CEACAF will most often be on grant terms. A large proportion of activities (at least 80 percent in terms of resource approvals) will be demand driven. Eligible clients will be central governments, sub-sovereign bodies such as municipal and local councils, private financial and business entities, research institutions, and civil society organizations and NGOs. The remainder will finance the Bank Group’s own activities and initiatives, including economic and sector work, and knowledge dissemination.

Box 9: African Development Bank–Malawi Climate Adaptation for Rural Livelihoods and Agriculture (CARLA) Project

The project objective is to "improve resilience to current climate variability and future climate change by developing and implementing cost effective adaptation strategies, policies, and measures that will improve agricultural production and rural livelihoods."

The project is aimed at implementing the National Adaptation Programme of Action (NAPA) of Malawi and is eligible under the GEF LDCF, as it follows the principles and criteria outlined in the Programming Paper on the implementation of NAPAs under the LDCF. Malawi's 2005 NAPA, based on a multistakeholder consultative process, identifies two urgent and immediate priority actions that consist of (a) improving community resilience to climate change through the development of sustainable rural livelihoods, and (b) improving agricultural production under erratic rains and changing climatic conditions. The proposed LDCF project addresses these priority actions by implementing climate-change adaptation measures to improve resilience and adaptive capacity in vulnerable districts in Malawi.

It builds on the baseline AfDB development project Smallholder Crop Production and Marketing, which has two main components: irrigation development and farmer support.

The NAPA component, financed by the GEF LDCF grant, will address the impacts of climate change by supporting

- investments aimed at improving agricultural, land management and natural systems as well as rural livelihoods through targeted on the ground adaptation interventions, fostering adaptation of individuals, communities and the private sector
- climate risk management, including plans, policies, legislation and regulations, and resource allocation; institutional coordination; generation and tailoring of knowledge on climate risk management for specific user groups (particularly in the context of the investment component); and awareness raising.

The project is targeted on strengthening the productive capacities of vulnerable communities, securing their livelihoods against the adverse impacts of climate change, and sustaining poverty reduction.

99. The EIB is managing the Climate Change Financing Facility (CCFF) that consists of a €1 billion window from the EIB's own resources for the financing of projects inside and outside the EU that result in a significant reduction in greenhouse gas emissions, generate carbon credits under the CDM and JI (joint implementation), and help countries or promoters adapt to climate change. Adaptation investment opportunities can be proposed in sectors such as water resources, agriculture, coastal zone management and marine resources, forestry and eco-system management.

100. The GEF is currently the world's largest funder of activities to address the adverse impacts of climate. Several MDBs, including the World Bank, ADB, and AfDB, are working closely with the GEF, which has funds available in the order of US\$200 million at this point.

101. While a lot of analytic work is being undertaken, the current MDB financial commitment to adaptation activities remains modest. The MDBs as a group are reviewing ways in which their collective efforts on adaptation can be increased. For example, the ADB has recently initiated Promoting Climate Change Adaptation in Asia and the Pacific, a technical assistance project that is designed to mainstream adaptation into

investment planning, and to broadly disseminate the results to member countries and donors so that a strengthened international community response for adaptation can occur.

Box 10: ADB Support to Climate-Proofing Pacific Countries

ADB recently completed a three-year project to assist selected Pacific developing member countries to adapt to climate change and variability. The project produced a climate change stocktaking and risk profiles for eight countries, together with a support kit and guidelines for mainstreaming adaptation, with several examples of project briefs.

The analysis demonstrated the importance of mainstreaming adaptation in the Pacific, including strengthening the enabling environment to increase the likelihood of successful adaptation at project and community levels. The “National Guidelines for Mainstreaming Adaptation to Climate Change” were adopted by the governments of each country, and are now being used as the main references for adaptation mainstreaming at the national level. These are based on the approach presented in the widely disseminated main report from the study “Climate Proofing: A Risk-based Approach to Adaptation.” Capacity building for responsible government agencies and related stakeholders also was provided.

This project is being used by the ADB to expand its adaptation support not only to Pacific Island countries but also across Asia through its Climate Change Adaptation Program, supported by the Regional Technical Assistance Project Promoting Climate Change Adaptation in Asia and Pacific (2007-2011).

Working Together

102. It is evident from the foregoing that the MDBs share a common vision regarding approaches and actions to tackle the challenge posed by climate change. Prior to Gleneagles they had a long history of close cooperation in such areas as energy efficiency, renewable energy, clean coal technologies, urban transport, forestation, and environmental protection, all of which have a direct impact on climate change. Cooperation included cofinancing of key projects, as well as joint or closely coordinated country policy advisory work designed to improve the overall efficiency of the energy sector and to encourage the development of appropriate regulatory regimes.

103. These joint efforts have accelerated and become much more intense in the post-Gleneagles period. In particular, each MDB has consulted closely with its sister institutions in developing and revising its overall climate change and energy strategies to respond to the new global priorities. The result is a consistent set of policies, programs, and instruments across the international financial institutions. Further initiatives, designed to increase the level of collaboration, are underway; these are considered to be particularly important as the MDBs move from strategy formulation to implementation. For example, an MDB workshop on mainstreaming climate change mitigation and adaptation was hosted by the EBRD in June 2007. This working session focused on some of the practical issues faced by MDB staff in scaling up climate activities, and covered such topics as organization, targets, incentives, measurement, and reporting. The sections below discuss some of these cooperative endeavors and highlight additional areas in which enhanced cooperation is planned.

Financing Clean Energy: A Framework for Public-Private Partnership

104. In March 2007 the EBRD, World Bank, World Economic Forum, and World Business Council for Sustainable Development sponsored a conference in London designed to identify steps for the private sector, together with the MDBs, to scale up investments designed to address climate change. Most of the MDB presidents attended the meeting, together with more than 45 representatives of private-sector companies, as well as several G-8 governments.

105. Discussions focused on clean energy, renewable energy, energy efficiency, financial instruments, and adaptation. Working groups, each cochaired by MDB and private-sector representatives, were formed on each topic. The creation of working groups in these specific areas reflects the urgent need to shift from broad strategic discussions and to focus instead on specific issues and opportunities that can form a concrete basis for action. The objective of the working groups was to identify specific constraints to private-sector investment in, for example, lower carbon energy sources, and to precisely define areas for action. They were also asked to determine what the private sector and MDBs could do in the short term to increase their scale of activity in these areas. A set of findings and recommendations of each working group was presented to the Gleneagles Ministerial Meeting in Germany in September 2007 and will be further discussed by the finance ministers during the World Bank Annual Meeting in Washington in October 2007. In this connection, it should be noted that the progress of the working groups in implementing their assigned tasks has been somewhat uneven; the work on energy efficiency, renewables, and financial instruments has progressed well but the work of the other groups has apparently been delayed. Given the scope of the climate-change agenda and the resource constraints facing the MDBs, these shortfalls are not surprising; however, going forward it is important that such commitments are made in a more systematic and deliberate manner.

Energy Efficiency and Renewables

106. As noted elsewhere in this report, the EBRD and the EIB have accumulated significant experience in promoting, designing, and implementing EE and RE in Europe. The MDBs are working on mechanisms designed to allow the developing world to learn from this experience. In addition, several of the MDBs are collaborating in the development of energy-efficiency indicators.

Reducing Emissions from Thermal Power Plants

107. As noted earlier, the MDBs are supporting significant programs designed to reduce GHG emissions from thermal plants. However, despite these initiatives there still appear to be significant opportunities for the MDBs to leverage their collective efforts on thermal power and to help their clients achieve significant GHG reductions per megawatt. Thermal plants, particularly those using coal, will remain the principal source of power in

countries such as India and China for the foreseeable future. It is therefore vital that the MDBs remain focused on these issues. Possible areas of emphasis include an increased focus by the World Bank on supporting improvements in country policy and regulatory regimes designed to reduce GHG emissions per megawatt, coupled with increased support from the private-sector windows of the MDBs for IPPs and other private power investors. Another possible initiative is the development of a joint program designed to support the development and commercialization of IGCC with CCS. It will also be vital to ensure that the lessons of experience gained by the EIB from its carbon capture and storage projects be transferred to the clients of all the MDBs. Finally, it is important that the MDBs maintain a constant focus on demand-side management and energy efficiency across the power supply network (such as reduction of transmission and distribution losses) as a means to contain energy demand growth and the need for new generating capacity. The MDBs are collectively committed to these cooperative endeavors.

Reducing Carbon Emissions in Transport

108. As previously noted, the transport sector is a major source of carbon emissions in the developing world; currently estimated at about 14 percent of global emissions and rising rapidly as incomes increase. Given the critical impact of road transport on climate change in Asia, the ADB, as shown above, has completed an important analytical paper on this issue and is developing an action plan designed to address the problem; however, implementation has only just commenced. Given the significant investment made over time in the cities of most of its countries of operations, the EBRD has given particular attention to the development of public transport rehabilitation projects which result in both increasing the energy efficiency of public transport networks and providing a lower carbon urban transport alternative. However it needs to be emphasized that most of the MDBs have only begun to tackle this agenda item. In light of the enormity of this problem, the difficult policy issues involved, and the formidable challenges of implementation, the MDBs are committed to individually and collectively focus their professional expertise on this subsector, with a view to raising its priority and developing effective interventions.

Deforestation

109. Despite the importance of deforestation as a major contributor to GHG (close to 20 percent of the total emissions) the MDBs' assistance programs in this area remain quite modest. Reducing the rate of deforestation is an exceedingly complex policy, regulatory, governance, and financial challenge which the traditional products of the MDBs are not necessarily well suited to meet. However, given the importance of urgently tackling this global issue, the MDBs, particularly those with the most seriously affected client countries, are committed to substantially raise the priority they attach to reducing the rate of deforestation and to articulate a consistent set of remedial strategies and programs.

Adaptation

110. The work of the MDBs on adaptation to climate change remains quite modest, relative both to their mitigation activities and the global adaptation challenge. Indeed the MDBs are only now staffing up respond to these demands. This is not surprising, given that adaptation has only recently been recognized as a major global priority. Moreover, the impact of climate change varies significantly from one region to another. For example, the clients of the AfDB will be far more seriously affected than those of the EBRD. In light of these realities the MDBs, especially the World Bank, ADB, IDB and AfDB, are developing a more ambitious and coherent set of adaptation products (investment and policy) designed to leverage each other's strengths and build the needed staff capacities.

Carbon Footprinting

111. Another area where the MDBs have agreed to collaborate is in developing a harmonized approach to assessment and reporting of portfolio GHG emissions. Most of these financial institutions are only at the beginning stages of assessing their portfolio emissions, and are still deciding key questions such as what methodology to use, what sectors to cover, and how to aggregate and report what they find. But they all feel significant pressure to move ahead in this pursuit^{iv}.

112. The World Bank highlighted this issue early on and starting in 1998 has commissioned several studies on methodology for assessing net GHG emissions, both on a sector basis and on a project basis. As the international financial institutions (IFIs) move into a period of accelerated development of the assessment of GHGs from their portfolios, the MDBs have collectively committed to harmonize their methodologies and to adopt a uniform analytical approach and reporting format. Based on the outcome of the studies highlighted above, it is expected that the MDBs will agree on a standard set of practices with respect to carbon footprint measurement in the near future.

Measuring and Monitoring Performance

113. All the MDBs and their shareholders have recognized the importance of setting monitorable targets if they are to achieve their climate-change agenda. Each MDB has enunciated specific targets. As examples: the EBRD is committed to investing €1.5 billion in energy efficiency and renewables in the three-year period following the launch of the initiative in May 2006; the EIB incorporates its clean-energy targets in a rolling three-year plan that aims currently for €800 million annual investment in RE; and the World Bank plans to double RE investments to US\$2 billion in FY2006-2008, compared to the previous two-year period. The World Bank is also committed to complete low carbon country case studies for the G8+5 countries—China, India, Brazil, Mexico, and South Africa—over the next two years. As noted earlier in this report, each study will include an assessment of which sectors provide the best opportunity for GHG reductions, which technologies are the most appropriate, what policy adjustments need to be made, and what the incremental financing needs are. While the MDBs' enunciated goals will be

critical in assessing their collective and individual performance, it is important to emphasize that they are *output* as opposed to *outcome* targets and do not measure the carbon impact of the MDBs' programs on the ground. However, once standard practices on carbon footprinting are agreed upon and low-carbon studies for the G8+5 and other key countries are completed, the basis for determining clear outcome targets (which can in turn be incorporated into country and regional strategies) will have been established. Over time, and as the MDBs gear up their operational activities on climate change, they plan to jointly articulate a clear set of outcome targets.

Strengthening the Cooperative Framework

114. The MDBs have established a close working relationship on their climate change activities. They have developed a coherent set of strategies designed to tackle the climate agenda and there are numerous examples of close cooperation in individual countries. However, as the emphasis shifts from strategy formulation to implementation, it is important that the lessons of experience are promptly shared across the institutions and more importantly with the clients themselves. For example, key countries in Asia and Latin America could profit significantly from the knowledge gained by the EBRD in implementing its energy-efficiency programs. Similarly, sharing experiences in securing the right balance between policy, regulatory, sector, and project interventions designed to mitigate climate change could have a high pay-off. As part of this overall effort, the MDBs are considering the establishment of thematic groups across the banks. Such groups would be organized by topic: e.g., renewables, energy efficiency and adaptation, and would include all staff, working on these issues across the MDBs. The experience in other organizations is that such virtual groups, which at their minimum are little more than a consolidated e-mail list, can be extremely cost-effective mechanisms to transfer subsector knowledge on a just-in-time and demand-led basis.

115. As the MDBs' climate change activities expand, it will also be increasingly important that each knows what the others are doing at the operational level, both to leverage from each others' efforts and to help identify key gaps. In this connection, the MDBs have agreed to continuously update the set of templates that summarize the climate change activities of each MDB and were prepared for this report. They are accessible at www.worldbank.org/environment/ccandmdb.

116. The heads of the environment departments of the MDBs already meet twice a year at the MFI–WGE to exchange information on their respective programs, agree on mutual priorities, and so forth. No additional meetings are planned; however, the MDBs plan to strengthen the MFI–WGE framework to ensure a more systematic coverage of their climate-change activities. Specifically, a regular formal session on the MDBs' climate change initiatives would be added to each meetings agenda, critical operational issues would be selected for a focused discussion at these sessions, the MDBs would ensure participation of their relevant operational staff, and appropriate arrangements for preparation and follow-up for these sessions would be established. The next meeting of

the MFI–WGE, scheduled for November 2007, is expected to firm up the arrangements for these more-systematic exchanges

ⁱ FINESSE—Financing Energy Services for Small-Scale Energy Users—seeks to develop policy and regulatory framework and capacity within the Bank and its RMCs to promote investments in renewable energy and energy efficient technologies. For details see <http://finesse-africa.org>.

ⁱⁱ PROFOR is the Program on Forests (www.profor.info).

ⁱⁱⁱ FLEG stands for Forest Law Enforcement and Governance initiative, which is led by the World Bank.

^{iv} Some of the MDBs, such as the EBRD, World Bank, IFC and IDB, have already begun work in this area. The World Bank is assessing and offsetting the carbon footprint of its Washington, D.C.-based facilities. EBRD-financed projects measure the change in emissions brought about by the investment, compared to the emissions under the baseline (i.e., no project) scenario. The IDB piloted the carbon neutral concept at its 2006 Annual Meeting, making it the first carbon-neutral annual meeting held by a multilateral development bank. At its Annual Meeting in Guatemala in March 2007, the bank announced the expansion of the initiative to make the IDB headquarters carbon neutral in 2007, followed by the country offices in 2008. With respect to the carbon emissions of its portfolio, the IDB is committed to measuring emissions annually from its operations that produce significant quantities of greenhouse gases. The IDB is at the initial stages of developing methodologies to enable it to meet with this commitment.

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