



Carbon Finance Unit
 The World Bank
 1818 H Street, NW
 Washington, DC 20433
 www.carbonfinance.org



CARBON FINANCE AT THE WORLD BANK

Carbon Finance for Sustainable Development

2006

CARBON FINANCE AT THE WORLD BANK 2006

Carbon Finance for Sustainable Development



Prototype Carbon Fund



Community Development Carbon Fund



BioCarbon Fund



Netherlands CDM Facility



Netherlands European Carbon Facility



Italian Carbon Fund



Danish Carbon Fund



Spanish Carbon Fund



Umbrella Carbon Facility



2	Carbon Finance for Sustainable Development
22	Report on Business: The Work of the Carbon Funds
72	Making Carbon Finance a Reality: Projects in Progress
80	Annexes

This report of the carbon funds managed by the World Bank covers the period from July 1, 2005 through August 31, 2006. An online version of this report is available on the carbon finance website: www.carbonfinance.org

Notes: All \$ = U.S. dollars (unless otherwise indicated). The U.S. dollar/euro exchange rate used in this report = 1.25. One ton = 1000 kilograms (one metric tonne). All greenhouse gas emission reductions are measured in tons of carbon dioxide equivalent (tCO₂e).

This report is provided for informational purposes only. The carbon funds reported on are not legal partnerships. No warranties or representations are made as to the accuracy, reliability or completeness of any information herein.

Managing Editor Anita Gordon
Deputy Editors Masha Alexandria Ageeva-Turovskaya
Adelaida Schwab
Technical Editors Maarten de Jonge
Laura Bruce
Research Paola Colla
Design The Word Express, Inc.
Printing Mosaic

 Printed on recycled paper with soy-based ink, using waterless printing technology.



Our mission is to catalyze a global carbon market that supports sustainable development, reduces transaction costs and reaches and benefits the poorest communities of the developing world.

“*The global community must face the double challenge of protecting our environment and strengthening our economies, of preserving our planet’s precious resources while protecting and enhancing livelihoods. Part of the answer must include producing energy and goods with a smaller environmental footprint... Green energy in particular, has a great potential to earn carbon credits under the growing carbon emission reductions markets.*”

Paul Wolfowitz
President
The World Bank Group

Carbon Finance at a Glance

				
	<p>Prototype Carbon Fund (PCF)</p> <p>The PCF has pioneered the market for project-based greenhouse gas emission reductions while promoting sustainable development.</p>	<p>Community Development Carbon Fund (CDCF)</p> <p>The CDCF provides carbon finance to projects in poorer areas of the developing world that combine community development with investment in clean energy.</p>	<p>BioCarbon Fund (BioCF)</p> <p>The BioCF focuses on projects that sequester or conserve carbon in forest and agro-ecosystems, while promoting biodiversity conservation and poverty reduction.</p>	<p>Netherlands CDM Facility (NCDMF)</p> <p>The NCDMF supports projects in developing countries that generate potential credits under the Clean Development Mechanism (CDM) framework of the Kyoto Protocol.</p>
Fund capital (US\$ million)	180.0	128.6	53.8	**
Date operational	April 2000	March 2003	May 2004	May 2002
Participants	23	25	14	1
Private % (by capital invested)	63.6	45.1	55.8	0
MtCO ₂ e [†] under contract (ERPA ^{††} signed)	29.8	4.3	2.9	**

* Includes €224.54 million total participation of PCF, NCDMF, ICF, DCF and SCF

** Not publicly available

† Million tons of carbon dioxide equivalent

†† Emission reductions purchase agreement



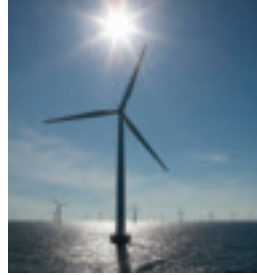
Netherlands European Carbon Facility (NECF)

The NECF purchases emission reductions from Joint Implementation (JI) projects located in countries with economies in transition.



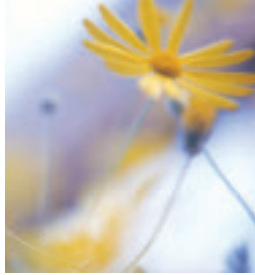
Italian Carbon Fund (ICF)

The ICF facilitates opportunities for the private and public sectors in Italy to participate in projects that generate cost-effective emission reductions and clean technology transfer.



Danish Carbon Fund (DCF)

The DCF purchases emission reductions that generate potential credits under the CDM and JI Mechanisms of the Kyoto Protocol.



Spanish Carbon Fund (SCF)

The SCF promotes projects that contribute significantly to the sustainable development of developing countries and countries with economies in transition.



Umbrella Carbon Facility (UCF)

The UCF is an aggregating facility that pools funds from World Bank managed carbon funds and other participants to purchase emission reductions from large projects.

**	154.9	67.6	275.0	998.8*
August 2004	March 2004	January 2005	March 2005	August 2006
1	7	6	13	17
0	30.2	54.3	22.7	75.0
**	9.6	2.0	9.8	129.3

Letter from the World Bank



1.6 billion people in the developing world have no access to modern energy sources. Access to affordable energy or energy security has become a critical issue in the global agenda. Some will argue that this means a safe and certain supply of oil, gas, and coal.

Others may be inclined to link energy access to climate security, and therefore they will prefer other forms of energy—clean energy, such as solar, wind, biomass etc. It should not be an either-or proposition. It is both.

As described in the new Investment Framework for Clean Energy and Development developed by the World Bank and partners as a follow up of the Gleneagles G-8 Summit in 2005, the scale of the challenge is tri-dimensional.

First, developing countries need urgent support to bridge the investment gap, now at the level of \$80 billion a year, in order to get access to energy services and generate growth. Sound governance and improved regulation are key for increasing private sector engagement.

Second, developing countries should not need to repeat the mistakes made by rich countries. They can use cleaner, more efficient technologies, but financial assistance is essential to pay-down the incremental costs. We are expanding the use of our existing financial instruments to contribute to this objective, including carbon finance, but more resources will be needed in order to go to larger scale.

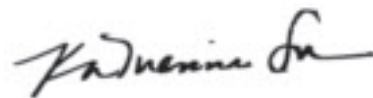
Third, poor countries will need to adapt to climate variability and change in order to sustain development

efforts. More than 20% of concessional lending devoted to development is under climate risk today, meaning that the new opportunities generated by these efforts can be jeopardized.

Today, the carbon market has matured and is producing financial and environmental benefits. It is showing that the bottom line and climate friendly policies and actions can go hand in hand. Through carbon funds like the World Bank's Community Development Carbon Fund and the Bio Carbon Fund carbon markets are being opened to poor communities so that they can benefit from carbon trade to earn income from greenhouse gas reductions.

Reducing greenhouse gas emissions globally through the Kyoto Protocol and other regulatory and voluntary regimes represents a pioneer effort, but it is clear that current mitigation efforts will not be sustainable without a long term predictable framework in place.

The World Bank has been active in facilitating the development of the carbon market. Sixty two private sector companies and 13 governments have invested \$2 billion in World Bank managed carbon funds. These carbon market leaders are demonstrating that carbon finance has the potential to bring new financing for sustainable development, above and beyond development aid—all while contributing to a climate friendly development path.



Katherine Sierra
Vice President
Sustainable Development
The World Bank

Letter from the Chair of the Host Country Committee



Climate change is now recognized as a pressing global environmental issue in the developing world. The changes that are being observed in the behavior of climate could affect human welfare and the environment. The evidence—from hurricanes in the Caribbean to floods in

Asia, and droughts in Africa—all points towards one thing: that human induced climate change is not something of the future but something we are already in the middle of. Climate change is a serious risk to poverty reduction and threatens to undo decades of development efforts.

While the developing world is not obliged to reduce emissions of greenhouse gases under the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol, its contribution to solving the climate change problem while at the same time improving livelihoods can be achieved through the Clean Development Mechanism (CDM). This mechanism allows developed countries to obtain greenhouse gas emission reductions by implementing CDM projects in developing countries, while assisting developing countries to achieve sustainable development—a win-win solution.

Presently, there are only three CDM projects in Sub-Saharan Africa. This is a regrettable situation given that the Kyoto Protocol was agreed to in 1997 and some regions such as Latin America and Asia command 95% of all CDM projects. The solution to this imbalance can be achieved if both carbon emission reductions buyers and the Africa governments play their roles effectively. Africa must ensure that the enabling environment is conducive, i.e., public institutions that deal with the CDM are strengthened, capital markets are developed, adequate security is guaranteed, and bureaucracy is avoided, among others. At the same time, regulators should not deliberately design conditions that make it very difficult if not impossible for some

developing countries to receive any form of investment through the CDM. There is a need for capacity building for establishment of Designated National Authorities (DNAs) and project preparation, and a need to build awareness of the CDM among government line agencies and potential private sector project sponsors. Small-scale energy projects that fit the development needs of developing countries should be supported via investments made through the CDM. Currently, the majority of CDM investments are flowing into larger scale projects.

The Host Country Committee (HCC) can be used as a major promoter of CDM projects in developing countries and also to provide advice to the World Bank on pricing policy for carbon. Therefore, the effective functioning of the Host Country Committee is important for the success of the CDM and the Kyoto Protocol. The HCC would like to see issues pertaining to large hydro and biomass projects considered by the CDM Executive Board.

In the coming year there is need for follow-up on the call made by Parties and stakeholders for CDM reform in 2005, including CDM governance and streamlining of CDM regulations. Developing countries should take advantage of the CF-Assist Program that supports capacity building. With the support of CF-Assist, the number of countries that have submitted CDM projects for validation and registration has greatly increased.

I would like to appeal to all Parties to continue working together in order for the CDM market to continue to grow in the coming years, particularly for the benefit of sustainable development in developing countries.



Washington Zhakata
Chair
Host Country Committee

The Global Context

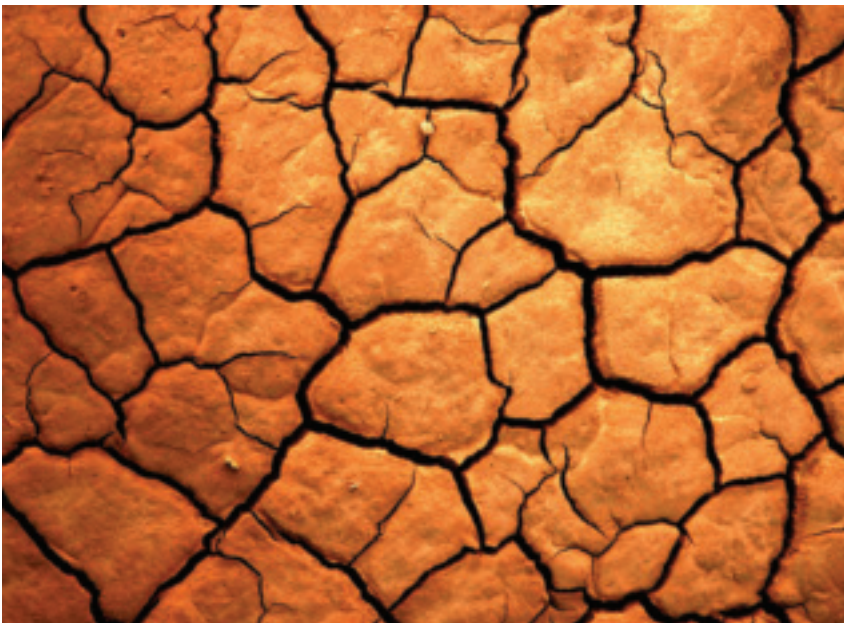
According to climate records, the last several years have been the hottest on record. Precipitation patterns have changed, sea levels have risen and most non-polar glaciers are retreating.

The Changing Climate

In October of 2006, ministers and high-ranking representatives of the top 20 greenhouse gas emitting nations in the world met in Monterrey, Mexico to discuss climate change. The "Chairs' Conclusions" noted that the basic science is no longer disputed and that there is increasing urgency to address the issue of climate change. The economics demonstrates that early action is needed and that the increase in costs if we wait is rapid and substantial. Beyond those costs lie real-world risks to growth and the health of populations and the possibility of physical catastrophes. The meeting—the latest round of talks on the climate action plan decided upon at the G8 Gleneagles Summit in 2005—was just one among the many signals that there is growing momentum internationally to find long-term solutions to what people are perceiving as a growing problem.

According to climate records, the last several years have been the hottest on record. Precipitation patterns have changed, sea levels have risen and most non-polar glaciers are retreating.

With only 15% of the world's population, member countries of the Organisation for Economic Co-operation and Development (OECD) are responsible for more than 75% of the historical global greenhouse gas emissions. However, within 20 to 30 years, the collective annual emissions from developing countries are set to surpass those of the OECD, with significant increases in countries such as Brazil, China, India, Mexico and South Africa.



The Impact on the Least Developed

Developing countries will be disproportionately affected by climate change. The IPCC has estimated that a 3° Celsius increase in global temperatures could lead to a loss of Gross Domestic Product (GDP) in developing countries of 2% to 9% per year, and result in devastating effects on human health and welfare and on fragile ecological systems.

Poorer countries, particularly in Sub-Saharan Africa, where agriculture accounts for about 70% of employment, would be hardest hit.

The extent of warming in this century will be determined in part by the development pathways that countries will choose. Governments, business and individuals have a central role to play.

“Via international carbon finance, there is a potential to generate up to \$100 billion per year in green investment flow to developing countries. None of the other types of financial resources available to these countries have a potential of this scale. The \$100 billion a year investment flow would come about if half of the 60% to 80% reduction in emissions is met by industrialized countries through investment in developing countries.”

Yvo de Boer
Executive Secretary, UNFCCC

International Agreements to Tackle Climate Change

With the European Union Emissions Trading Scheme which began on January 1, 2005 and the Kyoto Protocol which came into force on February 16, 2005, carbon emission reduction targets became international commitments by most industrialized countries. Ratifiers of the Protocol are obligated to reduce their greenhouse gas emissions by an average of 5.2% compared with 1990 levels during the period 2008 to 2012.

Under the Kyoto Protocol, Annex I (industrialized) countries may achieve these reductions either domestically or through three international market-based mechanisms: Joint Implementation (JI) in countries with economies in transition, Clean Development Mechanism (CDM) in

developing countries, and International Emissions Trading among Annex I countries.

Through the first two mechanisms, the Kyoto Protocol enables Annex I countries and companies in these countries to supplement their domestic efforts to reduce emissions by purchasing greenhouse gas emission reductions generated by projects in developing countries and countries with economies in transition. These are countries where emissions can be reduced at lower cost, while contributing to sustainable development. The global carbon market is predicated on the fact that greenhouse gases mix uniformly in the atmosphere, which makes it possible to reduce carbon emissions at any point on the planet and have the same effect.

State of the carbon market: doubling in nine months

In the first three quarters of 2006, the carbon market grew to an estimated \$21.5 billion, more than doubling in value over the \$10 billion recorded in 2005. Meanwhile, volumes transacted also increased to some one billion tons of carbon dioxide equivalent during the first three quarters of the year, representing a slower rate of growth than the 700 million tons of carbon dioxide equivalent traded in 2005.

The European Union's Emissions Trading Scheme has dominated the market both for volume and value in 2006 so far while project-based transactions over the same period represented one quarter of global volume (versus roughly half in 2005) and slightly more than one tenth of global value (versus about 25% in 2005). Especially noteworthy is Africa's share which is now 7% of CDM volumes transacted. China and India continue to dominate the CDM market with 60% and 15% market share respectively.

Average prices on the project-based market (primarily CDM) rose from about \$7 per ton in 2005 to \$10.50 per ton in the first three quarters of 2006.

The retail market continued to grow, and outside the Kyoto Protocol several initiatives to manage greenhouse gas emissions are emerging: Australia is examining a proposal for a national cap and trade scheme, the Regional Greenhouse Gas Initiative by seven northeastern American states released its Final Rule and California passed an important new law to reduce greenhouse gas emissions.

Carbon Finance at the World Bank

“From Southern Africa to Latin America and from Bangladesh to Afghanistan, it is poor people who suffer most from climatic variability and environmental degradation. We may not be able to link all these changes directly with global climate change, but we know the pressure on the environment is serious and livelihoods are at risk.”

Paul Wolfowitz
President
The World Bank Group



The Challenge for Development



Warren Evans is Director of Environment at the World Bank, and as such oversees the Carbon Finance activities of the Bank. He talks here about the challenge that climate change poses for development and the role of carbon finance within the World Bank:

With a world population expected to reach nine billion by the year 2050, 65% of which is expected to be in urban areas, increased consumption of energy, water, food, manufactured goods and services will pose tremendous challenges to the natural systems that support human life and development. High among the challenges is dealing with climate change. Given that the Earth's climate has already changed and that further change is inevitable, future climatic disruption needs to be mitigated by reducing greenhouse gas emissions at the same time that countries adapt to climate change.

Carbon Finance as a Tool for Emission Reductions

Carbon finance in the Bank has expanded from a prototype engagement in an emerging trade of emission reductions to an increasingly mainstream activity for supporting sustainable development.

In December 2005, the Board of Executive Directors of the World Bank endorsed a *Carbon Finance Approach* that aims primarily at enabling developing countries to participate actively in the growing carbon market. The approach for the future is focused on three inter-related objectives:

- (i) To ensure that carbon finance contributes substantially to sustainable development, beyond its contribution to global environmental efforts;
- (ii) To assist in building, sustaining and expanding the international market for carbon emission reductions and its institutional and administrative structure; and
- (iii) To further strengthen the capacity of developing countries to benefit from the emerging carbon market for emission reduction credits.

One important element of the new approach is to ensure that smaller, poorer countries benefit from carbon market development. This is particularly true of Africa.

Putting Africa Front and Center

The World Bank sees a major part of its role in carbon finance as helping developing countries and the poorest areas of developing countries to access and benefit from carbon trade. Two World Bank managed carbon funds, the Community Development Carbon Fund and the BioCarbon Fund, specifically target poorer countries and, in the case of the BioCF, rural areas of developing countries.

There is a specific focus on Africa. Africa's economic development will increase its energy demand in the near future. At the same time the growth of Africa's agriculture puts new demands on its environment and natural resources. Carbon finance in conjunction with more traditional sources of finance can provide local benefits while making an important contribution to the global environment.

The carbon finance portfolio in Africa covers a diverse range of technologies. These include afforestation/reforestation of degraded land, bagasse cogeneration, waste management using composting or landfill gas capture, run-of-river hydropower and energy efficiency projects.

Currently, the World Bank has embarked upon capacity building initiatives in Senegal, Madagascar, Botswana and Nigeria. Other capacity building initiatives include client-executed Japan Policy and Human Resources Development Fund (PHRD) grants in Uganda and Mozambique.

At the November UN climate meeting in Nairobi, the International Emissions Trading Association (IETA) and CF-Assist (see page 20) are hosting a Carbon Finance Day 2006/Carbon Project Exhibition, in collaboration with the Kenyan Ministry of Environment and KenGen, the Kenyan power generation authority. This event is a forum for sellers of African CDM projects, to meet private sector and government buyers of greenhouse gas emission reductions. In addition, seminars are being held on diverse topics ranging from the state of the carbon market to project preparation and appropriate baseline methodologies for Africa CDM projects.



Carbon Finance at the World Bank *continued*

Scaling Up Carbon Finance

The *Carbon Finance Approach* also considered new instruments and facilities that would enable the Bank to scale up its carbon finance operations. It proposed an aggregating facility to pool funds for the purchase of emission reductions from large projects. Hence was born the Umbrella Carbon Facility.

The World Bank's Umbrella Carbon Facility (UCF) was established in December 2005. The facility will aggregate multiple sources of funding, including from some of the Bank's existing eight carbon funds and facilities, to purchase large volumes of carbon emission reductions from CDM and JI projects. The purchases will be made on behalf of governments and private companies that have contributed to specific tranches of the facility as they strive to meet their commitments under the Kyoto Protocol or the European Union's Emissions Trading Scheme. More than 75% of the money in the UCF's first tranche represents private capital.

Two Chinese private companies in Jiangsu Province in the People's Republic of China, Jiangsu Meilan Chemical Co. Ltd. and Changshu 3F Zhonghao New Chemicals Material Co. Ltd., have signed emission reductions purchase

agreements with the first tranche of the UCF for the largest emission reductions transaction on record. These are two HFC-23 (Trifluoromethane) destruction projects to be located at the HCFC22 (Chlorodifluoromethane) manufacturing plants in these companies. HFC-23, a byproduct in the manufacturing process of HCFC22, is one of the most potent greenhouse gases with a global warming potential that is 11,700 times that of carbon dioxide. Through the €799 million (\$1 billion) contract to purchase emission reductions from these projects, the two companies jointly are expected to reduce emissions of about 19 million tons of carbon dioxide equivalent annually.

China has created a Clean Development Mechanism Fund, through which revenues accruing to the government as a result of the sale of emission reductions will be used to support sustainable development activities. The government will retain 65% of all HFC-23 revenues for investing in projects and activities related to climate change. China's Clean Development Mechanism Fund is expected to finance climate mitigation projects in priority sectors such as energy efficiency, renewable energy and coal mine methane recovery and use.



HFC-23 emission reductions purchase agreement signing ceremony in Beijing, China in December 2005.

AAUs + Greening = Green Investment Schemes

The Bank is exploring how to implement Green Investment Schemes—how to ‘green’ assigned amount units (AAUs) of transition economies so that the outcome of any transactions will support sustainable development. An ‘assigned amount’ is the total amount of greenhouse gas that each ratifying country is allowed to emit during the first commitment period of the Kyoto Protocol (2008 to 2012).



Sustainable development through green investment schemes

For most countries with economies in transition, greenhouse gas emissions will remain below their Kyoto targets in 2008 to 2012. This potentially substantial ‘headroom’ can be sold as assigned amount units (AAUs) utilizing International Emissions Trading of the Kyoto Protocol.

AAU trading would be an additional and necessary avenue for the success of the Kyoto Protocol as CDM, JI and domestic policies and measures may not meet the demand for Kyoto compliance for some countries.

However, political acceptability of AAU trade is in question as it does not reduce emissions. Some governments in the European Union and Japan have indicated that they are only interested in AAUs if

revenues are used to reduce greenhouse gas emissions and/or to generate other benefits. A green investment scheme (GIS) is a mechanism to ensure this. Successful implementation of green investment schemes would also help countries with economies in transition to move to a more sustainable development path.

A green investment scheme is neither a Kyoto requirement nor governed by UNFCCC. Therefore, credible schemes need to be designed—acceptable both to sellers and buyers. The World Bank is actively engaged in green investment scheme development in Bulgaria, Latvia and Ukraine and facilitating discussions between sellers and buyers.

From the Manager of the Carbon Finance Unit



In the past seven years we have seen carbon finance activities at the World Bank grow from a \$180 million Prototype Carbon Fund to include nine carbon funds and facilities, with a total capitalization of about \$1.9 billion. Both inside and outside the World Bank there is growing

recognition that carbon finance can be a powerful new tool for financing sustainable development and an important asset to help reduce greenhouse gas emissions. The 62 companies and 13 governments that make up the carbon funds managed by the World Bank have had the foresight to see the possibilities that the carbon market could offer and are the real pioneers of this business.

Inside the World Bank there is increasing awareness that carbon finance is a natural extension of the Bank's more traditional means of assisting our client countries in their development efforts. In addition, incorporating carbon finance components into Bank-financed projects not only increases the development impact of these investments, but also lowers transaction costs. The growing interest in carbon finance is supported by a higher proportion of Bank-financed projects being proposed to the Carbon Finance Unit and included in its portfolio. Twenty-three percent of carbon fund projects are associated with World Bank financed operations.

This past year has seen a number of achievements and breakthroughs on the carbon finance front, including the successful completion of the first tranche of the Umbrella Carbon Facility and the approval by the Bank's Board of Executive Directors of the proposal to establish a

Carbon Fund for Europe in partnership with the European Investment Bank. Internally, significant efforts have been made to strengthen policies and procedures for carrying out our carbon finance activities, manage the risks inherent to these operations and tighten the link with the Bank's regional operations.

I am happy to report that there has been growth of carbon finance in Africa over the past year. The current pipeline for all Bank-managed carbon funds contains 49 approved projects in Africa, of which 11 projects are at an advanced stage of preparation or emission reductions purchase agreement negotiation. To date, we have signed five emission reduction purchase agreements in Africa for the purchase of 3.4 million tons of carbon dioxide equivalent.

The carbon market is proving to be a valuable instrument to help tackle climate change and contribute to the sustainable development of our client countries. But to help fulfill its potential, we must see a scaling-up of greenhouse gas reduction efforts, the establishment of regulatory regimes that go well beyond 2012 and reforms in the implementation of the CDM, so that there are real opportunities for the poorest on the planet to participate in this growing market. We will know that we have succeeded when success has a human face—when communities from Uganda to Cambodia can point to a sustainable development benefit and say: *"This is what carbon finance did for me!"*

A handwritten signature in dark ink, appearing to read 'J Chassard'.

Joëlle Chassard
Manager
Carbon Finance Unit

Carbon Finance Highlights 2006



The **Prototype Carbon Fund (PCF)** is expected to close its portfolio by the end of 2006 with 25 signed purchase agreements for the removal of over 30 million tons of carbon dioxide equivalent from the atmosphere.

At the end of three years the capitalization of the **Community Development Carbon Fund (CDCF)** stands at \$128.6 million; 10 emission reductions purchase agreements (ERPAs) have been signed for a value of \$29 million.



The **BioCarbon Fund (BioCF)** now has seven emission reductions purchase agreements signed for the first tranche, totaling roughly one-third of its value. The second tranche of the BioCF will be opened for contributions in late 2006.

Having the first project ever registered under the CDM, the **Netherlands CDM Facility (NCDMF)** is a mature portfolio well on its way to completing its target of purchasing 38 million tons of carbon dioxide equivalent emission reductions by June 2007.



The **Netherlands European Carbon Facility (NECF)**, operated cooperatively with the International Finance Corporation, is a joint-implementation fund operating primarily in Poland, Russia and Ukraine. It is expected that the World Bank portion of the facility will fully complete its commitment to purchase five million tons of emission reductions by June 2007.

The **Italian Carbon Fund (ICF)** has approved carbon finance documents for about 18.2 million tons of carbon dioxide equivalent. The capitalization of the ICF stands at \$155 million and the fund currently has 25 project idea notes with expected emission reductions totaling over 32 million tons of carbon dioxide equivalent.



As of August 31, 2006 the **Danish Carbon Fund (DCF)** portfolio includes seven projects—representing reductions of about 8.4 million tons of carbon dioxide equivalent—that have advanced to the carbon finance document stage, with some of them having entered emission reductions purchase agreement negotiations.

The **Spanish Carbon Fund (SCF)** has approved carbon finance documents for a number of projects totaling about 14 million tons of carbon dioxide equivalent. The capitalization of the SCF stands at \$275 million and the fund currently has 31 project idea notes with expected emission reductions totaling over 44 million tons of carbon dioxide equivalent.

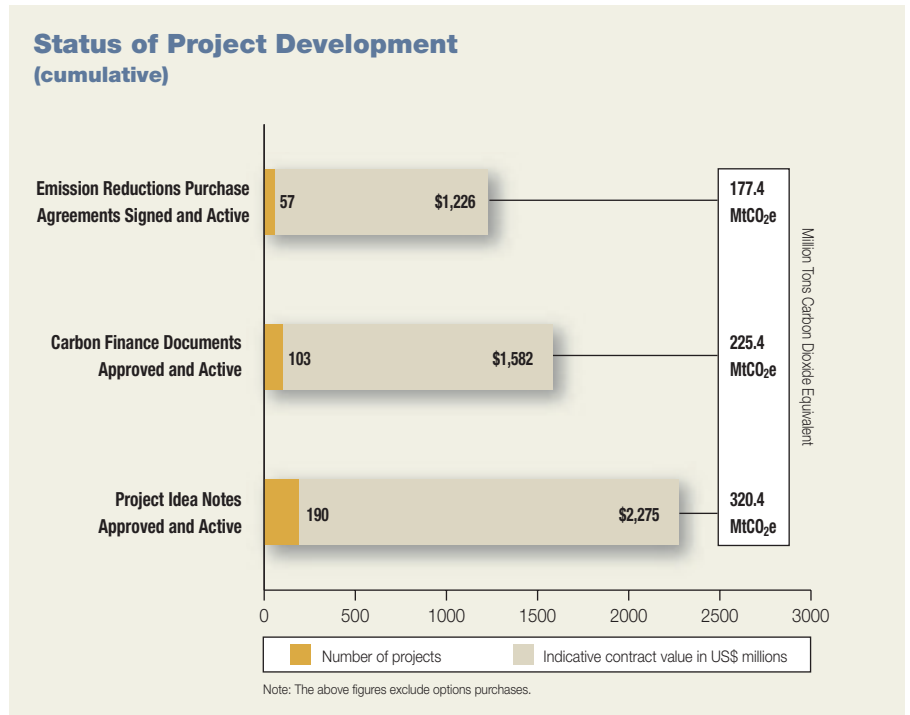


The first tranche of the **Umbrella Carbon Facility (UCF)** was fully funded in August 2006 with the acceptance by the trustee of the participation of five carbon funds and an additional 12 participants from the private sector. The total capital of the facility is \$1 billion, of which about three-quarters comes from private sector entities.

Report on Carbon Finance Operations

World Bank Carbon Finance Portfolio Development

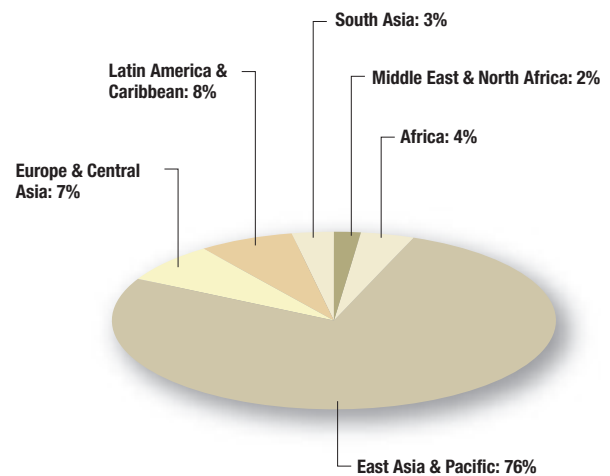
The pipeline for the World Bank managed carbon funds includes 190 projects with an estimated carbon asset value of more than \$2.2 billion as of August 31, 2006. Of these, 103 projects have advanced to the carbon finance document (CFD) stage and have been approved by the participants of the relevant funds for inclusion in the portfolio. Fifty-seven projects¹ have signed emission reductions purchase agreements (ERPAs) totaling \$1.2 billion, of which 27 were signed over the last year with a total value of \$1.1 billion.



Active World Bank Carbon Finance Portfolio—Total \$1.582 Billion

Geographic Distribution

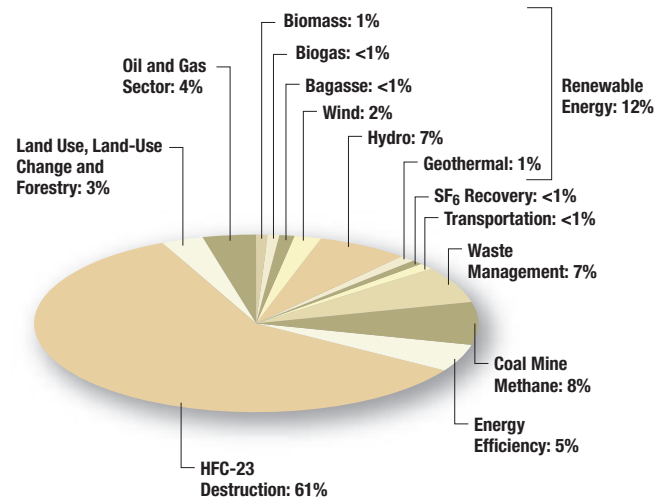
Looking at the geographic distribution of the portfolio, East Asia, particularly China, remains the host country region with the largest share, accounting for a total value of over \$1 billion. This is primarily due to the two HFC-23 contracts. Europe and Central Asia increased the value of its portfolio with the addition of several oil and gas sector projects. Europe and Central Asia and Latin America now have an almost equal share of the World Bank's carbon finance portfolio with 7% and 8% respectively or more than \$110 million in expected contract value each. The first emission reductions purchase agreements for the Middle East and North Africa and South Asia regions were signed in the past year for the Italian Carbon Fund and the Community Development Carbon Fund. In addition, three purchase agreements have been signed in Sub-Saharan Africa in the past year.



¹ The World Bank's carbon funds have signed 58 emission reduction purchase agreements. One agreement has been terminated.

Technological Distribution

The World Bank's carbon funds strive for technological diversity. In the last year, HFC-23 destruction accounted for the largest share (61%) of the portfolio. Renewable energy projects represent the next largest share with \$188 million in carbon finance revenues expected. The last year has seen the entrance of projects in the oil and gas sector into the project portfolio. Progress was also made in securing assets in the land use, land-use change and forestry (LULUCF) category through the signing of the first purchase agreements for the BioCarbon Fund. The Spanish Carbon Fund was the first World Bank managed fund to sign an emission reductions purchase agreement in the transportation sector. Finally, strides were made to develop energy efficiency projects, a sector that typically is under-represented in the overall CDM pipeline.



BioCarbon fund signs first two emission reductions purchase agreements

Precious Woods in Nicaragua and FONAFIFO-Coopeagri Forestry in Costa Rica were the first two projects in the BioCF portfolio to have signed emission reductions purchase agreements. The signing ceremony took place on May 10, 2006 at Carbon Expo in Cologne, Germany.

The Precious Woods project consists of the reforestation of degraded pasture land of two former cattle ranches in southwestern Nicaragua with teak and valuable native wood species. In addition, the project activities will also focus on conserving the existing secondary forest in the project area consisting of ornamental and fruit-bearing native species. Most of these species are either threatened or protected under the Convention on International Trade in Endangered Species of Wild Fauna and Flora. The Precious Woods project is expected to sequester around half a million tons of carbon dioxide equivalent by 2012.

The Coopeagri Forestry project will help expand the scope of an already existing Program of Payments for Environmental Services, implemented in Costa Rica by a government agency—FONAFIFO. The project activities are integrated into the production activities of the farmers, who voluntarily will dedicate part of their farms to reforestation or agroforestry, in that way likely improving sustainability and permanence. The newly established forests will provide raw material for the local forest industry while relieving pressures on natural forests and providing new habitat for biodiversity. The new forests will provide other environmental benefits, such as protecting the hydrologic regime and reducing land erosion.



At top: Jorge Mario Rodrigues from FONAFIFO (left) and James Warren Evans from the World Bank.

At bottom: Ted Scheidegger from Precious Woods (right) and Alexandre Kossoy from the Carbon Finance Unit at the World Bank.

Creating the Carbon Asset

Carbon asset refers to the greenhouse gas emission reductions generated by a project when project emissions are less than those that would occur in a baseline scenario. The baseline scenario refers to a hypothetical scenario without the project. The Executive Board oversees CDM projects while the Supervisory Committee oversees JI projects.

In the past year, the World Bank has submitted many methodologies, including the only three forestry sector methodologies approved. Additionally, World Bank contributions to coal mine and cement methodologies provided the basis for the approved consolidated methodologies. Currently, World Bank-prepared methodologies represent some 27% of all approved methodologies and 18% of all submitted new methodologies. While the number of new methodologies is still increasing, the approval process has made insufficient progress for some sectors. Therefore the World Bank plans to give priority to under-represented methodology areas such as energy efficiency.

The World Bank has also proposed new methodologies to calculate methane emissions from hydro reservoirs, methane capture from gas pipelines, lower emissions in the transport sector and for the treatment of leakage in forestry sector projects. The World Bank proposed several methodologies for small-scale projects and has promoted a programmatic approach to the CDM.

In the past year, the World Bank has systematically responded to requests for input from the Executive Board and the Supervisory Committee. It presented an annual overview of the status of the regulatory system for the CDM

and JI and will continue to disseminate experience to the regulatory bodies and other market participants.

Despite clear progress and success in project procedures there are still concerns. Following the establishment of review teams, a much larger number of validated projects are now questioned before registration. There is a risk that some early start projects will not be registered before the registration deadline due primarily to pending work on methodologies. Some approved methodologies have been put “on hold” for long periods, for instance the small-scale methodologies involving non-renewable biomass. Generally, the efficiency of the regulatory process could be enhanced through closer cooperation between the Executive Board and its panels and Operational Entities and project proponents.

Good progress has been made by the Joint Implementation Supervisory Committee, which has drawn on the experience of CDM, but also uses simpler approaches in keeping with the special conditions for JI projects. While greater methodological certainty should lead to cost reductions, there is still a significant need for clarifying regulatory uncertainties for both CDM and JI.

First coal mine methane methodology



With the methodology for the China Jincheng Coal Mine Methane Project, the World Bank provided valuable input to the development of the consolidated methodology ACM0008. This methodology is the first ever for the mining sector. It targets projects that capture and destroy methane from coal mining activities or that utilize it for power generation.

The Jincheng project in the Shanxi province of China captures the coal mine methane gas which was previously vented into the atmosphere, and uses the gas to fuel 120 megawatts of on-site power production to displace imported grid electricity generated by coal. The project will reduce annually around three million tons of carbon dioxide equivalent.

Transaction Structuring and Risk Management

A Systematic Pricing Approach

Over the past year, the carbon market has evolved to become a true resource for facilitating climate-friendly projects. Market dynamics have changed as transaction times shortened and overall prices increased. As a result, the World Bank has worked on developing a pricing approach which seeks to achieve three main objectives: assure equitable sharing of benefits between buyers and sellers (i.e. offer project sponsors fair and coherent prices for their emission reductions), improve transparency in the carbon market, and fully commit the resources placed in the Bank's trust by carbon fund participants. The process also ensures credibility from host countries and promotes durability of the emission reductions purchase contracts.

To avoid the risk that the World Bank would follow unilateral and inconsistent trends and to assure the prices chosen reflect global market trends, the Bank will consult with other market players and monitor external transactions and general market conditions.

The prices, which will reflect the risk and benefits profile of the deal, will be constantly reviewed and changed if significant market evolution or price discovery events are observed—for example as a result of surveys, auctions and other methods.

A pricing advisory committee has been established, made up of senior staff from relevant sectors within the

World Bank. Members of the committee have a broad range of expertise in areas such as financial markets, risk management, legal issues, and country and project risks, reflecting different aspects of emission reductions purchase agreements. The new pricing approach was cleared by the committee in July 2006.

As part of the pricing approach and responding to market demands, the World Bank is developing comprehensive guidance for upfront payment requests under the emission reductions purchase agreements. The guidance addresses risks and sets up minimum conditions for eligibility and guarantees requested to mitigate the carbon fund participants' incremental risk exposure. It is expected to support World Bank carbon finance operations and help climate-friendly project developers to overcome investment barriers and reduce project commissioning lead-time.

Streamlining Transaction Development

To reduce transaction costs and processing time, the World Bank has standardized the financial due diligence that will identify a project's viability in its earliest stages. This financial tool helps to identify key strengths and weaknesses of a project early in the process and allows for tailored carbon finance solutions and/or quicker decisions on the project's inclusion in the carbon finance portfolio.



Transaction Structuring and Risk Management *continued*

Financial Engineering Securing Underlying Financing

The World Bank has continued to develop specific emission reductions purchase agreements that enable project sponsors to borrow against carbon revenues, while maintaining acceptable terms and appropriate risk allocation. For example, in order to facilitate third-party financing of the Huaycoloro landfill gas project in Peru and allow the project to use its early emission reductions to secure underlying finance, the World Bank agreed to fund project preparation and asset creation costs, while deferring the delivery of the contracted emission reductions by two years after project completion.

Catalysing Climate-Friendly Projects

The World Bank has continued to promote the catalytic role of carbon finance in securing underlying finance for climate-friendly projects in developing countries and countries with economies in transition. These efforts have been leveraged by the World Bank's recent broader efforts to promote renewable energy and energy efficiency projects through the *Investment Framework for Clean Energy and Development* report.

In addition, the Bank has been working with multilateral, bilateral and private financial institutions, to raise awareness of the impact of carbon finance on climate-friendly investment and to encourage lending against carbon revenue streams.



Financial Performance

2006 has been another year of progress for carbon finance at the World Bank. Overall funds and facilities committed by 13 governments and 62 private organizations were \$1,895* million by August 31, 2006. This is expected to increase to \$1,945 million by December 31, 2006, with a new \$50 million fund in partnership with the European Investment Bank—the Carbon Fund for Europe, which is expected to start operations in 2007. The value of emission reductions purchase agreements signed by August 31, 2006 is \$1,226 million, with 177 million tons of carbon dioxide equivalent—in both certified and verified emission reductions—under contract for delivery.

While the growth of the market for Clean Development Mechanism projects is most encouraging, it has resulted in upward pressure on the price per ton of carbon dioxide equivalent. Constraints imposed by pricing agreements for a number of funds has made it difficult to offer competitive pricing on some transactions. The World Bank has responded by establishing a new approach to pricing, which is designed to give more consistency across the portfolio.

The rapid growth in funding for the Bank's carbon finance operations presents many challenges to the World Bank, not least delivering sufficient emission reductions purchase agreements within the time frame set out in the first Kyoto commitment period. Mainstreaming carbon transactions within the World Bank and leveraging its regional presence has been a priority. As a result the number of carbon finance transactions associated with Bank lending projects has grown from 10% in 2004 to around 23% in 2006. In the last year the Carbon Finance Unit moved some

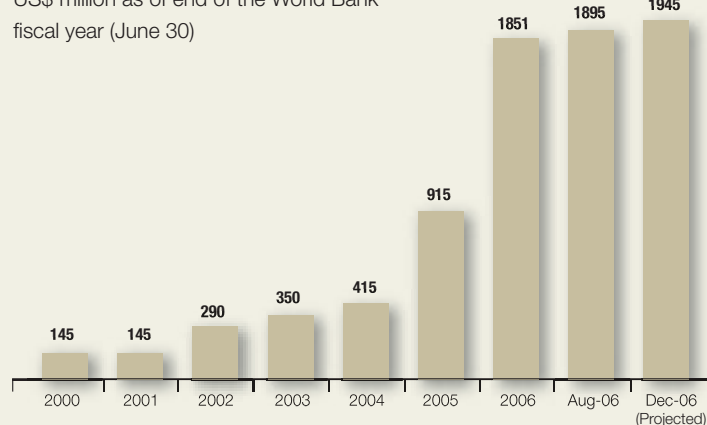
of its most experienced staff into the regions to coordinate and lead carbon finance operations. Staff and resources are shared across many funds rather than being dedicated to a single fund. This approach allows the Carbon Finance Unit to optimize processes and ultimately operate more effectively and efficiently.

With several funds nearing the end of the allocation phase, the Carbon Finance Unit has been developing back office processes for timely emission reductions purchase agreement payments to project entities and ensuring that certified emission reductions and verified emission reductions are registered in accordance with the regulations and the fund participants' requirements.

The next two years will be important in establishing carbon finance as a valuable financing product in the World Bank's portfolio. A significant delivery challenge lies ahead, coupled with the need to continue championing carbon finance both internally and externally.

Funds Under Management

US\$ million as of end of the World Bank fiscal year (June 30)



* A number of funds are Euro-denominated, an exchange rate of 1.25 dollar/euro has been used.

Capacity Building

CF-Assist Presence Established in Different Regions of the World

The Carbon Finance Assist program (CF-Assist), established by the World Bank in 2004, became fully operational during 2005. CF-Assist is aimed at assisting developing countries and countries with economies in transition to strengthen institutions and build local expertise that will enable them to participate in the carbon market. The key activities under the program are: building capacity through developing carbon finance projects in priority sectors, enhancing institutional strength of government institutions and other stakeholders in terms of approval and monitoring capabilities, providing targeted analysis to overcome market and information barriers and facilitating market development through global and regional events.



In order to build better linkages to the Bank's overall knowledge management activities and bring improved focus on capacity building for carbon market development, the management of CF-Assist was transferred to the World Bank Institute (WBI) on July 1, 2006.

Financial Progress

By the end of August 2006, CF-Assist had accumulated a resource portfolio of nearly \$12 million including donor contributions from Spain, Denmark, Switzerland, France and Australia. In addition, the program leveraged over \$5.5 million from the Japanese-funded Policy and Human Resource Development (PHRD) program. Additional leverage of \$1 million came in the form of the Carbon Finance to Promote Sustainable Energy Services in Africa (CF-SEA) program, funded by the United Nations Environment Programme (UNEP).

Overall Impacts

- Over 2,000 participants were trained in carbon finance project development and related issues in more than 12 countries;
- More than 4,000 people attended various events under CF-Assist including Carbon Expo 2006, creating widespread awareness and business opportunities;
- Several institutions were strengthened, including Designated National Authorities (DNA) of many countries including Cambodia, the Russian Federation, Senegal, South Africa, Sri Lanka and Uganda;
- Participation of over 45 developing countries and countries with economies in transition was facilitated at Carbon Expo 2006 resulting in negotiations on about 100 projects.

Innovative Financial Mechanisms

CF-Assist has supported innovative mechanisms to help develop the carbon markets in developing countries. A good example is the Argentine Carbon Fund (ACF), designed as a seller's fund that would facilitate carbon finance asset development through technical assistance and project development support. A similar fund is being developed in Mexico with CF-Assist support.

Programmatic Progress

- *Country and Regional Programs:* CF-Assist negotiated and launched country programs in nine countries: Argentina, Cambodia, China, Indonesia, Madagascar, Morocco, Mexico, Philippines and Sri Lanka. Programs have been initiated in several other countries: Azerbaijan, Egypt, Georgia, Pakistan, Peru, Tunisia and Uruguay. A regional program has been launched in Central America for the countries of El Salvador, Guatemala and Honduras.
- *Market Facilitation:*
 - Carbon Expo, held annually in Cologne, Germany has become the premier meeting place for buyers, sellers and other stakeholders in the carbon market. Carbon Expo 2006 has proven to be the biggest and most successful event of its kind. (See box below)
 - Two regional Greenhouse Gas Forums were successfully held in New Delhi and Moscow, which attracted key market players and focused on issues related to South Asian and Eastern European markets.
 - CF-Assist supported the publication of the 2006 State and Trends of the Carbon Market report, which was formally released at Carbon Expo 2006. The report, using data compiled from market players, explored the status of various flexible mechanisms under Kyoto and examined the emerging trends.



Carbon Expo 2006

The third Carbon Expo—Global Carbon Market Fair and Conference—organized by the World Bank, the International Emissions Trading Association (IETA) and Koelnmesse took place in Cologne in May 2006. A record number of 2,050 participants from 94 countries were present at this unique event. According to reports from participants, more than 200 greenhouse gas emission reductions projects from developing countries were presented and a series of contracts for the purchase of emissions rights were initiated or concluded. High level government representatives from 25 developing countries invited by the World Bank attended the event. The exhibition space increased by 50% from last year. With 187 exhibitors from 50 countries, the trade fair once again proved its value as a multilateral knowledge learning experience.

Report on Business: The Work of the Carbon Funds

23	Prototype Carbon Fund (PCF)
31	Community Development Carbon Fund (CDCF)
41	BioCarbon Fund (BioCF)
51	Netherlands CDM Facility (NCDMF)
55	Netherlands European Carbon Facility (NECF)
57	Italian Carbon Fund (ICF)
63	Danish Carbon Fund (DCF)
67	Spanish Carbon Fund (SCF)



Prototype Carbon Fund

From the Chair of the PCF Participants' Committee



Since its inception, the project-based market for carbon credits was developed, shaped and dominated by buyers like the PCF. This market grew rapidly last year with further indication of a greater degree of maturity. With growing demand for quality emission rights from cost effective and low risk CDM and JI projects, we are observing now for example, that sellers are gaining increasing power in the market which is reflected in the terms and prices negotiated for carbon contracts.

This is one of the reasons that in spite of all efforts, fiscal year 2006 did not see the expected end of the allocation of available PCF funds to suitable climate protection projects. We are confident that we will be able to close the PCF in early fiscal year 2007 and move on to the implementation phase.

At the end of this fiscal year Jean-Claude Steffens stepped down as Chair of the PCF Participants' Committee. On behalf of the PCF participants, I would like to thank Jean-Claude for his guidance and advice and we are looking forward to cooperating with him in the Participants' Committee.

Hans Georg Adam
RWE



The Prototype Carbon Fund—Fulfilling its Mandate

The mission of the Prototype Carbon Fund was to pioneer the market for project-based greenhouse gas emission reductions within the framework of the Kyoto Protocol and to contribute to sustainable development. Operational since April 2000 as the first public/private partnership aimed at mitigating climate change to be established globally, the PCF has achieved these goals. Thanks in part to the innovative lead of the PCF, project-based mechanisms used to generate potential credits for reductions in emissions of greenhouse gases (CDM and JI) have now been solidly established.

The PCF provides funds to projects designed to produce high quality greenhouse gas emission reductions, which PCF participants may be able to use in compliance with their expected greenhouse gas reduction obligations. Six governments and 17 companies, all from industrialized countries, have contributed \$180 million in funds to the

PCF, which currently has a portfolio of 25 transactions covering a variety of technologies including renewable energy, energy efficiency, solid waste management and industrial gas emissions abatement. The PCF has signed emission reductions purchase agreements for 21 of these transactions.

By the end of 2006, the PCF will have all purchase agreements signed and is expected to close its portfolio. Several of the PCF transactions have started to generate emission reductions for the PCF participants and revenues for the project sponsors. The Brazil Alta Mogiana Bagasse Cogeneration project was the first PCF project to be registered by the CDM Executive Board (EB) and was issued the first certified emission reductions (CERs) in August of this year. Most of the CDM projects in the PCF portfolio are scheduled to be registered by the Executive Board by the end of December 2006.

BRAZIL



First Certified Emission Reductions for the PCF

Brazil Alta Mogiana Bagasse Cogeneration project is the first PCF project to be registered by the CDM Executive Board (EB) and was issued the first certified emission reductions (CERs) in August of this year. The project consists of increasing the efficiency in the bagasse cogeneration facility at Usina Alta Mogiana S/A Acucar e Alcool, a Brazilian sugar mill located in the State of Sao Paulo. Bagasse, a renewable fuel source, is a residue from sugarcane processing. By investing in more advanced boilers to increase the efficiency of bagasse combustion as well as steam output in the production of sugar and alcohol, Alta Mogiana generates surplus steam which is used to produce electricity for export to the national grid. The project thus avoids the generation from the grid of the same amount of electricity that would otherwise be produced using fossil fuel.

While the project promotes the generation of clean power based on renewable energy, it also demonstrates the viability of electricity production as a source of revenue for the sugar industry. The great majority of the 320 sugar mills in Brazil produce energy for on-site use only due to low efficiency equipment installed in most of those mills. The sale to the PCF of emission reductions generated by the project, amounting to 110,000 tons of carbon dioxide equivalent over seven years, will boost the attractiveness of bagasse cogeneration projects and will reduce dependency on fossil fuel.

PCF Participants



GOVERNMENT OF CANADA

The Canadian International Development Agency and Canada's Clean Development Mechanism and Joint Implementation Office have represented Canada in the PCF since its inception in 2000. Canada has been rewarded by participation in the PCF with a wealth of information on developing and implementing greenhouse gas emission reduction projects.*



GOVERNMENT OF FINLAND

The Finnish Government regards the Kyoto Protocol as a landmark agreement. The PCF is an integral part of Finland's Pilot Programme established to build capacity to utilize project-based mechanisms. Through participation in the PCF, Finland gains useful experience and information on the rapidly developing carbon market and contributes to developing JI and CDM as effective policy tools.*



JBIC
JAPAN BANK FOR INTERNATIONAL COOPERATION

JAPAN BANK FOR INTERNATIONAL COOPERATION

The Japan Bank for International Cooperation (JBIC), a policy-based financing institution for conducting Japan's external economic policy and cooperation, highly commends the PCF for accumulating know-how on CDM/JI project formulation. JBIC will utilize such know-how to provide assistance to projects that contribute to sustainable development and climate change mitigation in developing countries.*



GOVERNMENT OF THE NETHERLANDS

The Dutch government is committed to tackling global warming. The Ministry of Economic Affairs finds it of utmost importance that carbon dioxide emissions now have a price on the international market. The PCF played an important role in that process. The EU's linking directive has provided a good incentive for the development of CDM and JI. Now we need quick decisions on the climate regime after 2012.*



GOVERNMENT OF NORWAY

In 1996, Norway supported the creation of an Activities Implemented Jointly program at the World Bank. The program emphasized learning, client-country engagement, methodological development, private sector participation and the identification of projects. These experiences directly influenced the development of the carbon funds in the World Bank and the participation of Norway in the PCF.*



GOVERNMENT OF SWEDEN

Sweden strives to be a forerunner in global cooperation to curb climate change. Sweden has made great efforts to ensure that the Kyoto Mechanisms evolve into efficient, reliable and fair tools for international cooperation in climate change mitigation. Participation in the PCF aims to influence the fund's policy towards high-quality projects, interesting methodological challenges and a just geographical distribution of projects.*



BP P.L.C.

BP, one of the world's largest energy companies, aims to demonstrate environmental leadership and work with others to support and develop climate change policy and mitigating technologies. The PCF has been outstanding in developing carbon markets and communicating its market-leading knowledge. Participation has provided BP with valuable experience towards meeting its environmental goals.*



CHUBU ELECTRIC POWER CO., INC.

Chubu Electric Power Co. Inc. (Chubu Electric) shares environmental consciousness and coordinates with its partners in Japan and overseas in providing assistance to clean energy projects and energy efficiency improvements in Asian countries. Chubu Electric joined the PCF at its founding and has committed \$10 million, among the largest contributions from a private sector participant.*



THE CHUGOKU ELECTRIC POWER CO., INC.

The Chugoku Electric Power Co., Inc. was established in 1951 and supplies electricity to the Chugoku region in western Japan. To prevent global warming, the company undertakes various measures including promotion of nuclear power generation and renewable energy. Participation in the PCF further indicates the company's commitment to address climate change and contribute to sustainable development.*



DEUTSCHE BANK

Deutsche Bank recognizes the fundamental importance of the sustainability oriented implications of climate change. The company strongly endorses the approach and methodology undertaken by the PCF. Deutsche Bank's ability to meet representatives of host governments, industry and the finance sector has been particularly welcome in the framework of implementing the concept of the PCF.*



ELECTRABEL

Electrabel is active in the generation, trading and supply of electricity in 10 countries of the European Union. The company recognized the importance of climate policy very early, and the investment in the PCF was considered a unique opportunity to learn about climate friendly projects. This knowledge has contributed to the company's development of several CDM projects.*



FORTUM

Fortum is a leading energy company in the Nordic countries and the other parts of the Baltic Rim. The company has systematically developed its business towards low-carbon production and better management of greenhouse gases through its own investments and the utilization of the Kyoto Mechanisms. In this respect the PCF has been Fortum's flagship.*

PCF Participants *continued*



GAZ DE FRANCE

Gaz de France is one of the leading European gas groups and is active throughout the world. Gaz de France is actively looking at sustainable development issues related to energy and climate change. Its many actions currently go from major research programs to voluntary reduction of its own emissions. Participation in the PCF is part of this effort.*



KYUSHU ELECTRIC POWER CO., INC.

Kyushu Electric Power Company supplies electricity to the Kyushu region in southwestern Japan. Kyushu Electric endeavors to utilize its accumulated know-how on the reduction of greenhouse gases in activities to prevent global warming. As a part of such efforts, the company participated in the PCF upon its establishment in 2000.*



MITSUBISHI CORPORATION

Mitsubishi Corporation has been active in the whole range of business related to the Kyoto Mechanisms. Mitsubishi not only trades emission credits but develops CDM/JI projects by providing its technical, financial and marketing expertise in various countries. By participating in the PCF, Mitsubishi has gained know-how to support those who are potentially liable with the climate change problem.*



MITSUI & CO., LTD.

Mitsui is one of Japan's leading trading houses and has more than 150 overseas offices. Its main functions in the emissions trading business include project development, investment, financing and emissions trading. Mitsui continues to develop a wide range of knowledge in the field through participating in the PCF and contributing to the world by providing solutions concerning global environmental issues.*



NORSK HYDRO

Norsk Hydro manufactures aluminum and petrochemicals and has activities in the oil, gas and electricity sectors. The group has businesses in approximately 40 countries. Norsk Hydro's investment in the PCF has been an important element in the company's build-up of knowledge and position, as it prepared for the emissions trading system within the European Union.*



RABOBANK

Rabobank is the world's leading bank in the food and agri-business sectors with offices in 34 countries. Sustainable resource management and effective climate change policies are key to the business of Rabobank clients and hence to Rabobank's long-term interest. Rabobank offers a suite of products and services to help its clients interact effectively in the carbon market.*



RWE

RWE is one of the largest industrial companies in Germany and a leading player in the international electricity and gas sector. RWE's major power generation, energy sales and trading markets are in Germany, the United Kingdom and Central/Eastern Europe. RWE joined the PCF as part of its climate protection strategy and in order to gain experience with project-based generation of carbon credits.*



SHIKOKU ELECTRIC POWER CO., INC.

Shikoku Electric Power Co., Inc. (YONDEN), which is one of 10 electric utilities in Japan, currently provides high-quality, low cost, stable electricity service for more than four million people of Shikoku region. Shikoku expects the PCF to create high-quality greenhouse gas emission reduction credits economically while it contributes to sustainable development in the future.*



STATOIL ASA

Statoil is an integrated oil and gas company, headquartered in Norway, with 25,600 employees and activities in 33 countries. The company is one of the world's most environmentally-efficient producers and transporters of oil and gas. Statoil joined the PCF to help kick-start the implementation of the Kyoto Mechanisms, gain experience and meet future obligations for emission limitations cost-effectively.*



TOHOKU ELECTRIC POWER CO., INC.

Tohoku Electric Power Company supplies electricity to about 7.7 million customers in the north-eastern region of Japan's main island. Involvement in the PCF gives the company a great opportunity to acquire know-how in implementing the Kyoto Mechanisms, and also a chance to demonstrate its strong capability to address climate change issues all over the world.*



TOKYO ELECTRIC POWER CO., INC.

Tokyo Electric Power Company Inc., (TEPCO) supplies electricity to the Tokyo Metropolitan area. TEPCO makes every effort to meet its voluntary target of reducing carbon dioxide emissions by enhancing the use of nuclear facilities and supporting high efficiency appliances. With the experience gained through its PCF participation, TEPCO has been involved in CDM/JI activities.*

* The information in the participants' writeups in this report was provided by the participants of the various carbon funds managed by the World Bank and, with the exception of minor editorial changes, is reproduced in the same form in which it was provided. The views and opinions expressed in the participants' writeups are those of the participants providing the information and do not necessarily represent the views and opinions of the World Bank. The World Bank does not take any responsibility for the information contained or the representations made in the participants' writeups.

PCF Portfolio Status

	Country/Project Name	Project Description	PCF Contract ERs (tCO _{2e})
Emission Reductions Purchase Agreements Signed			
1	Brazil: Alta Mogiana Bagasse Cogeneration	Increase efficiency in manufacturing processes and install new facilities to generate surplus electricity to be commercialized	110,000
2	Brazil: Plantar Sequestration and Biomass Use	Charcoal produced from sustainably harvested plantation replacing coke for pig iron manufacture	1,514,286
3	Bulgaria: Pernik District Heating	District heating system upgrades for the city of Pernik	157,000
4	Bulgaria: Sofia District Heating	District heating system upgrades for the city of Sofia	1,084,000
5	Bulgaria: Svilosa Biomass	13.4 megawatt biomass-based boiler to utilize wood waste produced at the Svilosa pulp and cellulose plant to replace coal	450,000
6	Chile: Chacabuquito Hydro	26 megawatt run-of-river hydro to replace coal or gas in the grid	1,090,030
7	China: HFC-23 Destruction	Installation of an incineration facility to decompose HFC-23 generated by the existing HCFC22 manufacturing facility into carbon dioxide and hydrogen fluoride	5,000,000
8	China: Jincheng Coal Mine Methane	Capture of coal mine methane (CMM) associated with coal mining operation and utilization of CMM for power generation by installing steam turbine-gas engine combined cycling power plant of 120 megawatts	4,500,000
9	China: Xiaogushan Hydropower	98 megawatt peaking run-of-river hydroelectric plant located on the Heihe River in the Sunan Yugur	3,000,000
10	Colombia: Jepirachi Wind Farm	19.5 megawatt wind farm in the northern part of Colombia to displace a mix of coal- and gas-based power generation	288,383
11	Costa Rica: Cote Hydro	6.8 megawatt hydro to be supplied to the national grid	172,120
12	Czech Republic: Czech Energy Agency (CEA) Energy Efficiency (Umbrella)	Energy efficiency measures and renewables through the Czech Energy Agency. 18 sub-projects make up the umbrella project: two district heating projects and 16 mini hydro projects	500,000
13	Guatemala: El Canada Hydro	43 megawatt peaking run-of-river hydroelectric plant on the west coast of Guatemala to displace thermal power plants	2,000,000
14	Hungary: Pannonpower Pécs Fuel Conversion	Conversion of Pécs Power plant's existing coal-fired boilers to biomass	1,193,000
15	Indonesia: Indocement Sustainable Cement Production	Energy efficiency measures in Indocement plants by reducing clinker contents in the produced cement; burning alternative fuels for clinker formation; utilizing heat power generation in three locations at Citeureup, Cirebon and Tarjun	*
16	Latvia: Liepaja Solid Waste Management	Methane capture and utilization from waste management providing electricity to the national grid	387,933
17	Moldova: Soil Conservation	Afforestation of 20,000 hectares of degraded and eroded state-owned and communal agricultural lands throughout Moldova	1,300,000
18	Philippines: NorthWind Bangui Bay Project—Phase I	25 megawatt capacity wind farm on a strip of land on the foreshore of Bangui Bay in Ilocos Norte	356,000
19	Poland: Stargard Geothermal	District heating system to utilize geothermal energy to replace coal in the city of Stargard	240,000
20	Romania: Afforestation	Afforestation of 6,852 hectares of public land	854,985
21	South Africa: Durban Municipal Solid Waste	Collection and generation of electricity at two landfill sites. Initial electricity generation of one megawatt (0.5 megawatt at each site) with the potential to expand to two megawatts	613,881
Projects Under Negotiation (indicative contract volumes)			
22	Brazil: Lages Cogen Facility	Installed capacity of 28 megawatt electricity plus 25 tons per hour of steam, fueled by wood waste from the sawmill industries of the region	750,000
23	China: Huitengxile Wind Farm	Construct and operate a 100 megawatt wind farm in Inner Mongolia in China. The project will consist of around 50 to 100 wind turbines of one to two megawatt capacity with a net annual generation of 245 gigawatt hours per year	1,600,000
24	Mexico: Umbrella Waste Management	Three bundled waste-to-energy projects with nine megawatt capacity	2,000,000
25	Uganda: West Nile Electrification Project	Two 1.75 megawatt hydro to replace a number of diesel generator sets in West Nile region. The project will also install a 1.5 megawatt generator	472,462

*Not publicly available.

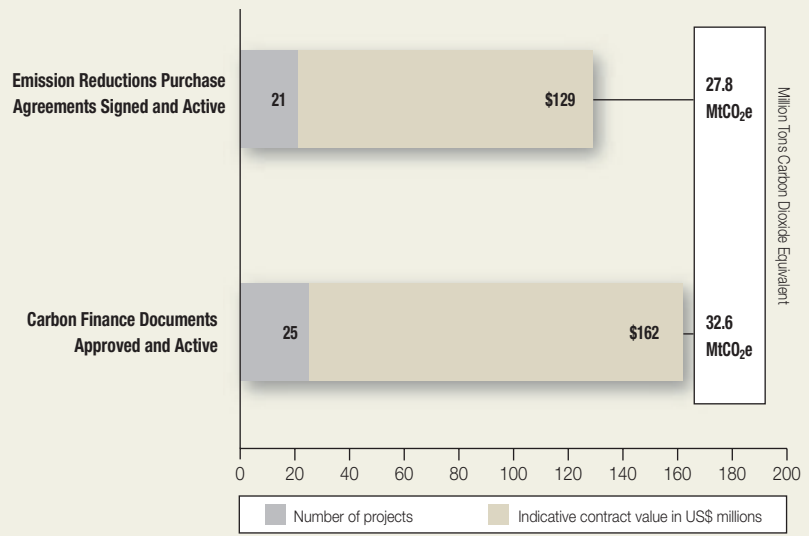


PCF Portfolio Development

Prototype Carbon Fund

The PCF portfolio consists of 25 transactions with approved carbon finance documents worth approximately \$162 million. As of August 31, 2006, 21 emission reductions purchase agreements had been signed. These projects, which total \$129 million, represent most of the PCF portfolio. The four remaining purchase agreements are expected to be signed by the end of 2006, at which time the PCF will close its portfolio.

Status of Project Development in the PCF (cumulative)



CZECH REPUBLIC

Czech Energy Agency Energy Efficiency Umbrella Project

The current level of energy intensity in the Czech Republic is relatively high and there exists a large potential for energy efficiency improvements and small renewable energy projects. The Czech Umbrella Project demonstrates the PCF's ability to work with government agencies to review, develop and approve such small JI projects. For these projects, the Czech Energy Agency screened and grouped small district heating and hydro power projects from which the PCF is purchasing emission reductions.

Included in the Umbrella Project are two district heating and 16 small hydro projects. An example of the projects is the Rozmítal District Heating Project located in a small town of 5,000 in Central Bohemia in the western part of the country. The project installed new gas-fired boilers to supply current district heating loads, 36 new flats and a school. Heat production in the city used to be from three one-megawatt coal boilers that were in extremely poor condition.



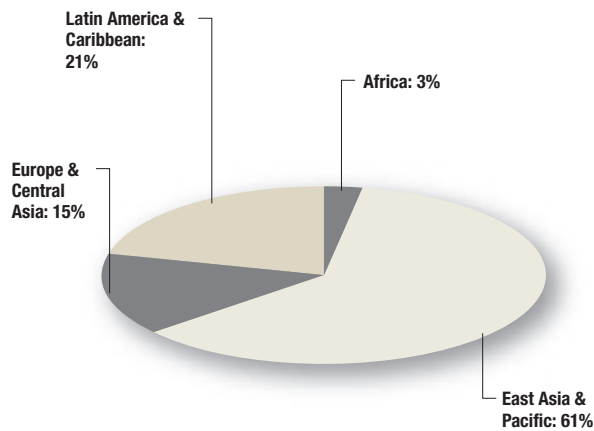


PCF Portfolio Development *continued*

Active PCF Portfolio—\$162 Million

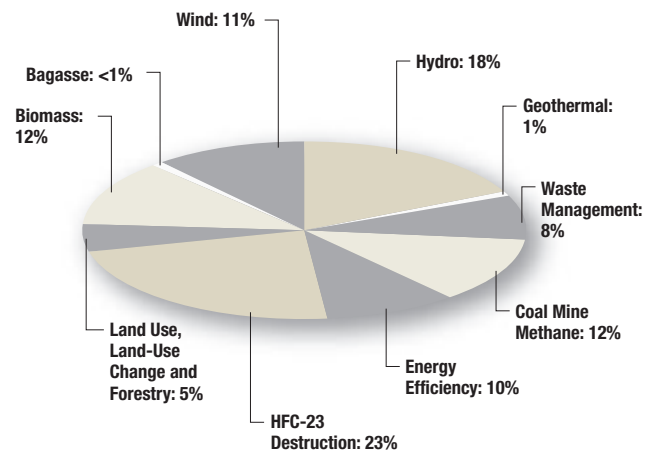
Geographic Distribution

Consistent with the evolution from previous years, the East Asia and Pacific portfolio has become stronger, accounting for roughly 60% of the portfolio value. It will continue to dominate the portfolio along with Latin America and the Caribbean, followed by Europe and Central Asia, with a relatively small share for Africa.



Technological Distribution

The asset class distribution of the PCF is technologically diverse. As intended, renewable energy projects still dominate the portfolio, representing 35% of emission reduction purchases. HFC-23 destruction has become a substantial source of emission reductions with 23% of the portfolio. Land use, land-use change and forestry (LULUCF) make up about 5% of the portfolio.



Pauli Mustonen
1957–2006

Mr. Pauli Mustonen, one of the pioneering advocates of the Prototype Carbon Fund and Participants' Committee member 2000–2001 died in a helicopter crash in eastern Nepal on September 23, 2006. He and 23 colleagues and crew members were returning from a ceremony in which the government of Nepal handed over the responsibility for managing the Kanchenjunga Conservation Area to local communities. Pauli Mustonen was serving as Finland's Chargé d'Affaires in the Nepalese capital, Kathmandu.

Pauli was born in Finland in 1957. He held a M.Sc. (Eng.) degree from Helsinki University of Technology, and joined the Finnish Ministry for Foreign Affairs in 1984.

Pauli Mustonen was a true diplomat and a determined supporter of environmental and development issues, both of which were especially close to his heart. He was among those who recognized the significance of climate change to development well before the agreement on the Kyoto Protocol. The way in which Pauli Mustonen championed the decision of the Finnish Government to invest in the establishment of the PCF, at a time when the carbon market did not exist, was a remarkable achievement. He was a man of quiet but firm conviction, and what he said was always important and often decisive. He reached out to many stakeholders and listened carefully to what they had to say. His understanding of where stakeholders stood increased his capacity to influence public policy in the same well thought out and effective way in which he spoke. His passion for poetry and the arts gave balance to his life and made him an even more intriguing friend and companion. Staff at the World Bank and participants in the PCF will remember Pauli Mustonen as a friend, colleague and a strong ally of those working to achieve sustainable development.





Community Development Carbon Fund

From the Chair of the CDCF Participants' Committee



Undoubtedly, the Community Development Carbon Fund (CDCF) still keeps its unique role among all carbon funds. The CDCF generates not just emission reductions to mitigate climate change, but promotes sustainable development by delivering direct tangible community benefits in the poorest and most disadvantaged countries and communities.

The large capitalization of \$128.6 million by the fund participants from governments and companies expresses their expectations of and strong commitment to the vision of the CDCF.

The development of the project pipeline and portfolio is in line with expectations. The CDCF made progress in achieving its demanding targets and signed five new emission reductions purchase agreements in the past year. Nevertheless, further efforts are needed to prove the valuable concept of the CDCF as a success. The lack of capacity, institutions and investment environment in least developed countries and the high transaction costs of small-scale projects are some of the major challenges ahead.

In order to meet the closing window for CDM projects and to provide the fund management with more flexibility, the fund participants—supported by the advice of the Advisory Group—relaxed stringent conditions for the CDCF and will now permit the inclusion of larger scale hydro and sequestration in CDCF projects. The increased flexibility has led to a substantial expansion of the project pipeline with good community benefits.

On behalf of the participants, I would like to thank the management of the World Bank and the CDCF fund manager Andrea Pinna for their persistent efforts to build the project pipeline and to ensure substantial community benefits and the Advisory Group and its chair Michael Zammit Cutajar for their valuable recommendations and support. Further, I thank all participants for their contributions and advice over the past year.

Dirk Drechsel
BASF





The CDCF: Emission Reductions for Development

The Community Development Carbon Fund (CDCF) was created in March 2003 to extend the benefits of carbon finance to the poorest countries and poor communities in all developing countries—markets that would typically be unable to attract investment because of the additional country and financial risk.

Contributors to the CDCF support projects that measurably benefit poor communities and their local environment, and receive in return, verified emission reductions from these projects. Host country project communities, meanwhile, benefit from clean water, improved health services, and jobs for women, and simultaneously invest in clean technologies that help reduce greenhouse gas emissions and mitigate climate change.

The CDCF partnership of nine governments and 16 companies achieves these goals by linking private investors with community development projects, thus lowering the transaction costs and risks associated with such projects in poorer parts of the world. At the end of three years the capitalization of the CDCF stands at \$128.6 million, and 10 emission reductions purchase agreements have been signed for a value of \$29 million.

A Focus on Africa

The pipeline of CDCF projects cover all the major regions; however, a special effort has been made to rapidly develop viable CDCF projects in Africa. A highlight this year was the signing of the Nigeria Aba Cogeneration emission reductions purchase agreement in June 2006, the first project in Africa for the fund. Over 30% of the CDCF pipeline currently targets purchasing emission reductions generated from projects located in Sub-Saharan African countries such as Kenya, Mozambique, Ethiopia, Tanzania and Ghana.

Delivering Community Benefits

The unique feature of CDCF projects has always been their community development aspect. In its third year of operation, the CDCF has developed stricter criteria for assessing community benefits, reviewing community benefit plans, ensuring that communities are consulted and participate in defining benefits, and verifying that such benefits are in fact delivered to communities before payment is made to the project developer.



CDCF Participants



GOVERNMENT OF AUSTRIA

JI and CDM projects play an important role in fulfilling Austria's Kyoto target. The Austrian JI/CDM Programme, managed by Kommunalkredit Public Consulting, enables the government to purchase emission reductions from mitigation projects and through investing in carbon funds. Austria joined the CDCF in 2003 to purchase certified emission reductions from high-quality projects in least developed countries.*



REGIONAL GOVERNMENT OF BRUSSELS (BELGIUM)

The Brussels-Capital Region, with a wide range of competency in the fields of environment and energy, has its own Kyoto target. Its participation in the CDCF will help the Region meet its targets while taking part in sustainable projects in poor, developing countries and will ensure that the local communities benefit from it as much as the Brussels-Capital Region.*



REGIONAL GOVERNMENT OF WALLON (BELGIUM)

To reach the regional Kyoto target, the Walloon Region of Belgium has decided to work with the World Bank. The Government believes that the CDCF is a good opportunity to implement small-scale CDM projects particularly in African countries. Additionally, CDCF has a crucial role to play in proving that small-scale projects have a place in the international carbon market.*



GOVERNMENT OF CANADA

Canada is represented in the CDCF by the CDM and JI Office, Department of Foreign Affairs and International Trade. The Office promotes the Kyoto flexible mechanisms by providing financial and technical assistance to Canadian companies and supporting capacity-building in host countries. Through the CDCF, Canada benefits from new market opportunities and from project development experience with strong community benefits, especially in poorer regions.*



GOVERNMENT OF DENMARK

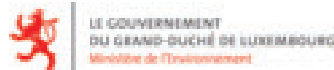
The Danish Carbon Fund (DCF) represents Denmark in the CDCF.

The DCF consists of Danish participants from industry and government. The DCF perceives the CDCF as an essential instrument for providing valuable assistance to the development and implementation of small-scale CDM-projects in poorer countries. The DCF considers the CDCF important also for further development of the CDM as a tool for protection of the global climate.*



GOVERNMENT OF ITALY

Italy has seized the opportunity to demonstrate its commitment to greenhouse gas emission reductions, as well as to sustainable development worldwide. Italy in fact was a founding member of the CDCF, which is an efficient mechanism for extending the reach of carbon finance and the CDM to developing countries that would otherwise be excluded from their benefits.*



GOVERNMENT OF LUXEMBOURG

Luxembourg's commitment under the Kyoto Protocol is to reduce greenhouse gas emissions by 28% as compared to 1990 levels. Luxembourg's engagement in the CDCF will help the country reach its reduction target. The CDCF is an opportunity for poorer developing countries to participate in the CDM and for Luxembourg to receive cost-effective and high quality emission reductions.*



GOVERNMENT OF THE NETHERLANDS

The Netherlands, with an ambitious emission reduction target under the Kyoto Protocol, has been constructively active in climate change negotiations for over 20 years. The Dutch government believes that small-scale CDM projects in poor countries deserve a much better chance to benefit from the CDCF, because they are usually closely linked to the sustainable development of the communities involved.*



GOVERNMENT OF SPAIN

The Government of Spain has adopted a broad strategy to facilitate the fulfilment of its Kyoto Protocol commitments. The Ministry of Environment and the Ministry of Economy and Finance work together to take advantage of the Flexible Mechanisms. Spain joined the CDCF in 2004 with the expectation that investments in CDM projects would reach the poorest communities in developing countries.*



BASF

BASF is the world's leading chemical company. With products, technologies and solutions, we are a partner of virtually all industries. Our ambition is to balance long-term economic success, environmental protection and social responsibility, thus contributing to sustainable development for us, our customers and for the quality of life for society. Participating in the CDCF is for BASF an overall win opportunity: for our ambitious economic, environmental and social goals.*

Daiwa Securities SMBC Principal Investments

DAIWA SECURITIES SMBC PRINCIPAL INVESTMENTS CO., LTD.

Daiwa Securities SMBC Principal Investments (DSMBCPI), a Japanese private equity firm, aims to develop the carbon finance business extensively, by utilizing know-how gained through the CDCF, and through its abundant experience in financial technology. DSMBCPI is currently providing innovative products to individuals as well as to institutions, which will help combat global warming and achieve sustainable development.*

CDCF Participants *continued*



ELECTRICIDADE DE PORTUGAL (EDP)

For generations EDP has built a portfolio that upholds the value of environmental sustainability, which is one of the pillars of its corporate strategy. Participation in the CDCF is a unique opportunity for EDP to take part in supporting sustainable development in needy areas of the world, while contributing to its compliance with the European Union Emissions Trading Scheme.*



ENDESA

As part of its Strategic Plan for the Environment and Sustainable Development, Endesa participates in various initiatives and activities dealing with climate change. Participation in the CDCF helps Endesa to achieve its emission reduction commitments. At the same time, Endesa helps to promote the development of CDM projects that contribute to the economic and social development of the least advantaged communities.*

FUJIFILM

FUJIFILM Corporation

FUJIFILM Corporation aims to make innovative use of advanced technologies to create beautiful images and wide-ranging information, and provide the imaging, information and document solutions that will best meet the increasingly sophisticated needs of the world community. By participating in the CDCF, FUJIFILM also wishes to contribute to the social and environmental sustainability of the world community.*



GAS NATURAL SDG, SA

The Gas Natural Group is an international energy utility focusing on the supply, distribution and commercialization of natural gas and electricity in Spain, Latin America and Italy. Participation in the CDCF highlights the Group's pledge for ecologically and socially sustainable development, as well as its commitment to corporate social responsibility.*



GÖTEBORG ENERGI AB

Göteborg Energi is western Sweden's leading energy company, with products including district heating, gas, cooling, data and telecommunications, electricity generation and supply. The company joined the CDCF to comply with the 40% emission reductions target imposed on the new combined heat and power (CHP) plant—meeting Kyoto obligations while contributing to sustainable development in developing countries.*



HC ENERGIA

HC Energia produces and distributes electricity and gaseous combustibles within the Spanish market, reaching one million customers. HC Energia regards its participation in the CDCF as a unique opportunity to provide poor communities in developing countries with projects that enable them to grow in a sustainable manner by using renewable energy and clean technology.*



IDEMITSU KOSAN CO., LTD.

Idemitsu Kosan is a Japanese integrated energy company mainly in the petroleum refining, chemicals and plastics production and marketing business. In conducting business, it has placed great importance on mutual coexistence with society at large. Participation in the CDCF gives Idemitsu a great opportunity for contributing to sustainable development throughout the world.*



KfW FÖRDERBANK (KfW PROMOTIONAL BANK)

KfW is committed to protect the environment. The KfW Carbon Fund is a purchase program for cost-effective emission certificates to be used by affected companies in the framework of the European Union Emissions Trading Scheme. KfW's participation in the CDCF provides a unique opportunity to benefit from the vast experience the World Bank has acquired in climate change mitigation.*



NIPPON OIL CORPORATION (NOC)

Nippon Oil Corporation is one of Japan's leading oil companies as well as a comprehensive energy enterprise. NOC promotes corporate social responsibility-oriented management based on its basic corporate policy. NOC participates in the CDCF because the primary purpose of the CDCF is to achieve sustainable development, which concurs with NOC's goals.*



THE OKINAWA ELECTRIC POWER COMPANY, INC. (OEPC)

OEPC supplies power throughout Okinawa Prefecture, an island chain located at the southernmost tip of the Japanese archipelago. With the liquefied natural gas, LNG-fueled Yoshinoura thermal power plant starting up in 2010, OEPC is addressing global warming vigorously. OEPC seeks two goals by participating in the CDCF: greenhouse gas emission reductions and contribution to developing countries.*



RAUTARUUKKI OYJ

Rautaruukki Oyj (Ruukki) supplies metal-based components, systems and integrated systems to the construction and mechanical engineering industries. The company has a wide selection of metal products and services. Ruukki has operations in 23 countries and employs 12,000 people. The Corporation has used the marketing name Ruukki since 2004. Participation in the CDCF is part of Ruukki's carbon dioxide risk management activities.*



STATKRAFT CARBON INVEST AS

The Statkraft Group is the third largest producer of electricity in the Nordic region, and the second largest producer of electricity based on renewable energy sources in Europe. The CDCF portfolio and the experience in CDM projects that the World Bank has gained through the Prototype Carbon Fund made Statkraft Carbon confident that the CDCF was the best alternative available.*



CDCF Participants *continued*



STATOIL ASA

Statoil is an integrated oil and gas company, headquartered in Norway, with 25,600 employees and activities in 33 countries. The company is one of the world's most environmentally-efficient producers and transporters of oil and gas. Statoil sees its investment in the CDCF as a combination of social investment engagement and achieving cost-effective CDM credits.*

Swiss Re



SWISS RE

Swiss Re is the world's largest reinsurer. Swiss Re offers a wide variety of products to manage capital and risk. With its participation in the CDCF, Swiss Re joins a committed group of governments and companies who see a triple win in the CDCF: greenhouse gas emission reductions, poverty reduction and corporate social responsibility.*

* The information in the participants' writeups in this report was provided by the participants of the various carbon funds managed by the World Bank and, with the exception of minor editorial changes, is reproduced in the same form in which it was provided. The views and opinions expressed in the participants' writeups are those of the participants providing the information and do not necessarily represent the views and opinions of the World Bank. The World Bank does not take any responsibility for the information contained or the representations made in the participants' writeups.



From the Chair of the CDCF Advisory Group



As the CDCF completes three years in operation, it has settled into a steady delivery mode, making significant progress in its pipeline development, as well as in understanding the barriers it faces in delivering that pipeline. The World Bank has recognized that the poverty alleviation goals of the CDCF

are in alignment with its own mission and is committed to mainstreaming the CDCF in its “community-driven development” network.

Given the pressure of delivery as the 2012 deadline approaches, the Advisory Group has supported the further relaxation of project size limits. The Group has emphasized, however, that increased project size must not divert focus from community benefits for poor people, dilute the value of such benefits or detract from distributional goals,

notably with regard to projects in Sub-Saharan Africa. Community benefits are the “soul” of the CDCF, its defining feature, without which there would be no differentiation from other funds. The Advisory Group encouraged the Bank staff to continue to work to overcome resistance to community benefits in project development and to ensure a consistent poverty focus of CDCF projects, as well as the participation of host communities in determining and evaluating benefits.

The Advisory Group has sought to enhance interaction with the CDCF participants and looks forward to a joint meeting between the Participants’ Committee and the Advisory Group in this fiscal year.

Michael Zammit Cutajar

The CDCF Advisory Group

The CDCF Advisory group is composed of independent experts appointed in their personal capacity by the World Bank, as the fund’s trustee, plus a representative of the International Emissions Trading Association (IETA), one of the initiators of the CDCF. In the interest of coordination, the group also includes observers nominated by the participants in the fund and the World Bank’s Host Country Committee, while its chair observes the work of the CDCF Participants’ Committee.

CDCF Portfolio Status



	Country/Project Name	Project Description	Community Benefits	CDCF Contract ERs (tCO ₂ e)
Emission Reductions Purchase Agreements Signed				
1	Argentina: Olavarría Landfill Gas Recovery	Capture methane and carbon dioxide generated at Olavarría municipal landfill and use the methane as a renewable source for supplying electricity to rural villages in the region	A potable water distribution network to connect 80% of the homes and a pilot solar water heating system at the municipal hospital, both in Espigas—a rural community located 80 kilometers from Olavarría. These works, which have now reached over 80% of completion, will help reduce gastrointestinal disease—a major problem in the community—and will also reduce the current high energy cost. Initial verification is currently underway.	131,000
2	Colombia: Rio Frio Waste Water Treatment	Collect methane and nitrous oxide from waste water treatment plant of Rio Frio	Reduction of local air pollution and offensive odors by improving biogas capture and effluent treatment. Improvements in the quality of the receiving waters (Rio Frio and Rio Oro rivers) with positive impacts on the aquatic biota. A social program will address overall health conditions (including sexually transmitted diseases and HIV/AIDS) and employment among the poorest youth.	250,000
3	Honduras: La Esperanza Hydroelectric Project	Install 12.7 megawatt run-of-river hydropower plant	Improved electricity service in the town of La Esperanza (about 10,000 inhabitants). As a result of the project, 60 households and 200 people now have electricity. A \$12,000 contribution was made to electrify San Fernando Community, a town of 450 people. To date 148 people have been employed in the construction phase alone (the target was 70) and at least 20 more will be employed during the operational phase. Afforest and reforest land in the project area and in the water basin, planting at least 25,000 seedlings each year through 2012.	310,000
4	India: FaL-G Brick Units in Micro Sector	200 brick production units based on FaL-G technology to save energy and nitrous oxide emissions	Personal accident insurance and health insurance to cover workers at Flyash-Lime-Gypsum (FaL-G) sites backed by carbon revenue. Health risks will be mitigated by the reduced air pollution compared with areas where traditional kilns are used.	600,000
5	India: VSBK Kiln Cluster Project	Use energy efficient Vertical Shaft Brick Kiln (VSBK) technology for fired clay brick production, saving 30% in coal consumption	Joint bank account for women. Possible life and health insurance against work related injuries and hospitalization due to accidents or illness with the premiums (or part) being paid by the fund under group insurance schemes now available for the rural poor. It is predicted that approximately 40 people would be insured at each site. Hand pumps for clean drinking water, a day care for children under five and community stoves are other benefits.	396,053
6	Moldova: Biomass Heating and Energy Conservation Projects	Improve quality and efficiency in the supply and distribution of heat in almost 150 public buildings in 33 districts	Improved heating service, increased number of days buildings are heated, and a decrease in the per unit cost of heat production. Heating improvements and energy efficiency increase will have a positive impact on Moldovan forests, which currently supply the fuelwood.	348,502
7	Nepal: Biogas Program	Commercial dissemination of 200,000 additional household biogas plants using animal wastes in rural Nepal	Improvement of the health conditions through significant reduction in kitchen smoke reduced drudgery of women and children, and reduced incidence of smoke related diseases. Cleaner household environment and better sanitation due to construction and connection of latrines to biogas plants; increased enrollment in schools. Creation of approximately 12,000 jobs for the rural poor. Reduced firewood consumption saving roughly 2,600 kilograms of firewood per household annually.	1,000,000
8	Nigeria: Aba Cogeneration Project	Install gas-fired cogeneration system to supply electricity and heat to industrial, commercial and residential customers in Aba. Project will also capture carbon dioxide from the system and sell it to nearby breweries	Reliable electricity including installation of street lighting. Construction of a new one kilometer asphalt access road starting from the State Government Housing Estate to the local community road behind the power plant. Construction of a Clinic/Health Centre that will be staffed with one medical doctor and one senior nurse on the GPAL payroll. A Nursery and Primary School for up to 200 students will be constructed.	1,145,000
9	Peru: Santa Rosa Hydroelectric Project	Three run-of-river hydro projects in Lima, Peru in the Santa Rosa irrigation area (4.1 megawatts total)	A trash rack cleaner will be installed in the irrigation canal to help clean the water used for agriculture purposes. During construction 125 direct new jobs will be created. During operation 15 new jobs will be created. Other community benefits include a new fence for the school, two new classrooms, a computer room (with 10 computers), and a community center for La Merced.	88,300

CDCF Portfolio Status *continued*

	Country/Project Name	Project Description	Community Benefits	CDCF Contract ERs (tCO ₂ e)
Emission Reductions Purchase Agreements Signed				
10	Philippines: Laguna De Bay Watershed Community Carbon project	Mitigate greenhouse gas emissions through solid waste and waste water management small-scale projects in Laguna de Bay watershed	Reduced pollution in rivers and lakes from better wastewater and solid waste management. There is currently no waste water treatment system and limited treatment of pig farm and industrial waste.	40,614
Projects Under Negotiation (indicative contract volumes)				
11	Cambodia: National Biodigester Program	Install 17,500 household biodigesters in six provinces in Cambodia to be used to generate biogas for cooking from pig and cattle dung	17,500 families will directly benefit from sustainable domestic energy for cooking at very low costs; reduction of workload of women and children in gathering firewood; improved family health from better air quality, better sanitation from the construction of latrines and improved surface water quality; higher agricultural yields from using superior bio-slurry as organic fertilizer; and the creation of employment in rural areas for laborers, supervisors for construction, supply of materials and components, maintenance and marketing.	310,000
12	China: Guangrun Hydropower Development Project	Construct and operate three hydropower plants with total capacity of 28 megawatts (10, 10, and 8 megawatts) on the Guangrun River	Twenty percent of carbon revenue will be earmarked for a poverty alleviation fund to be used by the county government to reach its social development objectives. Other benefits include increased water supply, upgraded flood control and availability of water for 1,000 hectares of irrigated farmland.	485,000
13	Guyana: Skeldon Sugar Modernization Project	Use bagasse as fuel to provide a sugar factory with high thermal efficiency and export excess electricity to the national grid	Improved electrical service in the Berbice Region; at least 10 megawatts of electricity produced by Guysuco provided to the national grid. Also, job creation and improved economic activity.	500,000
14	India: Gypcrete project	Mass production of an alternative building material to replace clay bricks by recycling by-product waste	The project will provide more affordable housing for the poor, through the provision of housing kits and insurance coverage for worker houses; create local employment; provide health insurance schemes to the workers and their families; provide sanitation blocks for the entire community and provide community halls.	200,000
15	India: Karnataka Municipal Water Pumping Improvements	Reduce the energy required for water service delivery in six municipalities in the State of Karnataka in Southern India	Better management of water and energy resources by water utilities, improved and expanded access to clean water, and more reliable water service to consumers. Also, reduction in the time spent collecting water, a function typically carried out by the women in a household.	250,000



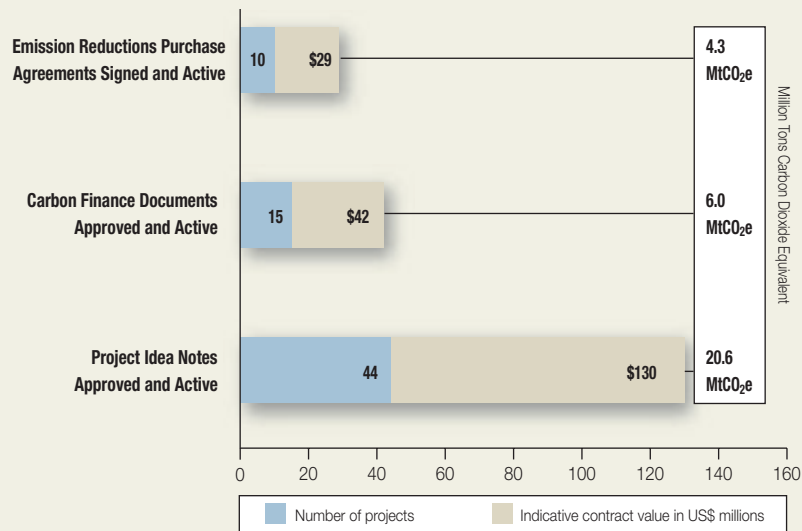


CDCF Portfolio Development

As of the end of August 2006, the CDCF has 44 Project Idea Notes in its pipeline. Of these, 15 have reached the pre-negotiation development stage, have a signed letter of intent with the project developer and have a carbon finance document on file. These 15 projects represent a total of six million tons of carbon dioxide equivalent valued at \$42 million. Of these, emission reductions purchase agreements have been signed for 10 projects for the purchase of 4.3 million tons of carbon dioxide equivalent at a value of \$29 million.

This essentially means that approximately 33% (\$42 million) of the initial capitalization of the CDCF (\$128.6 million) is at an advanced stage of placement as of August 31. Over 75% of the emission reductions from projects in the present portfolio are envisaged to be generated by 2012.

Status of Project Development in the CDCF (cumulative)



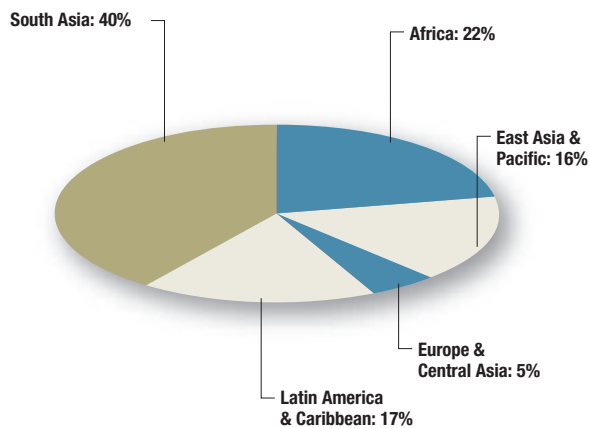
Note: The above figures exclude options purchases.

Community Development Carbon Fund

Active CDCF Portfolio—\$42 Million

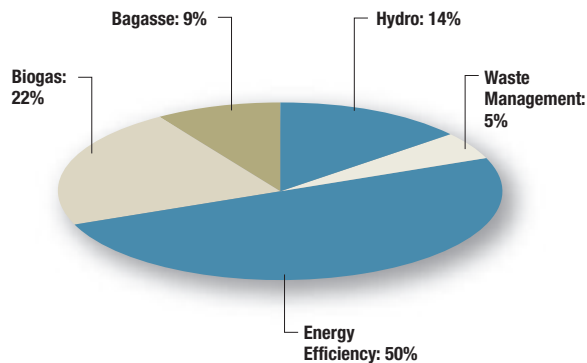
Geographic Distribution

The CDCF portfolio is active over five regions of the World Bank, with South Asia in the lead (40%) followed by Africa (22%), Latin America (17%), East Asia and Pacific (16%) and Europe and Central Asia (5%). Significant inroads have been made in priority countries, in particular in Africa, through the efforts of the World Bank to address market development in these countries.



Technological Distribution

The CDCF portfolio covers a range of technologies that are appropriate for the daily life of rural communities. Biogas, bagasse-based cogeneration and supply side energy efficiency projects are the most popular due to their economic feasibility and substantial community benefits.



THE PHILIPPINES

Laguna de Bay Community Carbon Finance Project

With an aggregate area of 91,136 hectares and a shoreline of 220 kilometers, Laguna de Bay is the largest lake in the Philippines and the second largest inland freshwater lake in Southeast Asia.

Laguna de Bay watershed is a priority watershed for environmental sustainability goals because it contains 13% of the population of the Philippines and the lake supports fisheries, recreation, domestic water supply and provides aesthetic value for the many small, historic towns in the area. The objective of the project is to implement a set of small-scale waste management and reforestation sub-projects in the watershed, which is heavily degraded due to severe deforestation and ever-increasing environmental pressures from more than 10 million people and thousands of industries that discharge largely untreated solid and liquid wastes.

Waste management sub-projects include waste technologies that avoid methane emissions (composting and aerobic wastewater treatment) and those that recover methane (landfill gas collection and wastewater biogas system). These activities will improve waste management practices in the region while reducing methane emissions. Reforestation sub-projects include streambank rehabilitation, upland reforestation and agro-forestry. They will increase forest cover in the activity areas while reducing carbon dioxide through its sequestration in the tree biomass during growth.



Emission reductions from waste management activities will be sold to the CDCF, and those from the reforestation sub-projects to the BioCarbon Fund. An estimated initial volume of more than 90,000 tons of carbon dioxide equivalent per year from 15 projects over 10 years will be purchased, with additional projects expected to be added to the purchase over time. This innovative project is the first of its kind in the ASEAN Region.



“These agreements are concrete proof of LLDA’s ability to initiate actions called for by the Kyoto Protocol. Although the scope of our work is confined within the watershed, the reduction of greenhouse gas emissions from these projects will have global impacts because the atmosphere and the air we breathe have no boundaries.”

Casimiro Ynares III
General Manager of Laguna Lake Development Authority (LLDA), Project Developer



From the Chair of the BioCF Participants' Committee



The BioCF has been in the forefront of promoting CDM carbon sequestration projects, opening new grounds in thematic and geographic diversity and being instrumental in developing new methodologies for carbon measurements.

As the second tranche is opening, the BioCF will face five challenges: (i) ensuring exemplary implementation of the portfolio; (ii) incorporating biomass energy as a necessary complement of carbon sequestration in new projects; (iii) devising operational approaches for avoiding deforestation; (iv) streamlining approved methodologies on factual information coming up from projects under implementation; and (v) increasing its advocacy for carbon bio-sequestration by bringing this theme from the margins to the center of emerging carbon credits markets.

I welcome the new participants of the BioCarbon Fund, and I am sure that together with the World Bank, we will meet the above challenges.

Francois Falloux
Eco-Carbone





What is the BioCarbon Fund?

The emerging carbon market represents an unprecedented opportunity to promote sustainable development based on competition for and trade of greenhouse gas emission reductions. Land-use projects, which sequester carbon in forest and agro-ecosystems, offer a valuable, and maybe the only, opportunity for some of the poorest countries and their rural communities to participate in the carbon market and reap its benefits.

A Benchmarking Fund

The BioCarbon Fund, which started operations in May 2004, builds on the unique technical expertise and development experience of the World Bank to provide revenue for projects that sequester greenhouse gases through land-use activities. It aims, in particular, through Window One of the BioCF to develop clear and robust methodologies necessary to enable benchmarking of carbon sequestration calculations and to address outstanding issues regarding permanence and the crediting of biological carbon. It focuses on learning-by-doing to build up substantial experience as the rules regarding eligibility of land-use activities are further developed. Window Two covers activities that can make important contributions to climate change mitigation and adaptation through long-term carbon sequestration but which are currently ineligible as CDM activities under the first commitment period of the Kyoto Protocol.

The first tranche of the BioCF consists of 23 transactions at an advanced stage of preparation, seven of which have a signed emission reductions purchase agreement. It is planned that the first tranche of the BioCF will be closed towards the beginning of 2007 with the signature of all the purchase agreements and submission of the methodologies to the CDM Executive Board.

Major Opportunities for Carbon Finance

Carbon finance associated with land-use activities also represents an important opportunity for the World Bank to simultaneously promote the objectives of the United Nations Convention on Biological Diversity and the United Nations Convention to Combat Desertification, which were adopted at the same time as the United Nations Framework Convention on Climate Change. Carbon finance represents a new financing source for re-vegetating drylands and making drought-prone areas more resilient to climate change. In the area of biodiversity protection, carbon finance can play an innovative role by creating market based incentives to reverse natural habitat loss.

Tranche Two

The first tranche closed in August 2005 with contributions of \$53.8 million from 14 governments and companies. The great interest spurred by the first tranche, among both private and public participants, host countries and carbon market experts, has encouraged the Bank to propose a second tranche, which will open for contributions late in 2006.



BioCF Participants



GOVERNMENT OF CANADA

Canada is represented in the BioCarbon Fund by Canada's CDM and JI Office, housed within Foreign Affairs Canada. The mandate of the Office is to facilitate Canadian participation in the CDM and JI, and it benefits from involvement in the World Bank managed carbon funds because of the learning by doing approach that these funds offer.*



GOVERNMENT OF ITALY

The Italian Ministry for the Environment, Land and Sea has long been active in climate change mitigation and forestry management. The Ministry contributes to the BioCarbon Fund because the Ministry believes that the forest sector, with its unique opportunities and challenges, should play a role in emission reduction efforts.*



GOVERNMENT OF LUXEMBOURG

Luxembourg's commitment under the Kyoto Protocol is to reduce greenhouse gas emissions by 28% as compared to 1990 levels. This is by far the most ambitious reduction target of a Member State of the European Union. Therefore, additional to domestic actions, Luxembourg's engagement in the BioCarbon Fund will help the country to reach its reduction target.*



GOVERNMENT OF SPAIN

Spain, as well as recognizing the necessity of units for emission reductions compliance, is aware of the importance of reestablishment and maintenance of forests in developing countries and countries with economies in transition. These projects improve natural resources, livelihood of communities and ecological value of the areas where they are implemented.*



AGENCE FRANCAISE DE DEVELOPPEMENT

The Agence Française de Développement (AFD), a public institution, finances development operations in over 60 countries. Considering sustainable development as its priority, and recently endowed with a climate change strategy, the AFD has decided to invest in the non-Kyoto window of the BioCarbon Fund in order to investigate further the links between carbon finance and poverty reduction.*



ECO-CARBONE

Eco-Carbonte is a consulting company advising institutions concerned with curbing greenhouse gas emissions and enhancing carbon sequestration by providing all necessary services to develop projects and sell carbon assets in the emerging markets. Eco-Carbonte actively collaborates within the BioCF with governments and companies that aim to develop sustainable "bio" projects.*



IDEMITSU KOSAN CO., LTD.

Idemitsu Kosan is a Japanese integrated energy company mainly in the petroleum refining, chemicals and plastics production and marketing business. In conducting business, it has placed great importance on mutual coexistence with society at large. Participation in the BioCF gives Idemitsu a great opportunity for contributing to sustainable development worldwide.*



JAPAN IRON & STEEL FEDERATION (JISF)

The Japanese Steel Industry is working to achieve its voluntary target of a 10% reduction in internal energy consumption by 2010 compared with 1990 levels. JISF utilizes the Kyoto mechanisms to acquire carbon credits to help achieve its voluntary target. With the World Bank's strong performance managing its carbon funds, JISF decided to invest in the BioCF.*



JAPAN PETROLEUM EXPLORATION CO., LTD. (JAPEX)

Japan Petroleum Exploration Co., LTD. (JAPEX) has conducted integrated operations extending from oil and natural gas exploration and production through transportation and supply. JAPEX is participating in the BioCarbon Fund in order to contribute to the mitigation of global warming and to help ensure better living conditions for people in developing countries.*



THE OKINAWA ELECTRIC POWER COMPANY, INC. (OEPC)

OEPC supplies power throughout Okinawa Prefecture, an island chain located at the southernmost tip of the Japanese archipelago. With the LNG-fueled Yoshinoura thermal power plant starting up in 2010, OEPC addresses global warming vigorously. OEPC seeks two goals by participating in the BioCF: greenhouse gas emission reductions and contributing to developing countries.*



SUMITOMO CHEMICALS CO., LTD.

Sumitomo Chemical has six business sectors: basic chemicals, petrochemicals and plastics, fine chemicals, IT-related chemicals, agricultural chemicals and pharmaceuticals. Participation in the BioCF enables the company to broaden its environmental and societal contributions through supporting projects—including preserving the natural environment and bettering livelihoods in developing countries.*



SUMITOMO JOINT ELECTRIC POWER CO., LTD.

Sumitomo Joint Electric Power Co. Ltd. supplies electricity and steam to each of the plants at Sumitomo-group companies located at Ehime-prefecture in Japan. The company participates in the BioCF because the fund's activities contribute to environmental and social welfare, including nature conservation, improved living conditions in developing countries through CDM projects, and the acquisition of carbon credits.*



BioCF Participants *continued*

BioCarbon Fund

SUNTORY

SUNTORY

Suntory Group operates various businesses in 16 countries, including whisky, spirits, beer, wine, soft drinks and flowers. Since potable water is indispensable to its products, the company has put much emphasis on preservation of forests with water cultivation functions. Suntory participates in the BioCarbon Fund because the fund's goals coincide with Suntory's forest preservation activities.*



TOKYO ELECTRIC POWER COMPANY (TEPCO)

TEPCO, which supplies electricity to the Tokyo Metropolitan area, takes environmental issues seriously and has been very active in reducing its carbon dioxide emissions. To meet its voluntary target, TEPCO participates both in the BioCF and PCF. These funds' activities contribute not only to creating emission reductions but also to generating community benefits in developing countries.*

* The information in the participants' writeups in this report was provided by the participants of the various carbon funds managed by the World Bank and, with the exception of minor editorial changes, is reproduced in the same form in which it was provided. The views and opinions expressed in the participants' writeups are those of the participants providing the information and do not necessarily represent the views and opinions of the World Bank. The World Bank does not take any responsibility for the information contained or the representations made in the participants' writeups.



PHOTO BY TODD SHAPER



BioCF Portfolio Status

	Country/ Project Name	Project Description	Main Environmental Benefits	Main Social Benefits	BioCF Contract ERs (million tCO ₂ e)	
					Window 1	Window 2
Emission Reductions Purchase Agreements Signed						
1	China: Pearl River Watershed Management	Reforest around 4,000 hectares of shrub/grassland in the Guangxi Zhuang Region; watershed management	Creation of biodiversity corridors; reduced soil erosion; improved regulation of hydrological flows	Provision of employment to local farmers and communities; creation of a source of timber and non-timber products; increased sustainability of the sources of livelihood	0.46	
2	Costa Rica: Coopeagri Forestry	Extend the Program of Payments for Environmental Services; establish commercial forest plantations including agroforestry and reforestation on a total of around 4,000 hectares of degraded land	Creation of natural habitat for biodiversity protection; increased water retention and regulation of hydrological flows; reduced land erosion	Creation of direct employment for local communities; directly increased incomes from payment for environmental services; creation of additional sources of income from forest production activities and agroforestry; training of farmers in sustainable practices and agroforestry management	0.56	
3	Honduras: Pico Bonito Forestry	Implement agroforestry systems for small-scale producers; reforestation for conservation; commercial plantations; community-based sustainable forest management on around 3,000 hectares in the Pico Bonito National Park buffer zone	Improved biodiversity conservation; protection of vulnerable water catchments; stabilized vulnerable landscapes; rebuilt topsoils; enhanced water supply and hydrological flow	Creation of employment for project implementation and in particular for the sustainable commercial plantation; creation of additional sustainable sources of income; training of communities in sustainable agroforestry and forestry management; provision of on-farm technical assistance	0.45	0.4
4	Moldova: Soil Conservation	Afforest/reforest around 20,000 hectares of degraded land in all territories of the country, except the eastern portion	Restoration of habitats to increase native biodiversity; reduction of water and wind erosion; improved hydrological regime	Creation of local employment for the project implementation; creation of additional sources of income from sale of timber and non-timber products; prevention of future land degradation	0.6	
5	Nicaragua: Precious Woods	Afforest/reforest around 600 hectares of degraded pastures by establishing a plantation and conserve around 400 hectares of forest remnants	Increased habitat for native biodiversity; increased landscape diversity; groundwater protection; soil regeneration; improved water balance	Creation of employment for the project implementation and for local wood processing; training of employees on job specific subjects and social subjects; possibility for farmers to grow crops between the plantation rows	0.17	
6	Philippines: Watershed Rehabilitation	Implement small-scale, community-based rehabilitation subprojects including streambank rehabilitation, reforestation of upland areas and agroforestry development	Increased natural habitat for native species; reduced erosion and landslides; increased groundwater recharge	Creation of employment for the project implementation; creation of an additional sustainable source of income from agroforestry; training of communities in sustainable forestry and agroforestry	0.03	
7	Uganda: Nile Basin Reforestation	Establish around 2,000 hectares of pine and mixed native species plantation in a block design to expand national wood resources and support communities for additional tree planting	Creation of natural habitat; reduced pressure on natural forests; reduced frequency of fires; reduced land degradation and erosion	Creation of employment for forest plantation and associated training; creation of an additional source of income with the establishment of private woodlots; provision of fuelwood; improved local public infrastructures; stimulation of the local economy through secondary industries	0.26	

BioCF Portfolio Status *continued*

	Country/ Project Name	Project Description	Main Environmental Benefits	Main Social Benefits	BioCF Contract ERs (million tCO ₂ e)	
					Window 1	Window 2
Projects Under Negotiation (indicative contract volumes)						
8	Albania: Assisted Natural Regeneration	Afforest/reforest about 5,700 hectares of degraded communal forest and pastureland by setting aside and protecting land to make natural re-growth possible	Creation of habitat for native flora and fauna; enrichment of species diversity; reduced soil erosion; reduced siltation of watercourses	Provision of short- and mid-term employment; stimulation of the local industry; reduced maintenance costs of irrigation and drainage infrastructure; creation of a sustainable source of timber and non-timber products	0.23	
9	Brazil: Reforestation Around Hydro Reservoirs	Reforest around 5,500 hectares around four reservoirs of hydroelectric plants in the state of Sao Paulo using native species and establish them as a recreation area	Creation of a biodiversity corridor between existing forested conservation areas; improved sustainability of the hydraulic resources	Provision of short- and mid-term employment; increased tourism revenues from the improved recreational area and landscape	0.3	
10	Colombia: San Nicolás Agroforestry	Establish agroforestry, silvopastoral and forest plantations on around 8,600 hectares of abandoned pastures in the department of Antioquia	Creation of natural habitat and corridors for the conservation of biodiversity; sustainable watershed management	Creation of direct employment for the local communities; increased food supply and safety; training of the communities in sustainable agroforestry/silvopastoral systems management	0.27	0.2
11	Colombia: Silvopastoral Rehabilitation	Establish silvopastoral systems using forage shrubs and high-value timber species to enhance the productivity and natural resource base of degraded lands on about 400 farms	Increased habitat for biodiversity; rehabilitated local ecosystems; reduced soil erosion; improved moisture retention	Provision of direct employment to local populations; creation of additional sustainable sources of income from wood harvesting; improved productivity of cattle raising activities; training of farmers in sustainable silvopastoral systems management	0.3	
12	Congo DRC: Bateke Fuelwood and Timber Plantation	Establish around 8,000 hectares of timber plantation for fuelwood and charcoal production on the Bateke Plateau, in the vicinity of Kinshasa	Creation of a refuge for wild, small size fauna; reduced occurrence of fires; reduced pressure on natural forests around Kinshasa	Provision of direct and indirect employment to local populations; training of employees in plantation management and of local farmers in sustainable agriculture techniques	1	
13	Dominican Republic: Rio Blanco Watershed	Implement natural and intensive reforestation, native forest protection, and agroforestry activities on around 6,000 hectares to help rehabilitate the watersheds of the Valle Nuevo National Park	Enhanced protection of biodiversity through the creation of habitat; reduced soil erosion; restored hydrological flows; improved water quality	Creation of direct employment for local communities; creation of additional sustainable sources of income from agroforestry; training of farmers in sustainable agroforestry systems management	0.26	0.21
14	Ethiopia: Humbo Assisted Regeneration	Afforest/reforest 4,700 hectares of biodiverse natural forest in cooperation with local farmers in the vicinity of the town of Humbo in Southwestern Ethiopia	Enriched local biodiversity; reduction of soil erosion and local flooding; protection of the fragile ecosystem of Lake Abaya downstream	Creation of self employment for forest management; increased livelihood sustainability; provision of training in land use improvement and reforestation	0.35	
15	India: Improving Rural Livelihoods	Afforest/reforest 3,500 hectares as tree plantations using resource poor farmers, especially women, on their private lands in the states of Orissa and Andhra Pradesh	Reduced erosion; protection of local biodiversity; protection of water sources; reduced dependence of the industrial partner in the paper industry on natural forests	Increase in income and income sustainability for participating farmers; creation of local employment for plantation management; creation of additional sources of income from intercropping and sustainable fuelwood production	0.52	
16	Kenya: Greenbelt Movement	Pay community members, organized into community forest associations, to reforest 4,000 hectares of degraded public and private land near Mount Kenya	Reduced erosion; protection of water catchments; regulation of hydrological flows	Direct income increase through sale of forest products; creation of additional sustainable livelihood sources through fodder and non-timber products harvesting	0.79	

BioCF Portfolio Status *continued*



	Country/ Project Name	Project Description	Main Environmental Benefits	Main Social Benefits	BioCF Contract ERs (million tCO ₂ e)	
					Window 1	Window 2
Projects Under Negotiation (indicative contract volumes)						
17	Madagascar: Andasibe-Mantadia Biodiversity Corridor	Reforestation and avoided deforestation of about 5,000 hectares in corridors between protected reserves and establishment of sustainable forest and fruit gardens	Creation of biodiversity corridors; increased viability of native species; restoration of degraded soils and lands; stabilized hydrological flows	Creation of employment for agroforestry management and other project activities; creation of additional sources of income from sale of timber and non-timber products; increased ecotourism from landscape rehabilitation	0.2	0.6
18	Mali: Acacia Plantation	Develop 15,000 hectares of degraded natural dry forest into Acacia plantations, intercropped with cultivated species, for agroforestry	Increased natural habitat; restored ecosystems; soil regeneration and fertilization; raised water table; reduced erosion; wind and sun protection	Creation of employment for the project implementation; training of employees on job-specific subjects and social subjects; sustainable food source through intercropping	0.37	
19	Mexico: Seawater Agroforestry	Transform 10,000 hectares of barren coastal desert in the state of Sonora into a managed seawater forest	Relieved pollution from shrimp farms; creation of natural habitat for biodiversity; coastline protection; increased freshwater supply	Creation of employment for the project implementation; provision of basic education; creation of a source of animal fodder, firewood, and non-timber products independent from droughts; increased local fishing stocks	0.72	
20	Niger: Acacia Community Plantations	Develop 8,800 hectares of acacia plantations on degraded land, mostly managed by local communities, to promote sustainable agroforestry	Soil regeneration and erosion control; increased natural habitat for native species; water table raised; dune fixing; wind and sun protection	Creation of employment for the establishment of plantations and Arabic gum production; increased income from Arabic gum sale; production of fuelwood and animal forage; training of communities in sustainable intercropping and plantation management	1	
21	Trinidad & Tobago: Nariva Wetland Restoration	Afforest/Reforest around 1,800 hectares and protect more than 5,000 hectares of wetland ecosystems in the Nariva Protected Area	Enhanced habitat for wildlife; improved conservation of the reserve; restored natural drainage regime; decreased soil erosion; increased buffer zone for inland areas	Creation of employment for restoration activities and reserve protection; enhanced sustainability of fish stocks and water sources; training in sustainable farming for communities	0.22	
22	Uganda: Small Group and Tree Planting	Empower and pay small groups of subsistence farmers to restore local deforested areas and adopt sustainable agricultural practices	Creation of additional natural habitat; reduced erosion and increased soil fertility; improved rainfall; reduced pressure on existing forests	Direct income increase through payments; enhanced sustainability of livelihood sources; training in sustainable practices; increased social organization and cohesion	0.1	
23	Ukraine: Chernobyl Reforestation	Reforest around 15,000 hectares of abandoned low radioactive contaminated agriculture land	Accelerated land regeneration and purification; reduced dispersal of radioactive elements; creation of suitable native habitats; reduced frequency of fires	Creation of local employment; increased wood production; increased local government resources for social needs; provision of fuelwood	0.04	

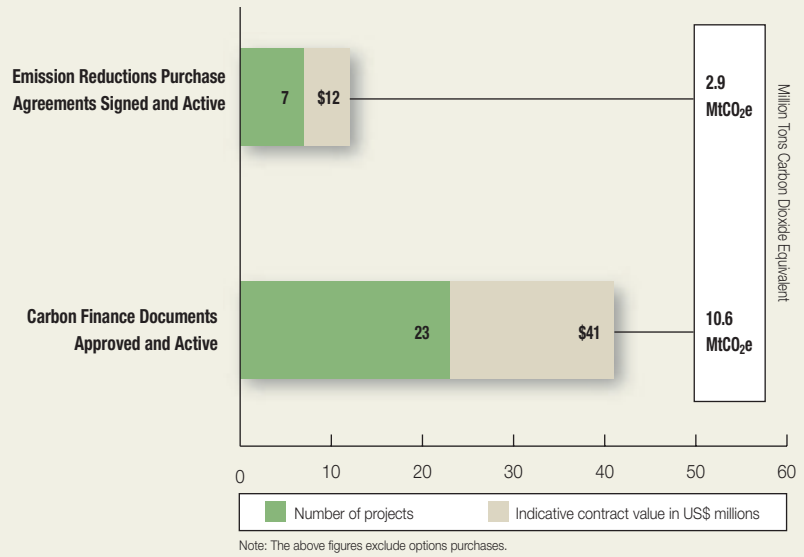


BioCF Portfolio Development

BioCarbon Fund

The portfolio of the first tranche of the BioCarbon Fund consists of 23 transactions with approved carbon finance documents worth approximately \$41 million. As of August 31, 2006, seven emission reductions purchase agreements had been signed. These projects constitute roughly half of the project portfolio. Most of the remaining projects are expected to have signed purchase agreements by the beginning of 2007, when the portfolio is expected to close. The second tranche will open to contributors in late 2006.

Status of Project Development in the BioCF (cumulative)



UGANDA

Nile Basin Reforestation Project

With the third fastest growing population in the world, Uganda is consuming more wood than it grows. Around 97% of the population relies completely on wood for their energy needs. Uganda's land would be greatly enhanced by the restoration of the forest cover that is disappearing at an alarming rate.

The Uganda Nile Basin Reforestation Project will help expand the country's wood resources, which are crucial to meet the country's growing demand for wood and to reduce the pressure on the remaining natural forests in the region. The project will establish a plantation of pine and mixed native species in grassland areas within the Rwoho Central Forest Reserve. An area of 2,137 hectares will be covered with 75% *Pinus caribaea*, 20% *Maesopsis eminii* and 5% *Prunus africana*. The plantation will be established in 64 blocks of 25 hectares each, grouped in five small-scale



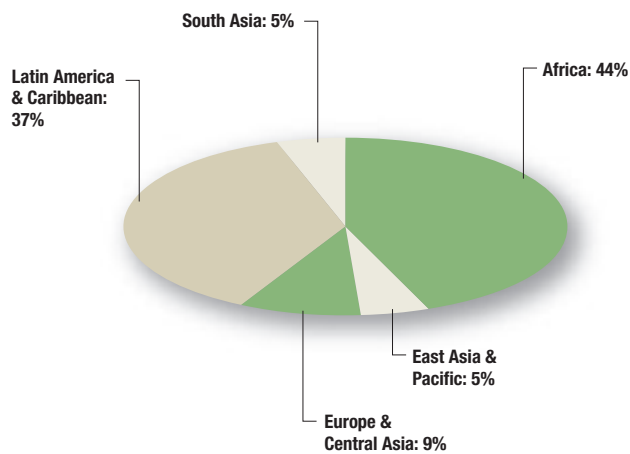


BioCF Portfolio Development *continued*

Active BioCF Portfolio—\$41 Million

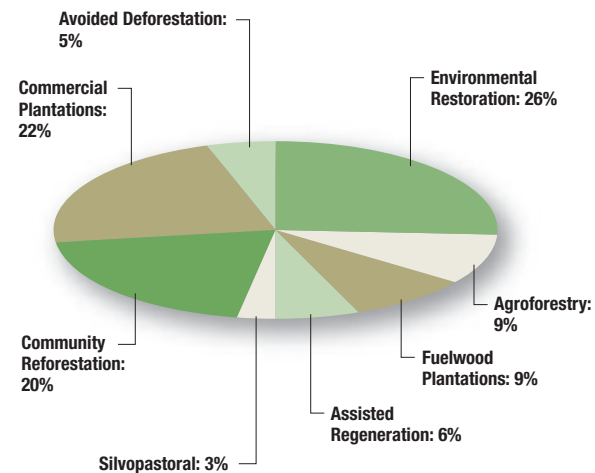
Geographic Distribution

The \$41 million of the BioCF portfolio is distributed throughout the world. A distinguishing feature of the BioCF is that about 44% of its assets support projects in Sub-Saharan Africa. This region represents two percent of the global carbon market, thus the BioCF is making good on its promise to extend the benefits of the carbon market to rural, less affluent communities. Latin America and the Caribbean together occupy approximately another 37% of the portfolio.



Technological Distribution

The asset class distribution is dominated by afforestation and reforestation, which make up roughly 95% of the portfolio. These activities increase habitat size through forest regeneration and promote sustainable use of forest resources through agro-forestry, i.e. intercropping trees with traditional crops, commercial plantations and community reforestation. The remaining part of the portfolio is dedicated to avoided deforestation activities and sustainable management of existing forests.



CDM projects. Around each block a fire line will be maintained. This cluster design allows for potential involvement of private and community-based investors. The Rwoho Environmental Conservation and Protection Association will manage 17% of the project area within the framework of a collaborative forest management agreement.

The project will sequester around 0.11 million tons of carbon dioxide equivalent by 2012 and around 0.26 million tons of carbon dioxide equivalent by 2017. Environmental benefits of the project include the provision of suitable habitat for biodiversity as well as reduced erosion induced discharge in water flows and increased dry season flows. Fire management activities will also contribute to reduce the severe soil erosion in the area.





BioCF Issues

Permanence

A major concern about using biological activities to comply with Kyoto targets is whether sequestered carbon will remain sequestered indefinitely; the carbon sequestered in trees or soil might be lost to the atmosphere through fires, pests or management actions. The BioCF uses several options to mitigate this risk. In each project, the “non-permanence risk” is assessed and specific mitigation measures identified. However, the most effective option is to support projects where the new activities are sufficiently rewarding to local people, encouraging them to continue engaging in those activities.

Replacement

The ninth session of the Conference of the Parties to the UNFCCC (CoP9) introduced the system of temporary crediting for CDM land use, land-use change and forestry projects. Carbon credits from such projects are temporary and necessitate verification of the continued storage of carbon at five year intervals. If a project does not retain enough stored carbon, steps can be taken to replace the existing credits with emission reductions from elsewhere.

At the latest, this replacement must occur 60 years after the original issuance of the credit. In the case of the BioCF, fund participants can decide to replace temporary credits earlier by purchasing credits from energy and infrastructure projects included in other carbon funds administered by the World Bank.

Leakage

Some projects may lead to an increase in emissions in areas outside the project boundaries. For example, reforesting an agricultural area could displace farmers who may then deforest lands elsewhere, a consequence known as leakage. However, most of the BioCarbon Fund projects are community-based, with well established boundaries, meaning leakage is usually small and contained. Projects also typically include consultation with communities on project design and involve training in sustainable practices. Farmers are usually provided with alternative sources of income, for example through agroforestry, which mitigates leakage. Where leakage still occurs, it is accounted for in the number of credits that can be claimed.





Netherlands CDM Facility

From the Ministry of Housing, Spatial Planning and the Environment (VROM)



The Netherlands has been constructively active in climate change negotiations for more than 20 years. It is the first country to have earmarked public funding for the purchase of carbon dioxide reductions.

The Netherlands is committed to reducing its greenhouse gas emissions. Approximately 67 million tons of carbon dioxide equivalent emission reductions will be purchased through the Clean Development Mechanism (CDM).

An important part—38 million tons—of that target will be arranged by the International Bank for Reconstruction and Development (IBRD, the World Bank), through the Netherlands CDM Facility (NCDMF), established in 2002, and extended since then several times.

CDM projects are supposed to deliver credits, but—equally important—also contribute to sustainable development in the countries concerned. The main reasons for cooperation with the World Bank are its effective approach towards the carbon market and its access to and large experience in developing countries. We are confident that the World Bank will succeed.



Lex de Jonge
Head of CDM Division
Ministry of Housing, Spatial Planning and the Environment (VROM)

NCDMF Portfolio Development

The Netherlands Clean Development Mechanism Facility is well on its way to completing its target of purchasing 38 million tons of carbon dioxide equivalent emission reductions by June 2007. It is notable that the NCDMF portfolio is well diversified in several ways.

First, the portfolio is spread across several regions, including Africa, Asia, Central Europe and Latin America. Second, the portfolio has purchased emission reductions both from heavy greenhouse gas mitigation projects (including HFC-

23 destruction, coal mine methane capture and landfill gas capture) as well as from projects improving energy efficiency and renewable energy generation (wind and hydro). Finally, the portfolio is characterized by the diverse size of its purchases, with 37% of the projects resulting in a contract amount over one million tons of carbon dioxide equivalent. The portfolio diversity helps to promote the full potential of the CDM while ensuring full delivery of emission reductions to VROM.



PERU

Huaycoloro Landfill Gas Recovery Project

The project is located at the Huaycoloro landfill in the Huaycoloro Valley in Peru. The Huaycoloro landfill opened in 1994 and is anticipated to remain open until about 2040, with a total capacity of approximately 40 million tons of solid waste. The Huaycoloro landfill is currently filling at a rate of approximately 2,200 tons per day and presently has about 5.5 million tons of waste in place.

The project's purpose is to reduce greenhouse gas emissions, in particular reduce methane emissions through capture and combustion of Huaycoloro's landfill gas (LFG) to generate up to 5.7 megawatts of electricity. It will flare the remaining landfill gas. The project will reduce carbon dioxide emissions by supplying renewable electricity to the *SEIN-National Interconnected Electricity System*. The NCDMF will purchase greenhouse gas emission reductions from the project.

Additionally, the project will help contribute to the local community by creating jobs associated with the design, construction and operation of the LFG capture—much of the construction and development funding is to be spent locally for drilling, piping, construction and operational personnel. The project may attract economic development near the landfill from elsewhere, by making the area around the project site a better and safer place to live and do business.

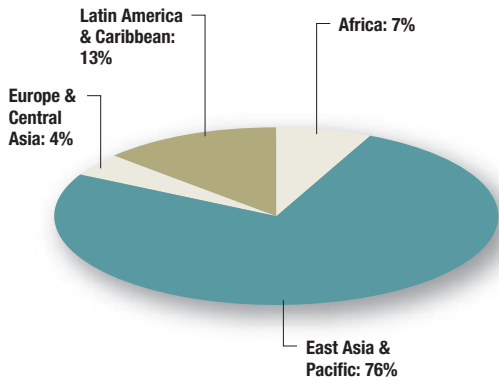


NCDMF Portfolio Development *continued*

Active NCDMF Portfolio (by contract values)

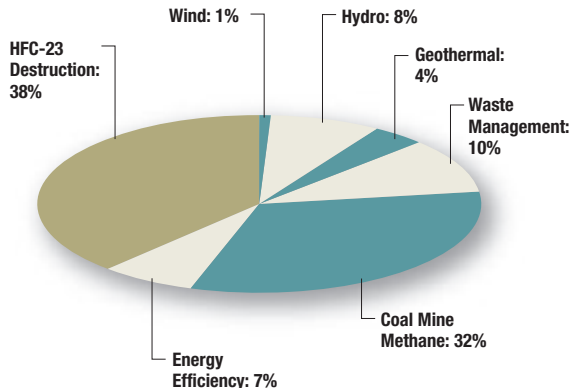
Geographic Distribution

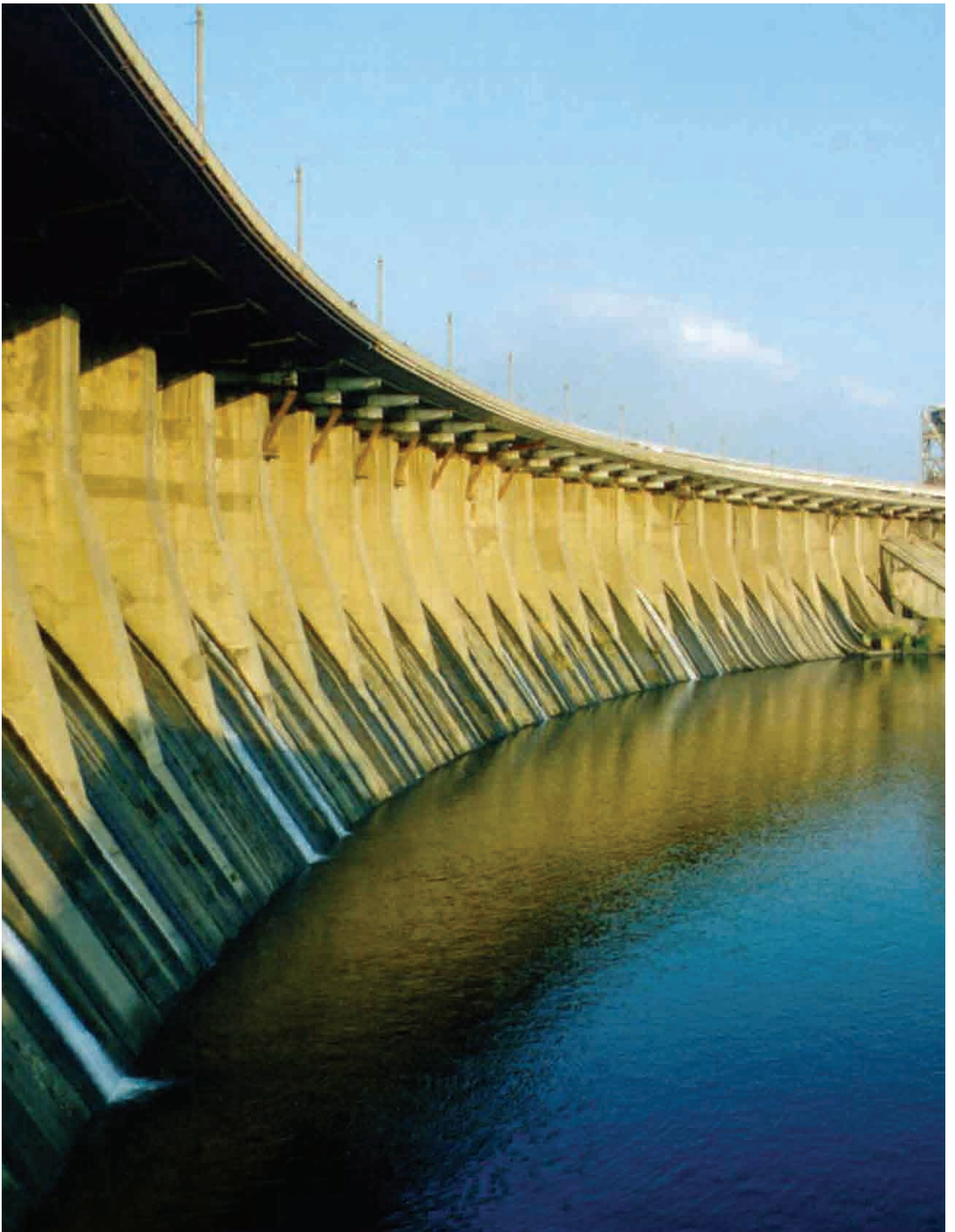
The portfolio is heavily skewed towards the East Asia & Pacific region (76%) largely because of the HFC-23 Destruction Project in China. Separating this project from the rest of Asia, the distribution shows Asia (40%) and South America (13%). Africa comes up next (7%) with Europe and Central Asia lagging behind all other regions (4%).



Technological Distribution

The requirement to purchase emission reductions only through 2012 has limited the composition of the NCDMF portfolio, with a heavier emphasis than originally planned on mitigation of heavy greenhouse gases—industrial gases (38%), coal mine methane capture (32%) and land-fill gas capture (10%). Meanwhile, renewable energy, including geothermal energy and energy efficiency projects collectively amount to approximately one-fifth of the total active portfolio.





From the Ministry of Economic Affairs



The Dutch Government has played a pioneering role in the creation of an international market for carbon credits. Since 2000 the Ministry of Economic Affairs has been active in implementing Joint Implementation (JI) in Eastern European countries. Together with the World Bank, the Netherlands has developed procedures and guidelines for Joint Implementation, and has been involved in institution

building in Eastern European countries.

In August 2004, the Ministry of Economic Affairs agreed with the World Bank Group to develop JI projects for the Netherlands. By concluding one agreement together with both the IBRD and IFC, the Netherlands benefited from the large amount of knowledge about the Kyoto Mechanisms at the IBRD and from the IFC's extensive knowledge of Eastern European markets. In this agreement the World Bank Group is assisting the Netherlands in acquiring 10 million tons of emission reductions from JI projects in Eastern European countries.

The Ministry of Economic Affairs is confident that with the assistance of the World Bank Group it will be able to fulfill its commitment towards Joint Implementation with the Eastern European countries.

Pieter Boot
Deputy Director General of Energy
Ministry of Economic Affairs, the Netherlands



NECF Portfolio Development

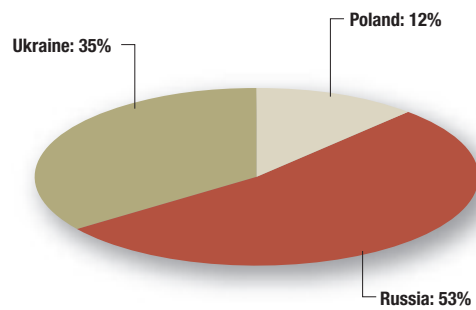
Active NECF Portfolio (by contract values)

The Netherlands European Carbon Facility (NECF) aims to purchase 10 million tons of carbon dioxide equivalent emission reductions by 2012. The NECF is managed

under one agreement by both the World Bank and the International Finance Corporation (ICF). In this report, only the World Bank component of the portfolio is shown.

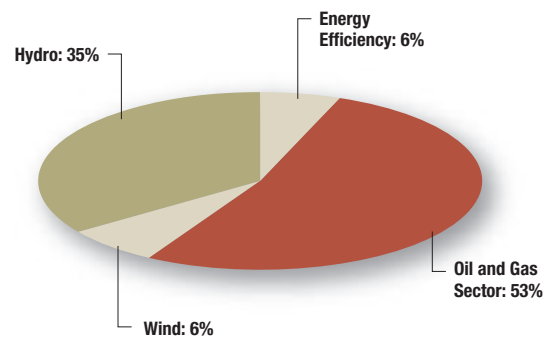
Geographic Distribution

As Joint Implementation projects are in practice located in countries with economies in transition, all projects are located in Eastern Europe. The active portfolio of the NECF is heavily skewed towards Russia (53%), followed by Ukraine (35%) and Poland (12%).



Technological Distribution

From a technological perspective, the composition of the NECF portfolio is weighted toward oil and gas technology (53%), followed by hydro (35%), wind (6%) and energy-efficiency (6%). Oil and gas projects tend to be larger emissions-reducing, higher value projects than renewable power or energy-efficiency projects.



RUSSIA

Power Station North-Danilovsk

The project is located in Western Siberia in the Tumen region. Khanty Mansiysk constituency is located right in the heart of Tumen region near the city of Kogalim whose main industry is oil extraction. Population size of the Tumen region is about 700,000 and several oil companies operate in the region. This gas utilization project will be located next to Lukoil's oil extraction field. Regionenergogas, the project company, is setting up a gas fueled 33 megawatt power station to utilize and process into electricity, gas produced by Lukoil during the oil extraction process. In turn Lukoil will use the electricity generated by the project. Previously, this gas was flared without any productive use. The greenhouse gas emission reductions that will be purchased by the NECF will result from displacement of grid power, now supplied by a variety of energy sources including coal.



Italian Carbon Fund

From the Italian Government



Italy has seized the opportunity to demonstrate its commitment to greenhouse gas emission reductions, as well as to sustainable development and poverty eradication worldwide. In partnership with the World Bank, we in fact have been a founding supporter of the Community Development Carbon Fund and of the BioCarbon Fund, which we judge as an efficient mechanism for extending the reach of carbon finance and the Clean Development Mechanism to developing countries that would otherwise be potentially excluded from their benefits. In addition, in March 2004 the Italian Carbon Fund (ICF), which we see as a balanced combination of a secure yet economical way to promote the protection of the global environment, acquire and disseminate carbon finance experience and leverage substantial investments in host countries while meeting some of our emission reduction obligations, became operational.

Since then, the ICF has grown substantially. Its capital base has increased through the involvement of the Italian private sector and now amounts to more than \$150 million. Its project pipeline is very diversified both in terms of technology deployed and regions involved.

Thanks to the experience and the work of our partner in this venture—the World Bank—the ICF has achieved very positive results over time, and we are pleased that it is revealing itself as a valid tool to improve the viability of and to catalyse clean technology investments that are rarely financially viable in emerging markets.

Corrado Clini
Director General
Italian Ministry for the Environment, Land and Sea



Italian Carbon Fund Participants



ITALIAN MINISTRY FOR THE ENVIRONMENT, LAND AND SEA

The Ministry for the Environment, Land and Sea of Italy has long been active in climate change issues, as well as in sustainable development and poverty eradication. It is the Designated National Authority (DNA) for CDM in Italy and is responsible for all activities related to CDM and JI project activities in developing countries and countries with economies in transition, with a focus on capacity development, project development and purchase of certified emission reductions.*



CEMENTERIE ALDO BARBETTI S.P.A.

Cementerie Aldo Barbetti S.p.A. is an Italian group, which since 1956 has operated in the domestic cement business, with around 400 people employed and more than two million tons of cement production capacity. Our environmental policy, connected with the worldwide increasing interest in the Kyoto Protocol, is the main reason that we joined the ICF.*



ENDESA ITALIA S.P.A.

Endesa Italia was founded in 2001. Current shareholders are Endesa (80%) and ASM Brescia (20%). Endesa has an annual output of 23.4 terawatt hours (TWh) (2005) with a generating-capacity of 6,590 megawatts. Endesa Italia is the first private operator in terms of contribution to the ICF, aiming at guaranteeing certified emission reductions at reasonable cost while contributing to global sustainable development.*



ENEL

Enel owns more than 50 gigawatts of installed capacity and produces and sells electricity mostly in Europe, North and Latin America. Enel joined the ICF as part of its carbon sourcing strategy, finalized to comply with the greenhouse gas emission reduction objectives introduced by the Kyoto Protocol and by the European Union's Emission Trading Scheme (EU ETS) Directive.*



ERG S.P.A.

ERG is the largest Italian independent group operating in the energy and petroleum sectors. It is active in refining, distribution of petroleum products and power generation. ERG joined the ICF to satisfy its need for emission credits and to contribute through the CDM to more sustainable development.*



ITALCEMENTI GROUP

Italcementi Group is the fifth largest cement producer in the world, the biggest in the Mediterranean area and number one in Egypt, after consolidating Suez Cement and Asec Cement acquisitions in 2005. The parent company Italcementi Spa is a holding of Italmobiliare: both companies are listed on the Milan Stock Exchange. The Group in the scope of its sustainability strategy is participating in carbon funds as a means both to fulfill its obligations towards the EU ETS and to promote sustainable development.*



S.I.E.T. S.P.A.

SIET is a company of AEM Torino Group. SIET works on the Italian energy markets, scheduling the power plants of the group, trading and selling power to customers. We joined the ICF because we believe it is a good instrument in order to participate in projects improving the environment.*

* The information in the participants' writeups in this report was provided by the participants of the various carbon funds managed by the World Bank and, with the exception of minor editorial changes, is reproduced in the same form in which it was provided. The views and opinions expressed in the participants' writeups are those of the participants providing the information and do not necessarily represent the views and opinions of the World Bank. The World Bank does not take any responsibility for the information contained or the representations made in the participants' writeups.

Italian Carbon Fund Portfolio Status

	Country/Project Name	Project Description	ICF Contract ERs (tCO ₂ e)
Emission Reductions Purchase Agreements Signed			
1	China: HFC-23 Destruction	Installation of an incineration facility to decompose HFC-23 generated by the existing HCFC22 manufacturing facility into carbon dioxide (CO ₂) and hydrogen fluoride (HF)	6,000,000
2	China: Nanjing Steel Converter Gas Recovery	Recover the converter gas produced by the converters in the steel production process and utilize the gas for electricity generation	572,205
3	Tunisia: Gas Recovery and Flaring for Nine Landfills	Install gas recovery and flaring systems in Cell 1 of nine landfills distributed throughout Tunisia	1,120,000
4	Tunisia: Jebel Chakir Landfill Gas Recovery and Flaring	Install gas recovery and flaring systems in Cell 1-5 of the Jebel Chakir Landfill, which receives all of the waste from the Tunis Capital	1,930,000
Projects Under Negotiation (indicative contract volumes)			
5	China: Shanghai Laogang LFG	Build landfill gas collection and electricity generation system at the Laogang landfill. The electricity produced will meet the electrical needs of the landfill as well as provide power for Shanghai	2,000,000
6	China: Yunnan Whitewaters Hydropower Development	Build three run-of-river hydro power stations on the Baishuijiang River with an installed capacity of 78 megawatts	2,000,000
7	Egypt: Cairo North MSW	Rehabilitation and upgrading of the existing sorting and composting plants at Kattamia. Construct a sanitary landfill including landfill gas capture and flaring	756,000
8	India: Allain Duhangan Hydro	Installation of 192 megawatt run-of-river hydro power plant in the lower reaches of Allain and Duhangan streams	2,820,251
9	Nigeria: Distribution Loss Reductions	Reducing technical and non-technical energy losses by upgrading the Karu Distribution Cluster, Nigeria	336,000
10	Nigeria: Reducing SF₆ Emissions in High-Voltage Transmission/Distribution Systems	Install new transformer, capacitor banks and compensation units to reduce losses in transmission; improve the maintenance activity to reduce the leakage of Sulfur Hexafluoride (SF ₆) from insulators	623,875

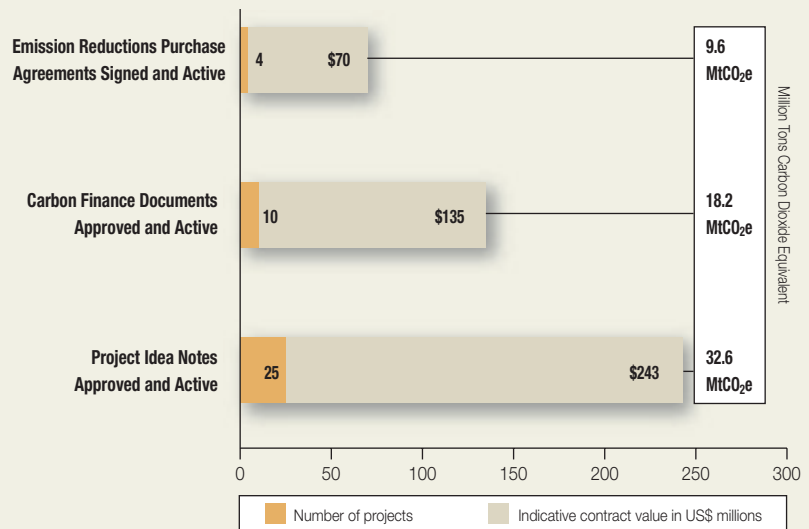


Italian Carbon Fund Portfolio Development

As of the end of August 2006, the Italian Carbon Fund (ICF) had 25 Project Idea Notes (PINs) in its pipeline representing an emissions reduction potential of 32.6 million tons of carbon dioxide equivalent. Of these, ten have an active carbon finance document representing in total 18.2 million tons of carbon dioxide equivalent. Four emission reductions purchase agreements have been signed for 9.6 million tons of carbon dioxide equivalent.

In addition, six projects in the ICF pipeline have already signed letters of intent, which is the step prior to negotiating the terms of the purchase agreement. These are the Shandong Waste & Wastewater Umbrella Project and the Shanghai Bailonggang Sludge Treatment Project, both in China, the Henequen and the Lama de Los Cocos Landfill Gas Projects, both in Colombia, the Methane Leak Reduction in Gas Pipeline Project in Georgia and the CTSAV Bagasse Cogeneration Project in Mauritius.

Status of Project Development in the ICF (cumulative)



CHINA

Nanjing Steel Converter Gas Recovery Project

The Nanjing Iron & Steel Co., Ltd. (NISCO) in Jiangsu Province of China has signed a greenhouse gas emission reductions purchase agreement with the World Bank acting on behalf of the Italian Carbon Fund (ICF) for the first energy efficiency project in China under the Clean Development Mechanism. The ICF through the World Bank will purchase around 600,000 tons of emission reductions from the project.

The China Nanjing Steel Converter Gas Recovery Project, located in Nanjing, China, will introduce a set of converter gas recovery and power generation systems which use a fourth generation converter gas recovery system (OG system). The system will recover the converter gas (LDG) produced by NISCO's converters in the steel

production process and utilize the gas for electricity generation. The generated electricity will amount to about 157 gigawatts per year. It will be used to meet part of the company's power requirements for daily production; therefore, it will displace an equivalent amount of electricity that would otherwise be supplied by the East China grid where electricity is generated by coal-fired power plants.

China is the world's largest steel producing country—producing more than 300 million tons per year, but there is room for improvement in efficiency of the operations. The NISCO project will be a prototype for energy efficiency CDM projects in the Chinese steel sector.

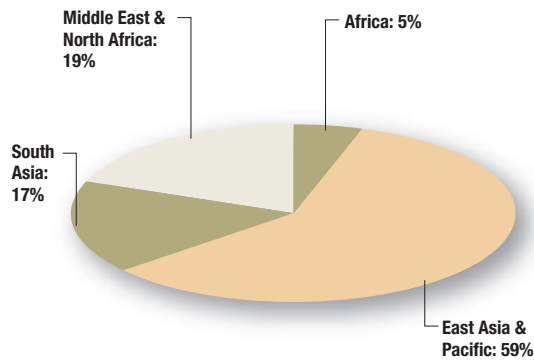


Italian Carbon Fund Portfolio Development *continued*

Active ICF Portfolio—\$135 Million

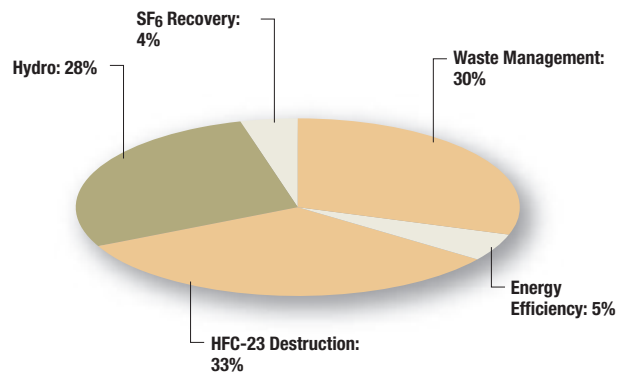
Geographic Distribution

The ICF portfolio is mainly dominated by the East Asia and Pacific (59%), followed by Middle East and North Africa (19%) and South Asia (17%) regions. Africa (5%) has a smaller share of the portfolio. However, if we take into consideration the entire pipeline, which includes the 25 projects that already have an approved project idea note (PIN), the distribution becomes more balanced as the East Asia and Pacific region's share decreases to 35%, followed by the Europe and Central Asia region (24%).



Technological Distribution

The ICF portfolio covers a wide range of technologies including HFC-23 destruction, waste management, energy efficiency, sulfur hexafluoride (SF₆) recovery and hydro-power. The ICF portfolio is relatively well balanced. HFC-23 holds the lead (33%) followed by waste management (30%) and hydropower (28%). Energy efficiency and SF₆ recovery projects represent a further 9% of the portfolio.



“For enterprises like NISCO, CDM activities bring economic revenue or transfer of advanced technologies. More important, they provide an incentive to achieve sustainable development and reduce greenhouse gas emissions. Reducing primary energy consumption, greenhouse gas emissions, pollution of the environment, and achieving sustainable development, is not only the target of our government, but also the motivation for us to be involved in this CDM project.”

Liu Yuejian
 Department Manager and Senior Engineer of the
 Nanjing Iron & Steel Co., Ltd. (NISCO)







Danish Carbon Fund

From the Government of Denmark



Denmark considers the threat to our climate posed by global warming to be one of the major problems that the world is facing. Denmark has committed itself to a considerable reduction of our emissions of greenhouse gases as our share of fulfilling the Kyoto Protocol obligations. We have agreed to reduce emissions from 1990 through the first commitment period (2008 to 2012) by 21%.



A key element in Denmark's National Climate Strategy is to apply the project-based mechanisms of the Protocol. The Government has decided to play a trend-setting role in this

by involving the private sector in this new business. Therefore, the government decided to fund activities with the aim of purchasing carbon credits by direct engagement with project partners as well as by engaging with carbon funds.

As a result, the Danish Carbon Fund (DCF) was formed early in 2005. The Fund consists of representatives of Danish industry together with the Ministry of Environment and the Ministry of Foreign Affairs. We are extremely pleased to see how the DCF is progressing, effectively reducing greenhouse gas emissions and contributing to sustainable development under the auspices of the World Bank.



We expect that these efforts can give added impetus to preparations for the post-2012 period. Denmark certainly expects to see the carbon business, including the Danish Carbon Fund, serving as good examples of how to further emission reductions all over the world.

Ulla Tørnæs
Minister for Development Cooperation

Connie Hedegaard
Minister for the Environment

Danish Carbon Fund Participants

MINISTRY OF FOREIGN AFFAIRS OF DENMARK



MINISTRY OF FOREIGN AFFAIRS OF DENMARK

The Ministry of Foreign Affairs of Denmark is responsible for Danish activities related to the use of the CDM in developing countries, focusing on capacity development, project development and purchases of CDM credits. The plans and priorities for Danish development assistance include the strengthening of global climate efforts. CDM activities are carried out in close coordination with Danish environmental development assistance.*



MINISTRY OF THE ENVIRONMENT OF DENMARK

The Ministry of the Environment is in charge of administrative and research tasks in environmental protection and planning. The Ministry coordinates and implements international negotiations and reports obligations on climate issues within the European Union and the United Nations Climate Convention. It is also responsible for the fulfillment of Danish reduction commitments under the Kyoto Protocol and Danish implementation of the flexible mechanisms.*



AALBORG PORTLAND A/S

Aalborg Portland A/S is Denmark's only cement manufacturer and is the market leader on the Danish market. Today the Aalborg Portland Group is the world's largest manufacturer and exporter of white cement with production plants in Denmark, the United States, Egypt, Malaysia and China.*



DONG ENERGY

Elsam A/S and ENERGI E2 A/S (two former DCF participants) form part of DONG Energy, a merger of six Danish companies. DONG Energy is one of the leading energy groups in the Nordic region, with headquarters in Denmark. Dong's business is based on procuring, producing, distributing, trading and selling energy and related products in Northern Europe. The company employs approximately 4,500 people and generates DKK 33 billion in revenue.*



MAERSK OLIE OG GAS A/S

Maersk Olie og Gas A/S is the operator in the Danish North Sea for Dansk Undergrunds Consortium (DUC), a joint venture consisting of A.P. Moller - Maersk, Shell and Chevron.*



NORDJYSK ELHANDEL A/S

Nordjysk Elhandel A/S was established in 1998, and has since traded power with distribution companies and industrial clients in the deregulated Danish power market. Nordjysk Elhandel also trades carbon dioxide allowances and offers experience and knowledge to the Danish companies that have been allocated allowances. Our involvement in the Danish Carbon Fund is a natural step towards providing these services.*

* The information in the participants' writeups in this report was provided by the participants of the various carbon funds managed by the World Bank and, with the exception of minor editorial changes, is reproduced in the same form in which it was provided. The views and opinions expressed in the participants' writeups are those of the participants providing the information and do not necessarily represent the views and opinions of the World Bank. The World Bank does not take any responsibility for the information contained or the representations made in the participants' writeups.



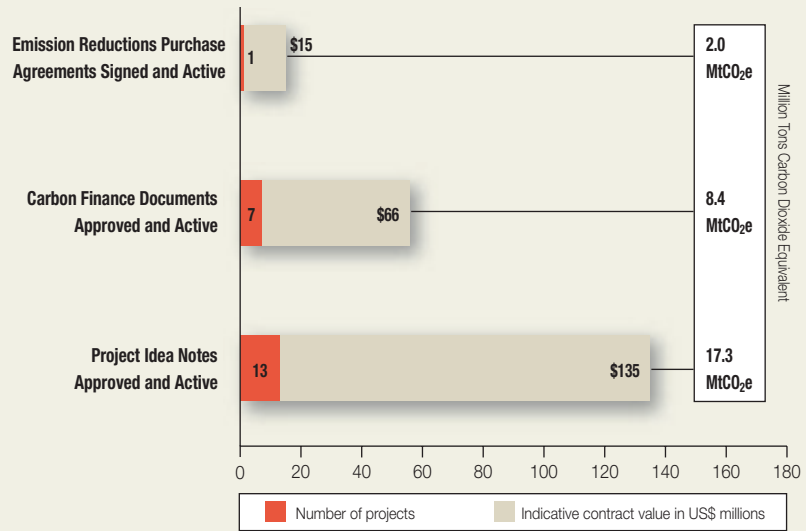
Danish Carbon Fund Portfolio Development

Much has been achieved in the Danish Carbon Fund (DCF) since it became operational in January 2005. At the time of writing this report, the DCF pipeline consisted of projects at different stages of development. Thirteen project idea notes are part of the DCF pipeline—seven of these projects have advanced to the carbon finance document stage and have been approved by the DCF. Together they represent 8.4 million tons of carbon dioxide equivalent emission reductions and are worth approximately \$66 million.

Through its participation in the World Bank Umbrella Carbon Facility, the DCF portfolio includes the DCF's share of \$15 million for two million tons of carbon dioxide equivalent from HFC-23 destruction in China.

Three projects in the DCF portfolio are currently the subject of purchase agreement negotiations which are expected to be completed by the end of 2006. The final portfolio of the DCF is expected to include about 10 projects. This is in addition to the DCF's participation of \$5.1 million in the World Bank managed Community Development Carbon Fund.

Status of Project Development in the DCF (cumulative)



Danish Carbon Fund





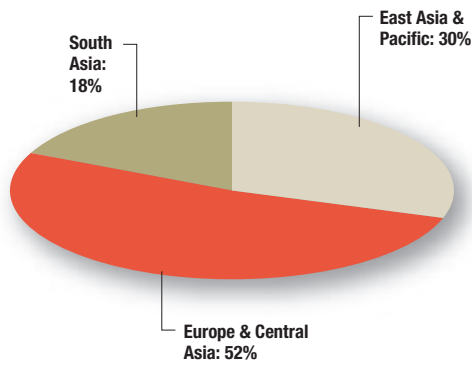
Danish Carbon Fund Portfolio Development *continued*

Danish Carbon Fund

Active DCF Portfolio—\$66 Million

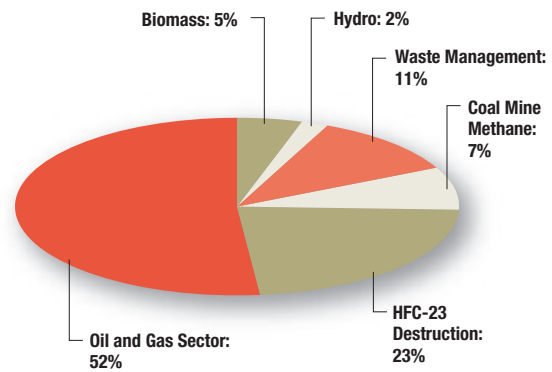
Geographic Distribution

Diversification, especially in terms of the countries in which the projects are located, is an important consideration for the DCF when reviewing and approving projects for inclusion in its portfolio. The seven most advanced projects (i.e. approved carbon finance documents and beyond) are located in five countries. The chart below illustrates the regional distribution of these seven projects, in terms of the investment they represent. The importance of the Europe and Central Asia region has been boosted by the inclusion of projects in Georgia and Azerbaijan in the portfolio.



Technological Distribution

The chart below illustrates the technology diversification of the most advanced projects in the DCF portfolio. While the relative share of the HFC-23 destruction project is significant (23%), the largest share (52%) of the DCF capital is currently committed to projects in the oil and gas sector. The remaining shares are divided among biomass, hydro, waste management and coal mine methane.





Spanish Carbon Fund

From the Government of Spain



Due to our firm commitment to ensure the compliance of the Kyoto Protocol requirements, the Spanish Government is glad to see that carbon finance continues to consolidate its role as a complimentary tool to domestic policies to address the challenge of climate change.



The Spanish Carbon Fund (SCF), originally created with €170 million, has been successfully enlarged with an additional contribution of €50 million from 12 new participants from the Spanish private sector. In this way the Spanish Government has initiated a common path of cooperation with the private sector recognizing the positive and necessary role played by Spanish companies in the challenge of climate change.

Due to this enlargement, the Participants' Committee of the SCF was established with members from both private and public sectors. The Director of the Spanish Climate Change Bureau on behalf of the Government of Spain was elected to serve as Chairperson.

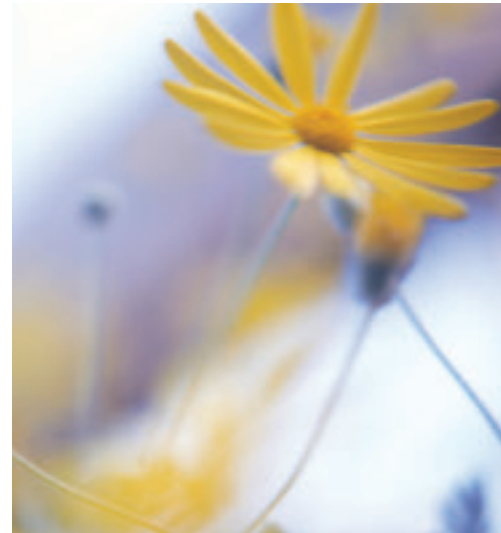
Finally, the SCF aims to continue stimulating capital flows for sustainable development to expand the Kyoto mechanisms to countries and communities that would otherwise be potentially excluded from the benefits of the carbon market.

In this way, the profitability of cleaner and more efficient energy technologies are being promoted. This will contribute to finance the transition to a low carbon economy in a global framework, which is considered to be the key to the success of the Kyoto Protocol.

Madrid, 12 September 2006

David Vegara Figueras
Secretary of State for Economy

Arturo Gonzalo Aizpiri
General Secretary for Pollution
Prevention and Climate Change



Spanish Carbon Fund Participants



GOVERNMENT OF SPAIN

The Ministry of Environment and the Ministry of Economy and Finance work jointly to define and execute the strategy of the Spanish Government to achieve the Kyoto Protocol commitments. The use of the Flexible Mechanisms is crucial to facilitate the success of this strategy, particularly through the participation in carbon funds in multilateral financial institutions such as the World Bank.*

ABENGOA

ABENGOA

Abengoa is a technology company with a presence in more than 70 countries. The company applies innovative solutions for sustainable development in the infrastructure, environment and energy sectors, with sales and earnings before interest, taxes, depreciation and amortization in 2005 of 2,023.5 and 216.4 million euro, respectively. Abengoa participates in the Spanish Carbon Fund to meet its need for carbon dioxide emission reductions for its Cogeneration Power Plant in Europe.*



AZULIBER 1, S.L.

Azuliber is one of the world's largest manufacturers of ceramic tiles and Spain's largest producer of atomized ceramic clays. The company, which utilizes three cogeneration turbines that generate electricity, plans to expand its production of atomized ceramic clays. Participation in the Spanish Carbon Fund will assist Azuliber to comply with emission reduction requirements.*



CEMENTOS PORTLAND

Cementos Portland Valderrivas (CPV) Group was established in 1903. The company is the Spanish cement market leader with 12.6 million tons and is one of the largest cement companies in the world with cement production plants in the United States, Tunisia, Argentina and Uruguay. The SCF will help CPV Group meet its target to reduce carbon dioxide emissions within the framework of the Kyoto Protocol.*



CEPSA

CEPSA is a company that engages in a wide variety of energy-related activities, ranging from the exploration and production of crude oil and gas to the retail and wholesale marketing of petroleum derivative products. The company also has a strong chemicals business that is closely integrated with its refining activity and is steadily becoming a significant player in the natural gas and electrical power sector. Our participation in the SCF will help facilitate Kyoto and help developing countries.*



ENDESA

Endesa is the largest operator in the Spanish electricity industry and the leading private electricity multinational in Latin America. Endesa has a significant presence in the South European electricity market: Italy, Portugal, and France. Endesa operates in the electricity markets of 15 countries on three continents. As part of its Strategic Plan for the Environment and Sustainable Development, Endesa is committed to reduce greenhouse gas emissions that cause global warming through its participation in different carbon funds.*



ENEL VIESGO

ENEL Viesgo is ENEL's subsidiary in Spain. ENEL owns more than 50 gigawatts of installed capacity and produces and sells electricity mostly in Europe, North and Latin America. ENEL Viesgo joined the SCF as part of ENEL's carbon sourcing strategy finalized to comply with the greenhouse gas emission reduction objectives introduced by the Kyoto Protocol and by the EU ETS Directive.*



GAS NATURAL SDG, S.A.

The Gas Natural Group is an international energy utility focusing on the supply, distribution and commercialization of natural gas and electricity in Spain, Latin America and Italy. Participation in the Spanish Carbon Fund highlights the Group's pledge for ecologically and socially sustainable development and its firm commitment to the EU Emissions Trading Scheme.*



HIDROELECTRICA DEL CANTABRICO

HC Energía produces and distributes electricity and gaseous combustibles within the Spanish market, reaching one million customers. Since 2004, HC Energía has been part of EDP Group, the largest electricity company in Portugal. HC Energía regards its participation in the SCF as a unique opportunity to provide poor communities in developing countries with projects that enable them to grow in a sustainable manner by using renewable energy and clean technology.*



IBERDROLA

Iberdrola is Spain's leading energy company, with more than 100 years of corporate history. With its subsidiaries in 28 countries, it provides electricity and gas to close to 18 million clients. In recent years Iberdrola has invested 12 billion in clean generation technology, making it the world's largest wind power producer. With its investment in the SCF, Iberdrola is able to contribute to sustainable development in the host countries of the emission reduction projects.*

Oficemen

OFICEMEN

Oficemen is a professional association, created in 1931, which includes all the Spanish cement manufacturing companies. The 13 cement companies (with 42 cement plants) make Spain the leading cement producer in Europe. Oficemen is participating in the SCF on behalf of those companies in order to acquire emission reductions from the international carbon market.*



REPSOL YPF

In 2002, Repsol YPF pledged its firm commitment to the use of the CDM to contribute to global greenhouse gas emission reduction targets. One of the measures is the participation in the Spanish Carbon Fund, through which we will invest in the emission reduction potential of energy efficiency, renewable energy and waste management in developing nations.*



UNION FENOSA GENERACIÓN, S.A.

Unión Fenosa Generación, S.A. is a 100% subsidiary of Unión Fenosa, S.A. and has as main activities the production, sale and utilization of electric power and other energy sources. With an installed capacity in excess of 7000 megawatts as of December 31, 2005, it has to comply with the obligations defined in the Spanish National Allocation Plan. As a way to do so in the most economical and efficient way, it is a main contributor to the Spanish Carbon Fund managed by the World Bank.*

* The information in the participants' writeups in this report was provided by the participants of the various carbon funds managed by the World Bank and, with the exception of minor editorial changes, is reproduced in the same form in which it was provided. The views and opinions expressed in the participants' writeups are those of the participants providing the information and do not necessarily represent the views and opinions of the World Bank. The World Bank does not take any responsibility for the information contained or the representations made in the participants' writeups.

Below: The Junta Departamental (municipal council) of Montevideo, Uruguay has approved the project "Montevideo Landfill Gas Recovery" and has authorized the Mayor to sign the emission reductions purchase agreement with the World Bank for the purchase of the first million tons of carbon dioxide equivalent before 2012. The Montevideo Municipality plans to finance the construction of the methane capture plant with the Municipal budget, starting the work at the beginning of 2007.



Spanish Carbon Fund Portfolio Status

	Country/Project Name	Project Description	SCF Contract ERs (tCO ₂ e)
Emission Reductions Purchase Agreements Signed			
1	China: HFC-23 Destruction	Install an incineration facility to decompose HFC-23 generated by the existing HCFC22 manufacturing facility into carbon dioxide (CO ₂) and hydrogen fluoride (HF)	8,333,333
2	Egypt: Alexandria Onyx Landfill Gas Capture and Flaring	Install new landfill gas collection systems and collect gas emissions from the Borg el Arab and El Hammam landfill sites in Alexandria	1,100,000
3	Mexico: Mexico City Transport Corridor	Activities will promote a shift towards low-polluting modes of transportation (primarily articulated buses) via the development of surface mass transport corridors and traffic management measures that integrate with the existing metro infrastructure. Scrapping of high-polluting colectivo buses	354,607
Projects Under Negotiation (indicative contract volumes)			
4	Chile: Sustainable Waste Management in Santiago	Build and operate a composting plant for biodegradable waste and sludge from water treatment plants	1,799,280
5	Mexico: CFE Windfarm	Install 85 megawatts of wind turbines in the south region of the Isthmus of Tehuantepec, in the Mexican state of Oaxaca	1,800,000
6	Organisation pour la Mise en Valeur du Fleuve Sénégal (OMVS): Felou Regional Hydroelectric Project	Construct and operate a 59 to 62 megawatt run-of-river hydroelectric installation on the Sénégal River. Project will deliver electricity to the national power utilities in the sub-region (Mali, Mauritania and Sénégal)	650,000

EGYPT

Alexandria Onyx Landfill Gas Capture and Flaring

The project includes two recently constructed municipal waste landfills (Borg El Arab and El Hammam) in Alexandria, Egypt, which are part of the Global Waste Management System initiated by the Alexandria Governorate. The landfills will serve five million residents. Approximately 13 million tons of waste will be deposited in the landfills over the contract term. The project objective is to maximize the capture of landfill gas from the two new sites. Onyx Alexandria will use an on-site evaporator at the facilities. The evaporator technology will use the collected landfill methane as a fuel to evaporate the leachate collected from the disposal areas. The recovered landfill gas will mainly be used for the evaporation process. The excess landfill gas will be flared.

The project entails the installation of three flaring units for the destruction of the excess biogas not utilized by the methane treatment system. Emission reductions that will be sold to the Spanish Carbon Fund, amounting to 1.1 million tons of carbon dioxide equivalent, will result from the combustion of the recovered methane contained in the landfill gas. Currently, no landfill in Egypt employs such technology and therefore this project will help transfer knowledge and know-how to Egypt.



“The opportunities offered by this Clean Development Project for the Governorate of Alexandria are important and we are glad to have pioneered this new approach to support sustainable development in Egypt. Under this agreement with the Onyx Company, resources corresponding to 19% of the revenues generated by the sale of emission reductions will be targeted at financing sustainable development activities in the Governorate of Alexandria.”

General Mohamed Abdel Salam El Mahgoub
Governor of Alexandria

Spanish Carbon Fund Portfolio Development



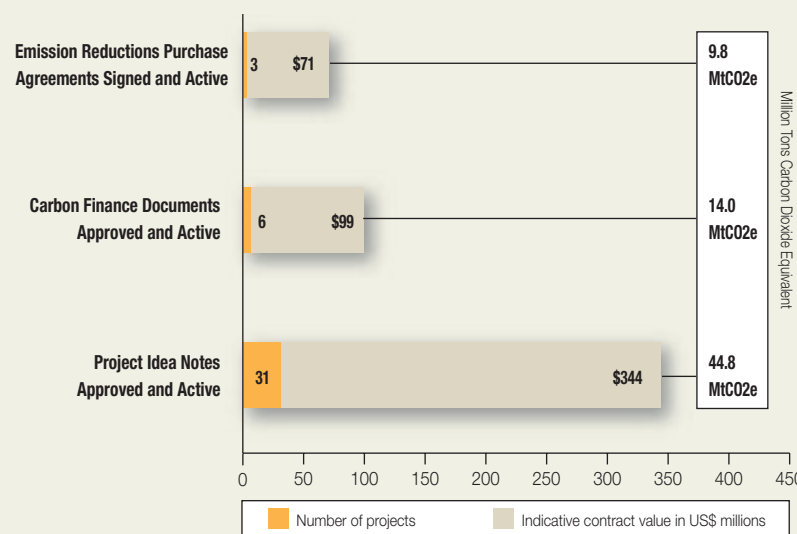
Spanish Carbon Fund

As of the end of August 2006, the Spanish Carbon Fund (SCF) had 31 project idea notes in its pipeline representing emission reductions of 44.8 million tons of carbon dioxide equivalent. Of these, six have an active carbon finance document representing in total 14 million tons of carbon dioxide equivalent. Three emission reductions purchase agreements have been signed for 9.8 million tons of carbon dioxide equivalent.

In addition, five projects in the SCF pipeline have already signed letters of intent, which is the step prior to negotiating the terms of the purchase agreement. Three of these are located in the Latin America and Caribbean region—Montevideo Landfill Gas Recovery in Uruguay, Buenos Aires Municipal Solid Waste Recycling in Argentina and San Javier II and III Landfill Gas in Argentina as well.

The other two are located in the East Asia and Pacific and in the Europe and Central Asia regions respectively—Tianjin Landfill Gas Recovery and Utilization in China and Methane Leak Reduction in Gas Pipeline in Georgia.

Status of Project Development in the SCF (cumulative)



Geographic Distribution

The SCF portfolio, which includes the six projects which have an active carbon finance document, is dominated in terms of number of projects by the Latin America and Caribbean region (three projects). The Africa, East Asia and Pacific, and the Middle East and North Africa regions each hold one project in the portfolio. This is consistent with the intensified effort towards increasing the share of the Latin America and Caribbean region in the portfolio. It is worth stressing that three of these projects have already signed emission reductions purchase agreements.

If we take into consideration the entire pipeline, which includes the 31 projects that already have an approved project idea note, by number of projects the Latin America and the Caribbean region still holds the lead (18 projects) followed by the East Asia and Pacific region (six projects). Africa, East and Central Asia, Middle East and North Africa and the South Asia regions have a smaller number of projects in the pipeline.

Technological Distribution

The SCF portfolio covers a wide range of technologies, including HFC-23 destruction, waste management, wind, hydropower and transportation. In terms of number of projects, the portfolio is dominated by waste management (two projects). HFC-23, hydropower, transportation and wind technologies account for one project each in the portfolio.

Waste management (12 projects) still holds the lead if we take into consideration the entire pipeline. It is followed by hydropower and energy efficiency technologies (six projects each). The oil and gas sector continues to be well-represented, accounting for three of the projects.

Making Carbon Finance a Reality: Projects in Progress

73	Sierra Leone Bumbuna Hydroelectric (NCDMF)
74	Honduras Pico Bonito Forest Restoration (BioCF)
75	Nigeria Aba Clean Energy Carbon (CDCF)
76	Philippines NorthWind Bangui Bay (PCF)
77	Senegal/Mali/Mauritania OMVS-Felou Regional Hydropower (SCF)
78	China 3F Zhonghao HFC-23 Destruction (UCF)
79	Ukraine UkrHydroEnergo Hydropower Rehabilitation (NECF)



Sierra Leone: Bumbuna Hydroelectric Project (BHP)

The Bumbuna dam is a run-of-river hydropower complex, located in Sierra Leone on the upper reaches of the Seli (Rokel) River in the valleys of the Sula Mountains of the Tonkolili district, about 200 kilometers northeast of Freetown. The project was 85% complete when construction work was suspended in May 1997 due to the conflict raging in the country.

The current situation of the power supply in Sierra Leone is extremely severe. In Freetown the power supply can cover only a minor part of the demand. Electricity is available to Freetown customers only for a few hours every three to seven days. Most areas in the interior are wholly or largely without power supply. This situation negatively impacts not only the quality of life of Sierra Leone citizens, but also the competitiveness of small business and of national industry.

The objective of the Bumbuna Hydroelectric Project (BHP) is to provide adequate and reliable energy supply to the most densely populated Western Area, including the capital Freetown, and to meet the current energy demands at the lowest possible cost and in a sustainable manner.

The BHP project will provide a reliable supply of energy that would meet nearly the entire current electrical needs of the Western Area, including Freetown. Moreover the electricity generated by the project will service new towns, currently not connected to the power grid. The quality of life will improve as communities stop relying on noisy, polluting and expensive power generators.

An emission reductions purchase agreement has been signed for the NCDMF to buy 880,000 tons of carbon dioxide equivalent that will be generated by the project.



“The peace achieved in Bumbuna is a sure sign that the people are ready for development. The project contractors and authorities will now have the opportunity to work in a peaceful atmosphere... This clearly shows the effectiveness of a bottom up and participatory approach to conflict resolution and development.”

Thomas Moore-Turay
Peace Process Facilitator of the Kalansogoia Chiefdom



Honduras: Pico Bonito Forest Restoration

Honduras suffered the greatest percentage loss of forest cover of any country in Latin America over the past generation. Between 1990 and 2005, over 37% of the forests in the country disappeared. Worse, since the end of the 1990s, Honduras' rate of forest loss has increased by 9%. This deforestation touches all of Honduras' varied ecosystems—from mountainous forests to rainforests to mangrove swamps—and threatens its ecological richness. The country's high rate of deforestation stems from its poverty. Despite its natural wealth, both mineral and biological, Honduras is one of the poorest countries in Central America. Deforestation results from slash and burn agriculture by subsistence farmers, clearing for cattle pasture, collection of fuelwood (65% of the country's energy comes from fuelwood), mining activities, timber harvesting and forest fires.

This project will implement a range of community pilot projects in the Pico Bonito National Park buffer zone. The Park's natural resources have been seriously degraded due to marginal agriculture and cattle grazing. Sustainable forestry management will be introduced along with other agroforestry production techniques to reverse this situation.

Five types of activities will be supported: agroforestry for small-scale producers, reforestation for conservation, reforestation for sustainable commercial forestry under certification, forest preservation, and community-based sustainable forest management. These activities will benefit communities living in this zone and provide employment for many more. Reforestation and the development of sustainable economic activities will enhance the park's ability to sustain threatened biodiversity and improve the integrity of important local headwaters. This project carries a methodology for leakage monitoring and mitigation.

The BioCarbon Fund will purchase emission reductions of 450,000 and 400,000 tons of carbon dioxide equivalent through Window One and Window Two of the fund, respectively.



PHOTO BY TODD SHAPERA

“*This project will bring crucially needed employment and income to communities around the park. These communities really need extra income, and they are currently getting it from slash and burn practices or extracting illegal wood or poaching wildlife.*”

Ricardo “Fito” Steiner
Presedente Fundacion Pico Bonito



Nigeria: Aba Clean Energy Carbon Project

The Aba Clean Energy Carbon Project, developed by Geometric Power Limited (GPL), a Nigerian private-sector power provider, includes an efficient, gas-fired power plant that will generate at least 120 megawatts. It will displace the electricity and steam currently being generated from diesel-power and used by industrial and large commercial enterprises in the city of Aba, Nigeria.

GPL will generate electrical power for sale to two primary groups: the Aba industrial clusters, using a specially installed and designated private distribution network, and Aba Power Limited which plans to rehabilitate and use the existing public power distribution network, the Nigerian National Electric Power Authority (NEPA), to deliver power to commercial and residential customers. The project will also sell steam to nearby businesses displacing the current diesel generation of steam. This is the first CDM project to be developed in Nigeria.

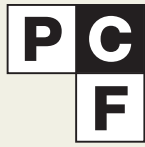


Emission reductions purchase agreement signing ceremony this year in the city of Aba, Nigeria.

Emission reductions that will result from the displacement of diesel-based energy, amounting to 1.1 million tons of carbon dioxide equivalent, will be sold to the Community Development Carbon Fund. The project will also deliver a multitude of development benefits to the local community near the plant. GPL will help to generate local employment opportunities as currently planned during and after construction, construct a new one kilometer asphalt access road (with street lighting) from the State Government Housing Estate through the GPL power plant to the community (providing safe access to markets and workplaces), provide access to reliable electricity supply for the 5,000 residents of the Umujima Ogbu community, provide a borehole supplying potable water sufficient to serve all 5,000 residents of the community, and construct a clinic/health center and a nursery and primary school for up to 200 students.

“*The goal of Geometric Power Limited as the main developer and sponsor of the project is to deliver electricity to consumers with the same availability and reliability as in developed countries. We plan to achieve this through first class engineering design of the power plant and distribution networks and through world class management.*”

Bart O. Nnaji, Chairman and CEO of Geometric Power Limited



Philippines: NorthWind Bangui Bay Project

The Philippines is strategically located on the Asia Pacific monsoon belt which gives the 7,100 island country high potential for utilizing wind energy and countering the recent rise in oil prices. The Philippines has an average recorded wind velocity ranging from one to eight meters per second and throughout the year there is almost a constant supply of wind.

The NorthWind Bangui Bay Project is a 33 megawatt wind turbine power plant located in the foreshore of Bangui Bay in Ilocos Norte Province, Philippines. The project is situated at a remote part of the Luzon grid which is plagued by expensive and unreliable power supply, due to the long-distance power transmission from various generation sources. The project involves the development of a wind farm consisting of 20 state-of-the-art wind turbines. Annual energy production is estimated to be about 87 gigawatt hours. The project sponsor is a local private company, NorthWind Power Development Corporation.

The Philippines 2001 Electric Power Industry Reform Act stressed the development and utilization of indigenous and renewable energy resources to tackle the country's dependence on imported oil and coal for power generation. This project, being the first commercial wind power project in the entire ASEAN region, will contribute significantly to the country's knowledge base in terms of wind power plant operation and the generation of clean energy from a renewable source.

The project will export electricity to the Luzon grid and displace highly polluting diesel-based power generation at the margin, thereby reducing greenhouse gas emissions. A reduction of approximately 356,000 tons of carbon dioxide equivalent is forecast for the first seven-year crediting period and will be sold to the Prototype Carbon Fund.



“Projects such as this will help the Philippines achieve its commitment to reduce greenhouse gas emissions and benefit through its participation in the CDM under the Kyoto Protocol.”

Michael Defensor
Environment Secretary



Senegal/Mali/Mauritania: OMVS-Felou Regional Hydropower Project

In 1972, the riparian countries of the Senegal River Basin established a robust legal and institutional framework—the Organisation pour la Mise en Valeur du Fleuve Sénégal (OMVS)—to ensure multi-purpose water resources development, including electricity supply. The primary beneficiaries are about 1.5 million people who presently reside in the river’s catchments, 50% of whom live in Senegal, 20% in Mauritania and 30% in Mali. A special purpose company—Société de Gestion de l’Energie de Manantali (SOGEM)—which is also jointly owned by the OMVS riparian countries runs a unique sub-regional power system. The OMVS Power System is comprised of a 200 megawatt hydroelectric plant at the foot of the Manantali dam in Mali, a 1,000 kilometer long system of 225 kilovolt transmission lines and sub-stations that deliver electricity to consumers in Mali, Mauritania and Senegal.

Under the OMVS Second Generation Hydropower Program, a 59 megawatt run-of-river hydroelectric plant is to be installed on the Senegal River about 200 kilometers downstream of the Manantali Dam at Felou, a site with an existing weir that is only 15 kilometers away from the Kayes sub-station of the OMVS power system. Estimated project investment is \$1.6 million per megawatt installed, yielding an average electricity production cost of \$0.05 per kilowatt hour—that is, a cost lower than the current weighted-average cost of grid electricity supply in each of the OMVS riparian countries. The Spanish Carbon Fund intends to purchase greenhouse gas emission reductions amounting to 650,000 tons of carbon dioxide equivalent that the project will generate.



“*The Felou project will allow the three benefiting countries to have a hydropower project to generate clean and renewable energy. This hydro energy will contribute to reducing greenhouse gas emissions, developing local communities in a sustainable way and developing rural economies in the region.*”

Mohamed Salem Ould MERZOUG
OMVS' High Commissioner





China: 3F Zhonghao HFC-23 Destruction Project

Located in Changshu City of Jiangsu Province, Changshu 3F Zhonghao New Chemical Materials Co. Ltd. is a leading fluoro chemical enterprise in China. One of the main products of 3F Zhonghao is HCFC22, which is a gas used as a refrigerant and as a raw material for other products. HFC-23, one of the most potent greenhouse gases affecting climate change, is a waste gas generated in the manufacturing process of HCFC22. HFC-23 has a global warming potential that is 11,700 times that of carbon dioxide.

The project will capture and destroy the HFC-23 generated from the existing HCFC22 production facility at 3F Zhonghao. Since there is no regulation at the national or local level to restrict the emissions of HFC-23 in China, in the absence of the project, this potent gas would be released into the atmosphere in the course of HCFC22 production.

3F Zhonghao has signed an emission reductions purchase agreement with the World Bank's Umbrella Carbon Facility. The project will generate on average emission reductions amounting to nearly 10.5 million tons of carbon dioxide equivalent per year.

China has created a Clean Development Mechanism Fund (CDMF), through which revenues accruing to the government as a result of the sale of emission reductions will be used to support sustainable development activities. The government will retain 65% of all HFC-23 revenues for investing in projects and activities related to climate change. China's Clean Development Mechanism Fund is expected to finance climate mitigation projects in priority sectors such as energy efficiency, renewable energy, coal mine methane recovery and use.

“ *The Government of China attaches a high priority to participation in global efforts under the Kyoto Protocol. We are glad that it has been possible to bring forward this project, which we expect will make a significant contribution to these efforts, with two companies from Jiangsu Province. China has also set up a Clean Development Mechanism Fund to use Clean Development Mechanism revenues for projects and capacity building for managing the effects of climate change.* **”**

Mr. Ju Kuilin,
Deputy Director General of the International Department
Ministry of Finance, the People's Republic of China





Ukraine: UkrHydroEnergo Hydropower Rehabilitation Project

The project involves the rehabilitation of 46 hydro units, which are located at nine different sites on the Dnipro River and one site on the Dnister River in Ukraine. This will entail the replacement of power generation equipment such as gates, turbines, generators and control systems.

Some of the oldest hydro units of this project were commissioned 70 years ago and although they will not be obsolete for many years to come, they continue to run at increasingly lower efficiency levels.

The project will increase the electricity generation capacity and efficiency of the rehabilitated hydropower plants. Additional power generated by the hydro units during peak

periods will displace generation by thermal plants. Emission reductions due to displaced thermal electricity generation will be about one million tons of carbon dioxide equivalent between 2006 and the end of 2012, which the Netherlands European Carbon Facility (NECF) has contracted to buy.

The emission reductions purchase agreement was signed for one million tons of carbon dioxide equivalent between the project sponsor UkrHydro Energy and the World Bank on behalf of the NECF in Kiev in September of this year, making this the first JI project in the NECF's portfolio and the first project in Ukraine for the World Bank.



“ We optimistically turn on the ‘green’ light for the Kyoto Protocol’s flexible mechanisms that will help create additional financial resources for effective implementation of the country’s Hydro Power Rehabilitation Project. This project will increase the production of hydro electric power in a sustainable way which will help preserve the Dnipro river basin. ”

Semen Potashnik
Director, UkrHydroEnergo



Annexes

81	Governance
85	Glossary
88	Acronyms

Governance



PCF FUND MANAGEMENT COMMITTEE

Benoit Bosquet, PCF Fund Manager
Joëlle Chassard, Manager, Carbon Finance Unit

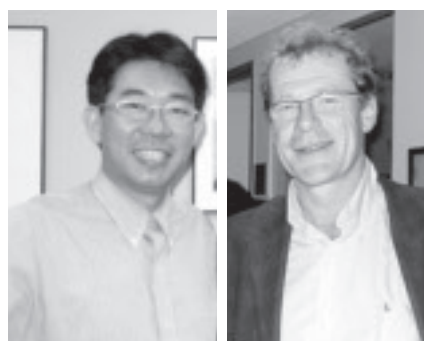
Denis Clarke, Chief Investment Officer, International Finance Corporation

Susan G. Goldmark, Sector Manager, Energy Cluster, Latin America and Caribbean Region



PCF PARTICIPANTS' COMMITTEE

Hans-Georg Adam (Chair), RWE
Olle Björk, Government of Sweden
Eric Bjørnebye, Government of Norway
Christine Fedigan, Gaz de France
Takeshi Hokari, Mitsui & Co., Ltd.
Liv Rathe, Norsk Hydro
Tetsuya Yamada, Japan Bank for International Cooperation



Governance *continued*

CDCF PARTICIPANTS' COMMITTEE

Dirk Drechsel (Chair), BASF

Alexandra Armerstorfer, Government of Austria

Lex de Jonge, Government of the Netherlands

Juan Carlos García Marinas, Hidroeléctrica del Cantábrico, S. A.

Kunihiro Nishikawa, Daiwa Securities SMBC Principal Investments

Nobutaka Ohki, FujiFilm Corporation

CDCF ADVISORY GROUP

Michael Zammit Cutajar (Chair)

Laura Canuto, Government of Italy

Yvo de Boer*, Government of the Netherlands

Philip Gwage, Government of Uganda, Ministry of Water, Lands and Environment

Mamadou Honadia, Government of Burkina Faso, Ministère de l'Environnement et du Cadre de Vie

Dimitri Kanounnikoff, Agence Française de Développement

Andrei Marcu, International Emissions Trading Association

Devalia Murali, Reliance Industries, Limited

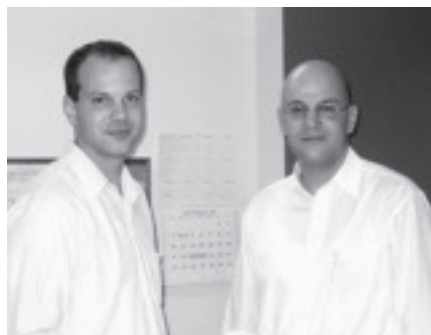
Eduardo Sanhueza, Fundación Ciudadana para las Américas

Youba Sokona, Tunisie, Observatoire du Sahara et du Sahel

Eric Suñol, Gas Natural SDG, S.A.

Shoab Sultan, Rural Support Programs Network

* Member of the Advisory Group until August 2006, when Mr. de Boer resigned following his appointment as Executive Secretary of the UNFCCC Secretariat.



Governance *continued*



BIOCF FUND MANAGEMENT COMMITTEE

Benoit Bosquet (Chair), BioCF Fund
Manager

Joëlle Chassard, Manager, Carbon Finance
Unit

Marjory-Anne Bromhead, Sector Manager,
Europe and Central Asia Region

Karen Brooks, Sector Manager, Africa
Region

Mark Cackler, Sector Manager, Latin
America and Caribbean Region



BIOCF PARTICIPANTS' COMMITTEE

François Falloux (Chair), Eco-Carbone

Claudia Croce, Government of Italy

Manabu Hirano, Tokyo Electric Power
Company

Kan Kobayashi, Idemitsu Kosan Co., Ltd.

Luis Simó Moreno, Government of Spain



NECF COMMITTEE

Penelope Brook (Chair), Advisor, Financial
and Private Sector Development

Warren Evans, Director, Environment
Department

Rachel Kyte, Director, CESDR, International
Finance Corporation



Governance *continued*

SCF PARTICIPANTS' COMMITTEE

Teresa Ribera Rodríguez (Chair),
Government of Spain

Valvanera Ulargui Aparicio, Government
of Spain

Isabel Riaño Ibañez, Government of Spain

Ana de Vicente Lancho, Government of
Spain

Luis Simó Moreno, Government of Spain

Manuel Melgar Oliver, Oficemen

David Corregidor Sanz, Endesa

Antonio Canoyra Trabado, Union Fenosa



Glossary

Adaptation

Actions taken to help communities and ecosystems cope with changing climate conditions, such as the construction of flood walls to protect property from stronger storms and heavier precipitation, or the planting of agricultural crops and trees more suited to warmer temperatures and drier soil conditions.

Additionality

According to the Kyoto Protocol, greenhouse gas emission reductions generated by CDM and JI project activities must be additional to those that otherwise would occur. Additionality is established when there is a positive difference between the emissions that occur in the baseline scenario (business as usual) and the emissions that occur in the proposed project.

Afforestation

Planting of new forests on lands that historically have not contained forests.

Annex I Parties

The countries listed in Annex I of the UNFCCC and in Annex B of the Kyoto Protocol.

Assigned Amount Unit (AAU)

The quota of Annex I parties' permissible emissions under the Kyoto Protocol.

Bagasse

The fibrous residue left after crushing sugarcane.

Baseline

The emission of greenhouse gases that would occur without the contemplated policy intervention or project activity.

Biomass Fuel

Energy sources that are renewable as long as the vegetation producing them is maintained or replanted, such as firewood, alcohol fermented from sugar, and combustible oils extracted from soy beans. Their use in place of fossil fuels cuts greenhouse gas emissions because the plants that are their sources recapture carbon dioxide from the atmosphere.

Carbon Asset

The potential of greenhouse gas emission reductions that a project is able to generate and sell.

Carbon Finance

Resources provided to projects generating (or expected to generate) greenhouse gas (carbon) emission reductions in the form of the purchase of such emission reductions.

Carbon Finance Document (CFD)

A project document, which contains a more advanced project description than the project idea note, including financials, is submitted by the project sponsor and reviewed by the Carbon Finance Unit, which submits it for clearance to the Fund Management Committee (in the case of the PCF) and the respective Participants' Committees.

Carbon Market

A popular term for a trading system through which countries may buy or sell units of greenhouse gas emissions in an effort to meet their national limits on emissions, either under the Kyoto Protocol or under other agreements. The term comes from the fact that carbon dioxide is the predominant greenhouse gas and other gases are measured in units called "carbon dioxide equivalents."

Certification

In relation to emission reductions, certification is the written assurance by an independent third party or designated operational entity that, during a specific time period, a project achieved the reductions in emissions by sources or the removal of greenhouse gases by sinks.

Certified Emission Reduction (CER)

A unit equal to one metric ton of carbon dioxide equivalent, which may be used by Annex I parties towards meeting their binding emission reduction commitments under the Kyoto Protocol.

Clean Development Mechanism (CDM)

The mechanism provided by Article 12 of the Kyoto Protocol, designed to assist developing countries in achieving sustainable development by permitting industrialized countries to finance projects for reducing greenhouse gas emissions in developing countries and receive credit for doing so.

Glossary *continued*

CDM Executive Board

A 10-member panel elected at COP7, which supervises the CDM.

Community Benefits

Community benefits are identifiable and quantifiable improvements in the quality of life of a local group of people who are identified by the trustee and the project entity as in the vicinity of or affected by a CDM project.

Conference of the Parties (COP)

The supreme body of the UNFCCC. It meets once a year to review the Convention's progress.

Conference of the Parties/Meeting of the Parties (COP/MOP)

Conference of the Parties to the UNFCCC serving as the Meeting of the Parties to the Kyoto Protocol.

Designated National Authority (DNA)

An office, ministry, or other official entity appointed by a Party to the Kyoto Protocol to review and give national approval to projects proposed under the CDM.

Emission Reduction (ER)

The measurable reduction of release of greenhouse gases into the atmosphere from a specified activity or over a specified area and a specified period of time.

Emission Reductions Purchase Agreement (ERPA)

Agreement which governs the purchase and sale of emission reductions.

Flexible Mechanisms

Three procedures established under the Kyoto Protocol to increase the flexibility and reduce the costs of making greenhouse gas emissions cuts; they are the Clean Development Mechanism, International Emissions Trading and Joint Implementation.

G8 Gleneagles Summit

The G8 Summit at Gleneagles that took place in summer of 2005 focused among other issues on the problem of climate change. The World Bank was asked to take a leading role to work with partners in the creation of a new, long-term oriented investment framework for clean energy and sustainable development.

Greenhouse Gases (GHGs)

These are the gases released by human activity that are responsible for climate change and global warming. The six gases listed in Annex A of the Kyoto Protocol are carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). Less prevalent—but very powerful—greenhouse gases are hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF₆).

Green Investment Scheme

A financing mechanism in which the proceeds from emissions trading under the Kyoto Protocol are reinvested in projects in the host country's economy with the objective of further reducing emissions.

HFC-23 (trifluoromethane)

Greenhouse gas that has 11,700 times the global warming potential of carbon dioxide and is a by-product in the manufacturing process of HCFC22, used in air conditioning and refrigeration.

Host Country

The country where an emission reductions project is physically located.

Host Country Committee (HCC)

The committee known as the Carbon Finance Host Country Committee established by the World Bank for the purposes of facilitating interaction between the host countries and the Bank in relation to the development and operation of CDM projects.

Intergovernmental Panel on Climate Change (IPCC)

Established to assess scientific, technical and socio-economic information relevant for the understanding of climate change, its potential impacts and options for adaptation and mitigation.

International Development Association (IDA)

One of five institutions comprising the World Bank Group, which focuses exclusively on the world's poorest countries.

International Emissions Trading

International Emissions Trading as defined in Article 17 of the Kyoto Protocol is an allowance-based system that permits Annex I parties to buy or sell among each other any

Glossary *continued*

“part of an assigned amount,” which is also referred to as a collection of assigned amount units.

Joint Implementation (JI)

Mechanism provided by Article 6 of the Kyoto Protocol, whereby Annex I parties may acquire emission reductions when they help to finance projects that reduce net emissions in another industrialized country (including countries with economies in transition).

Kyoto Protocol

The Kyoto Protocol, an international and legally binding agreement to reduce greenhouse gas emissions worldwide, entered into force on February 16, 2005.

Land Use, Land-Use Change, and Forestry (LULUCF)

Refers to the impact of land use by humans—and changes in such land use—on greenhouse gas emissions: expanding forests reduce atmospheric carbon dioxide; deforestation releases additional carbon dioxide; various agricultural activities may add to atmospheric levels of methane and nitrous oxide.

Least Developed Countries (LDCs)

Least developed countries are countries (i) listed in the World Bank’s IDA list of countries; (ii) countries commonly referred to as “IDA blend,” with a population of less than 75 million; or (iii) countries designated as least developed countries by the United Nations.

Marrakesh Accords

Agreements reached at COP7 that set various rules for “operating” the more complex provisions of the Kyoto Protocol. Among other things, the Accords include details for establishing a greenhouse gas emissions trading system, implementing and monitoring the Protocol’s CDM and setting up and operating three funds to support efforts to adapt to climate change.

Methodology Panel

The CDM Executive Board at its fourth meeting held on June 9 to 10, 2002, in Bonn agreed to establish a Methodology Panel, which develops recommendations to the Board on guidelines for methodologies for baselines and monitoring plans.

Mitigation

Actions to cut net emissions of greenhouse gases and so reduce global warming potential. Examples are using fossil fuels more efficiently for industrial processes or electricity generation, switching to solar energy or wind power, improving the insulation of buildings and expanding forests and other “sinks” to remove greater amounts of carbon dioxide from the atmosphere.

Monitoring Plan

A set of requirements for monitoring and verifying of emission reductions achieved by a project.

Project Idea Note (PIN)

A document prepared by a project proponent regarding a project proposed for the World Bank’s carbon funds. The PIN is set forth in a format provided by the Carbon Finance Unit and available on its website <http://carbonfinance.org>

Reforestation

Replanting of forests on land that was previously forested but subsequently converted to other use.

Registration

The formal acceptance by the CDM Executive Board of a validated project as a CDM project activity.

Sequestration

The process of capturing carbon dioxide in a manner that prevents it from being released into the atmosphere for a specified period of time.

Small-Scale Projects

Projects that are compatible with the definition of “Small-Scale CDM Project Activities” set out in decision 17/CP.7. by the Conference of Parties to the UNFCCC.

Sustainable Development

Development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs.

Ton of Carbon Dioxide Equivalent (tCO_{2e})

The universal unit of measurement used to indicate the global warming potential of each of the six greenhouse gases. Carbon dioxide—a naturally occurring gas that is a byproduct of burning fossil fuels and biomass, land-use

Glossary *continued*

changes and other industrial processes—is the reference gas against which the other greenhouse gases are measured.

Trustee

The World Bank, acting not in its individual or personal capacity but solely in its capacity as trustee of the Fund.

United Nations Climate Change Secretariat

The main functions of the secretariat are to make practical arrangements for sessions of the Convention bodies, to assist Parties in implementing their commitments, to provide support to on-going negotiations and to coordinate with the secretariats of other relevant international bodies, notably the Global Environment Facility (GEF) and its implementing agencies (UNDP, UNEP and the World Bank), the Intergovernmental Panel on Climate Change (IPCC) and other relevant conventions.

United Nations Framework Convention on Climate Change (UNFCCC)

The international legal framework adopted in June 1992 at the Rio Earth Summit to address climate change. It commits the Parties to the UNFCCC to stabilize human induced greenhouse gas emissions at levels that would

prevent dangerous manmade interference with the climate system. In December 1997, the Parties to the UNFCCC adopted the Kyoto Protocol. In February 2005, the Kyoto Protocol entered into force thus becoming a legally binding instrument.

Validation

The assessment of a project's project design document, which describes its design, including its baseline and monitoring plan, by an independent third party before the implementation of the project against the requirements of the CDM.

Verification

The periodic independent review and ex post determination by an independent third party of the monitored emission reductions that have occurred as a result of a registered CDM project activity during the verification period.

Verified Emission Reduction (VER)

A unit of greenhouse gas emission reductions generated from either CDM or JI projects and verified by the Designated Operational Entity and measured in metric tons of carbon dioxide equivalent.

Acronyms

AAU	Assigned amount unit	HCC	Host Country Committee
CDM	Clean Development Mechanism	IBRD	International Bank for Reconstruction and Development
CER	Certified emission reduction	IDA	International Development Association
CFD	Carbon finance document	IETA	International Emissions Trading Association
CF-SEA	Carbon finance to support sustainable energy services in Africa	IFC	International Finance Corporation
CFU	Carbon finance unit	JI	Joint Implementation
CMM	Coal mine methane	LFG	Landfill gas
COP	Conference of the Parties	LULUCF	Land use, land-use change and forestry
COP/MOP	Conference of the Parties/Meeting of the Parties	N ₂ O	Nitrous oxide
DNA	Designated national authority	PIN	Project idea note
EB	Executive Board	PHRD	Japan's Policy and Human Resources Development Fund
EIB	European Investment Bank	tCO ₂ e	Tons of carbon dioxide equivalent
ER	Emission reduction	UNDP	United Nations Development Programme
ERPA	Emission reductions purchase agreement	UNEP	United Nations Environment Programme
EU ETS	European Union Emissions Trading Scheme	UNFCCC	United Nations Framework Convention on Climate Change
FaL-G	Fly ash-Lime-Gypsum	VSBK	Vertical shaft brick kiln
GHG	Greenhouse gases	WBI	World Bank Institute