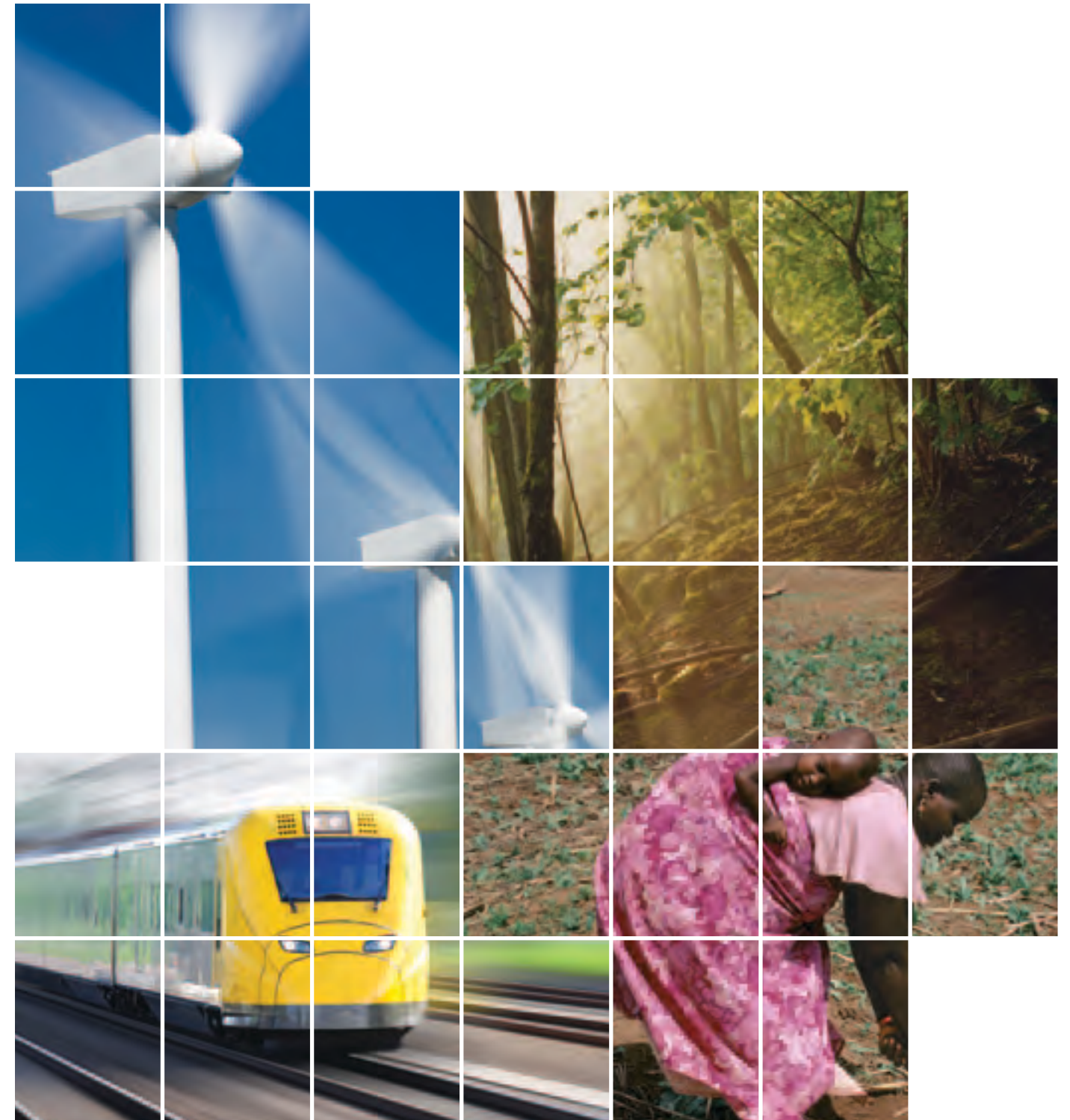


carbon finance

for sustainable development

carbon finance for
sustainable development
annual report 2009

2009 annual report  carbon finance for sustainable development



carbon finance mission statement

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.

This report on the carbon funds and facilities managed by the World Bank covers the period from January 1, 2009 through December 31, 2009. 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 = 1.43. One ton = 1,000 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 and facilities reported on are not legal partnerships. No warranties or representations are made as to the accuracy, reliability, or completeness of any information herein.

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Acronyms

AAU	Assigned amount units
A/R	Afforestation/reforestation
CDM	Clean Development Mechanism
CER	Certified emission reduction
CFU	Carbon Finance Unit (World Bank)
COP 15	Conference of the Parties, in Copenhagen, Denmark
DECC	Department of Energy and Climate Change (UK)
DFID	Department for International Development (UK)
ER	Emission reduction
ERPA	Emission reductions purchase agreement
EU	European Union
EU ETS	European Union Emissions Trading Scheme
GHG	Greenhouse gas
HFC-23	Trifluoromethane
HCFC-22	Chlorodifluoromethane
IBRD	International Bank of Reconstruction and Development
IDA	International Development Association
IEA	International Energy Agency
IFC	International Finance Corporation
IPCC	Intergovernmental Panel on Climate Change
JI	Joint Implementation
LULUCF	Land use, land-use change and forestry
MtCO ₂ e	Million metric tons of carbon dioxide equivalent
N ₂ O	Nitrous oxide
NGO	Non-governmental organization
PIN	Project Idea Note
POA	Programme of Activities
REDD	Reduce emissions from deforestation and forest degradation
REDD-plus	Reduce emissions from deforestation and forest degradation, forest carbon stock conservation, sustainable management of forests and enhancement of forest carbon stocks
SF ₆	Sulfur hexafluoride
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change

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From the World Bank



The World Bank continues to help countries pursue their mitigation and adaptation efforts to address climate change in the face of a continued global slowdown affecting the carbon markets and a lack of clarity on the post-2012 climate regime.

The World Bank's Carbon Finance Unit facilitates early action to implement climate change mitigation through carbon markets. It does this in many ways, ranging from finding solutions to the difficulties of project execution to scaling up engagements by exploring programmatic approaches and promoting a greater inclusion of forestry and land-use projects in these markets. The Bank supports methodology development and develops groundbreaking new financial instruments, as well as creating an environment for discussions on topics that are central to ramping up climate change mitigation.

The year 2009 was particularly significant to the World Bank: our work in this sector began with a single carbon fund created in 1999. Today, we are the trustee of 10 funds and facilities with a total capital of \$2.5 billion, contributed by public and private sector participants. The clear message from the decade past is that one of the most promising ways to reduce greenhouse gas emissions is through a deep and global carbon market. This market has the potential to deliver significant benefits to both developed and developing countries.

This past year we also saw intense preparations for the 15th Conference of the Parties (COP 15) in Copenhagen and efforts by countries from all over the world to come to an agreement for a post-2012 regime. As we wait for clearer market signals to emerge from the climate negotiations, the World Bank is again pioneering various instruments to explore financing for long-term mitigation action. These include the Forest Carbon Partnership Facility, already operational and helping to build the capacity of developing countries in tropical and subtropical regions to reduce emissions from deforestation and forest degradation, forest carbon stock conservation, sustainable management of forests, and enhancement of forest carbon stocks (REDD-plus). The focus to date has been on REDD Readiness, though it is expected that the Carbon Fund will be launched during 2010 as a public-private partnership. The Forest Carbon Partnership Facility is ready to tap into any future system of positive incentives for REDD-plus; we are, therefore, encouraged to see the Copenhagen Accord open the door to include REDD-plus in global mitigation efforts.

Looking beyond 2012, we are focusing on future needs. In this vein, the Carbon Partnership Facility, a new financial instrument, was launched at the COP 15. It is designed to develop large-scale investments that emphasize programmatic approaches, instead of individual projects implemented after 2012.

The World Bank is steadfast in its commitment to supporting climate mitigation through market mechanisms and preparing for REDD-plus. We take seriously our leadership role in strengthening the collaboration between the public and private sectors. We also encourage international carbon actors to demonstrate their interest in deepening carbon markets, showing political leaders that there is a high level of commitment towards achieving emission reductions and mitigating the effects of climate change.

A handwritten signature in black ink, appearing to read 'Katherine Sierra'.

Katherine Sierra
Vice President, Sustainable Development
The World Bank

From the Vice Chair of the Host Country Committee



Copenhagen did not succeed in a binding international agreement. Nonetheless, there were some positive outcomes, including a recognition of the need to limit a global temperature increase to 2 degrees Celsius, the crucial role of REDD-plus, and the acknowledgement that developed countries need to mobilize significant funds to help developing countries meet their mitigation and adaptation needs.

With 2,115 registered projects to date, the Clean Development Mechanism (CDM) has undoubtedly matured as an instrument to reduce greenhouse gas emissions. However, CDM has failed to deliver in parts of the world. The 15th Conference of Parties in Copenhagen provided some guidance including important actions that, if implemented properly, should help to improve the CDM as well as the regional distribution of projects. The World Bank's carbon finance operations have long been ahead of the curve by achieving and maintaining a fair regional distribution within the Bank's CDM projects portfolio.

I strongly believe that continuing the close collaborative work between the Host Country Committee and the World Bank will allow all developing countries to gain a fair and equitable access to the carbon market.

A handwritten signature in black ink, appearing to read 'Tosi Mpanu-Mpanu'.

Tosi Mpanu-Mpanu
Chair, African Group on Climate Change Negotiations

From the Department of Environment



The World Bank pioneered the use of market instruments for mitigating greenhouse gases with the Prototype Carbon Fund in 2000, a full five years before the Kyoto Protocol's entry into force. In the decade of experience with developing carbon assets for the Protocol's Clean Development Mechanism and Joint Implementation windows, the World Bank has brought forward projects that explore the overlap of carbon mitigation with sustainable development, taking forward programs and methodologies in new and emerging carbon markets. During this decade, the World Bank has significantly expanded its carbon funds and facilities, and while this important start-up phase of carbon markets is coming to a close, it is worth noting that with a small allocation of around two billion dollars, we have been able to catalyze global carbon markets that now exceed \$100 billion per year.

As a keen observer and implementing agency of the UN Climate Change negotiations, the World Bank is now preparing to respond to the new challenges of transformative scaling up of mitigation efforts beyond the first Commitment Period of the Kyoto Protocol. It will need to anticipate and respond to the new demands that are made on multilateral development agencies, including international and domestic actions, new market instruments, programmatic interventions, and beyond. We hope that the valuable experience gained and lessons learned from the first ten years by the Carbon Finance Unit will guide the direction and provide the foundations for a successful future program for carbon finance and market development in climate change mitigation.

A handwritten signature in black ink, appearing to read 'James Warren Evans'.

James Warren Evans
Director of Environment
The World Bank

From the Carbon Finance Unit



In 2009, the World Bank started to celebrate its first decade of work in carbon finance. Looking back at the road traveled, it has been a fascinating journey of discovery of how market mechanisms can set in motion investments and behaviors that dramatically change the way we look at development opportunities in our client countries.

It has been a journey taken together with carbon fund participants, donors, host countries, and a diverse group of entrepreneurs and investors in many different countries. We all share a belief that there are alternatives to pursuing growth and development on a business-as-usual basis and a commitment to a sustainable world for generations to come. It has been a difficult, but highly rewarding, journey—one in which we have learnt so much. Today, we have a much better idea of not only what works and does not work, but also of what can be done to let market mechanisms reach their full potential to achieve climate change mitigation at the scale required to meet the global challenge our planet faces.

Strengthened by the rich experience garnered over the past decade, we are embarking on our next ten years of carbon finance. Even if it is taking time for the global community to put in place an international climate regime post-2012, with the resulting uncertainties this implies in the interim, we are forging ahead with our work to expand the scope, scale, and range of climate change mitigation activities in the various sectors of our clients' developing economies.

In 2009, the Forest Carbon Partnership Facility consolidated its pioneering work to support forest-rich countries prepare themselves for a future regime to reduce carbon dioxide emissions from deforestation and forest degradation (REDD). In the process, it is developing a strong partnership of more than 50 countries dedicated to tackle the critical issue of REDD and beyond (REDD-plus), along with other regional and global REDD initiatives.

Complementing the FCPF, the BioCarbon Fund is pursuing its innovative work on extending the benefits of the carbon market to the rural, poorest areas of the world, with projects that conserve or sequester greenhouse gases in forests and agro-ecosystems, as well as strive to change agricultural practices leading to soil improvement. Aware of the potential that such work has towards improving livelihoods and reducing poverty in our client countries, we are keen to explore how best to build on the achievements of and lessons learned from both the BioCarbon Fund and the Community Development Carbon Fund and support the development needs of least developed countries in the future.

Last, but not least, we are excited about the launch of the Carbon Partnership Facility, which has started preparing a number of large-scale and strategic emission reduction programs in several parts of the world. This will be our new laboratory for experimenting with ways to encourage countries to adopt a lower-carbon development path.

Although we continue to emphasize “learning-by-doing”, our new mantra is “partnership”; bringing together the various stakeholders in our programs – buyers and sellers, host countries and donors, local communities – to help find solutions that will enable carbon finance to address the urgent and critical challenges of climate change.

A handwritten signature in dark ink, appearing to read 'J. Chassard', written in a cursive style.

Joëlle Chassard
Manager, Carbon Finance Unit
The World Bank



Carbon Funds and Facilities at a Glance



PCF

At the close of calendar year 2009, the Prototype Carbon Fund has 23 of 24 projects generating emission reductions and eight of the PCF's CDM projects have issued Certified Emission Reductions. In early 2010, the PCF successfully completed its first transfer of Kyoto assets from its projects in Annex I countries.

Fund Capital (\$ million)	219.8
Date Operational	April 2000
Participants	22
Private % (by capital invested)	57.6



CDCF

The Community Development Carbon Fund now has 33 emission reductions purchase agreement with a value of \$98 million. Fifty-three percent of its portfolio is committed to projects in the world's poorest countries as defined by the World Bank Group's International Development Association or the United Nations' Least Developed Country designation.

Fund Capital (\$ million)	128.6*
Date Operational	March 2003
Participants	25
Private % (by capital invested)	45.1



BioCF

The BioCarbon Fund has signed 17 contracts involving afforestation and reforestation, four of which have been registered under the Kyoto Protocol's CDM mechanism, and the remainder of which are in advanced stages of preparation. Fifteen of the projects have signed an emission reductions purchase agreement. Tranche 2 consists of 8 afforestation/reforestation projects, which are expected to generate 3.02 million tons in carbon emission reductions.

TRANCHE 1	
Fund Capital (\$ million)	53.8
Date Operational	May 2004
Participants	14
Private % (by capital invested)	51
TRANCHE 2	
Fund Capital (\$ million)	36.6
Date Operational	March 2007
Participants	7
Private % (by capital invested)	44



NCDMF

The Netherlands Clean Development Mechanism Facility has a mature portfolio that includes the first project ever registered under the Kyoto Protocol's CDM mechanism. The NCDMF portfolio includes a significant number of registered projects and others with signed emission reductions purchase agreements that are in the process of being registered.

Fund Capital (\$ million)	**
Date Operational	May 2002
Participants	1
Private % (by capital invested)	0



NECF

The Netherlands European Carbon Facility (NECF) is co-managed with the International Finance Corporation and supports carbon market operations in Ukraine, Russia, and Poland.

Fund Capital (\$ million)	**
Date Operational	August 2004
Participants	1
Private % (by capital invested)	0



Italian Carbon Fund

With a capitalization of \$155.6 million, the Italian Carbon Fund (ICF) has signed six emission reductions purchase agreements totaling \$145.9 million and 26 million tons of carbon dioxide. The portfolio includes projects operating under both the Kyoto Protocol's CDM and JI mechanisms.

Fund Capital (\$ million)	155.6
Date Operational	March 2004
Participants	7
Private % (by capital invested)	30.2



Danish Carbon Fund

The Danish Carbon Fund (DCF) consists of seven emission reductions purchase agreements with a total carbon reduction volume of 6.8 million tons of carbon dioxide equivalent. The fund has an additional 9 projects in pipeline equivalent to another 35 million tons of carbon dioxide.

Fund Capital (€ million)	90
Date Operational	January 2005
Participants	5
Private % (by capital invested)	78



Spanish Carbon Fund

Divided into two tranches since 2008, the Spanish Carbon Fund (SCF) consists of 14 signed emission reductions purchase agreements. With total commitments of €156.7 million, the fund has 71.2% of its capital pledged. Tranche 2, which has a Green Investment Scheme focus, signed its first emission reduction agreements in 2008 purchasing 236,254 tons of carbon dioxide.

TRANCHE 1	
Fund Capital (€ million)	220
Date Operational	March 2005
Participants	13
Private % (by capital invested)	22.7
TRANCHE 2	
Fund Capital (€ million)	70
Date Operational	April 2008



Umbrella Carbon Facility

Consisting of five carbon fund administered by the World Bank and 11 members of the private sector, the Umbrella Carbon Facility (UCF) consists of €799.1 million, 75 percent of which comes from the private investment. In 2009 the facility delivered 19.2 million tons of carbon dioxide bringing the total amount of emissions purchased since inception up to 48.4 million tons of carbon dioxide.

Fund Capital (€ million)	799.1*
Date Operational	August 2006
Participants	16
Private % (by capital invested)	75



Carbon Fund for Europe

With total capitalization of €50 million, the Carbon Fund for Europe (CFE) signed a fifth emission reduction agreement in 2009 bringing the total amount of emissions purchased up to 3.4 million tons of carbon dioxide emissions. The fund currently has an additional 1 million tons of carbon dioxide emissions in its pipeline.

Fund Capital (€ million)	50
Date Operational	March 2007
Participants	5
Private % (by capital invested)	20



Forest Carbon Partnership Facility

Operational since June 2008, the capital for the Forest Carbon partnership facility currently stands at €168.5 million. In 2009, Guyana, Panama, and Indonesia became the first three countries to submit Readiness Preparation Proposals to the facility, which is the first step in allowing them to build capacity to tap into incentives under REDD.

Fund Capital (€ million)	168.5
Date Operational	June 2008
Participants	51***
Private % (by capital invested)	3

Includes \$ 5 million total participation of DCF
 * Includes €224.54 million total participation of PCF, NCDMF, ICF, DCF, and SCF
 ** Not publicly available
 *** 14 financial contributors 37 REDD country participants

Carbon Finance at the World Bank





introduction

After a Decade of Carbon Finance, Looking Beyond 2012

2009 represented a significant milestone for the World Bank's Carbon Finance Unit: we celebrated our first ten years in developing carbon markets. We started in 1999, with the Prototype Carbon Fund, capitalized at \$180 million of investible resources, and we now manage a robust suite of ten carbon funds and facilities with a total capitalization of \$2.5 billion, involving 16 governments and 66 private companies in the 'Kyoto Funds' and 51 governments and organizations in the Forest Carbon Partnership Facility. These funds and facilities are described in this annual report.

The carbon funds built on and deepened the initial guidance in the Kyoto Protocol that called for a market mechanism to help mitigate greenhouse gas emissions in developing countries and to help establish a global carbon market.

As a catalyst, the carbon funds have been very successful and provided "proof-of-concept" for the private sector. While initially the first funds represented a relatively large proportion of the total carbon market, as the market has grown, the role of the Carbon Finance Unit changed. Today, we represent a

very small share of the market, even though the number of funds and the resources our funds represent have multiplied. The carbon funds have been instrumental in deepening the carbon market by expanding its reach in terms of financial support, capacity building, and technology transfer.

Since 1999, the Carbon Finance Unit's core focus has been on our strong capacity for innovation and methodology development. The work that has been done over the years in this area is impressive, with 33 Clean Development Mechanism (CDM) methodologies, representing 21 percent of all UNFCCC methodologies, developed or co-developed by the World Bank. Methodology development requires financial resources, technical knowledge, and patience, and represents an important niche that the private sector has been slow to fill. Working closely with the other departments of the World Bank, we have been able to collaborate from the very early stages of development of projects located on every continent. We have learned how to identify challenges and address them. As pioneers in many fields –

from reforestation to developing Programmes of Activities – we have become an important trailblazer in carbon finance.

Today, amidst uncertainty regarding the instruments that will be used to mitigate climate change beyond 2012, the Carbon Finance Unit continues to focus on finding better ways to utilize carbon finance to support partner country efforts to shift to a lower carbon development path. We are fulfilling our commitments under the Kyoto Funds and are developing new funds and facilities that will be responsive to the new needs of our clients, including the private sector, governments, and developing countries. The role of the Bank is changing and we are making sure that market solutions are developed that are innovative and useful for a large-scale mitigation effort.

This innovation is currently taking its form through two new facilities – the Forest Carbon Partnership Facility (FCPF) and the Carbon Partnership Facility (CPF). These facilities focus on areas and instruments that were not initially contemplated for inclusion in the Kyoto Protocol, but have emerged as important strategies for emission reductions. The FCPF focuses on reduced emissions from deforestation, forest degradation and other forest related activities in developing

countries; and the CPF aims to jump-start emission reductions on a larger scale, using programmatic approaches. These are areas where policy and finance are still lagging behind and where the World Bank can make an important contribution in creating a dialogue with stakeholders, identifying needs, supporting the development of strategies for implementation and methodologies if necessary, finding financial resources, and removing other obstacles. We expect to be called on to address significant new demands as well: in the use of market instruments for domestic actions; new public-private partnerships for energy; regional activities (particularly in the context of less-developed countries); and capacity for monitoring and verification under future climate regimes.

While the CDM has been a success in certain countries and for certain technologies, it is clear that in countries with low greenhouse gas emissions, and in particular in combination with low capacity for CDM project implementation, a different strategy needs to be developed to engage countries in climate mitigation. This is particularly true for Africa and least developed countries, which explains the Bank's focus on bringing the benefits of carbon finance to these countries.





regional highlights

Africa

"Africa's land use challenges are so big – we must think of carbon finance as more than an experiment and begin using the carbon instruments as a reliable resource for Africa, looking closely at how we can best collaborate with partners so carbon finance becomes a transformational tool in Africa."

–Inger Andersen, Director, Africa Region

Africa continues to have a very strong interest in carbon finance as a tool of sustainable development in key sectors, such as forestry, agriculture, energy, and waste management. Nonetheless, challenges for carbon finance across the region remain significant because of the unpredictable investment climate present in many African countries and lack of capacity in some African public sector institutions. Moreover, many of the Kyoto Protocol's CDM methodologies and documentation requirements are often geared towards middle income countries, and towards countries, for example, which do not have hydropower as a baseline energy source. The CDM also does not adequately address the heavy use of nonrenewable biomass for energy and lacks methodologies for regional grid integration, which could be used for projects underway in West, Southern, and East Africa.

However, the increasing prominence of forests, as outlined under REDD-plus at the Copenhagen Summit, may stimulate Africa's demand for carbon finance in the coming years. In 2009, the World Bank signed three emission reduction purchase agreements in the region – one in waste management (Uganda), one in lighting efficiency (Rwanda), and one in the forestry sector (Democratic Republic of Congo). The aggregated volume of emission reductions of these three projects is about 445,000 tons of CO₂e, which clearly demonstrates that individual carbon transactions in Africa are small relative to other regions, and hence often difficult to develop. The year also saw the termination of two emission reduction purchase agreements in the region, as the underlying projects could not be further developed because of methodology issues.



South Asia

"The South Asia carbon market is the second largest carbon market after China. International private sector and sovereign buyers of carbon credits are present in the region, including a number of public and private carbon funds. However, local public sector institutions have yet to fully access opportunities in carbon finance, with a few notable exceptions. Our objective is to further assist these institutions to develop their capacity to access carbon trading and to mainstream carbon finance in Bank projects."

—Isabel Guerrero, Regional Vice President, South Asia Region

Carbon finance has proven to be a boon for small businesses in the South Asia region. With nearly 3 million small and medium size enterprises accounting for more than 80 percent of total industrial operations as well as 60 percent of gross domestic product, energy costs represent a large portion of total production costs. The World Bank's carbon finance work in the region has covered 23 projects across 12 sectors in Bangladesh, India, Nepal, and Pakistan. In 2009, the World Bank Carbon Finance Unit signed eight emission reduction purchase agreements in the region, including projects in Bangladesh, Pakistan, and India. At the end of 2009, the region had 10 projects in the pipeline.

Two projects in the SAR portfolio, both located in Bangladesh, in particular received a lot of attention. In December, US Senator John Kerry in an address to World Bank staff on the role of the institution in the twenty-first century, highlighted the Bangladesh Solar Home System Program as an excellent example of the type of project

the World Bank should support. He noted that this was "a life-altering project" for many inhabitants. The program is expected to deliver over 1 million solar home systems by 2012. The second highlight from the region is the selection by the Danish government to purchase emission reductions from the Hybrid Hoffman Kiln project, for the purpose of making the COP 15 conference carbon neutral. As Denmark's Climate Change Minister, Connie Hedegaard, said "Bangladesh is one of the countries hardest hit by climate change and there's a great need to assist the country with technology and capital contributions. In addition, the project will result in significant environmental improvements for the local community, where particle pollution from the existing old brickworks is clearly visible." This underscores the importance of ensuring that least developed countries, especially those which may be most affected by climate change, are able to participate in the Clean Development Mechanism.



East Asia and the Pacific

"Our engagements in climate change and carbon finance are expanding in the East Asia and the Pacific Region. Building on the great success of the carbon markets, we must continue devising innovative tools to help our clients throughout East Asia and the Pacific mobilize the billions of dollars needed to significantly lower greenhouse gas emissions. It is our vision that all our partners in the region will soon be able to make good use of the emerging new carbon and climate finance instruments."

—James W. Adams, Regional Vice President, East Asia and the Pacific Region

The World Bank's work in carbon finance continues to grow rapidly in East Asia and the Pacific driven largely by the region's ability to adopt new technologies rapidly and secure project financing under the Kyoto Protocol's CDM methodology. Since its inception, the Carbon Finance Unit has played a very active role, with 47 projects across the region. This has included work in China, with the majority of the projects, as well as Indonesia, Malaysia, the Philippines, Thailand, and Vietnam.

In 2009, the World Bank Carbon Finance Unit signed five emission reduction purchase agreements in the region, with a total volume of 2.015 million tCO₂e, including one reforestation project in China and three

wastewater management projects in the Philippines and Thailand. At the close of 2009, the region had 11 projects in pipeline in the areas of renewable power generation, energy distribution, methane avoidance, and wind.



Europe and Central Asia

"Many countries in the Europe and Central Asia region, especially the poorest countries, are vulnerable to climate change. The region offers huge opportunities for increasing energy efficiency, which reduces the carbon footprint and is good for growth. Potential energy savings in Russia – the world's third largest emitter of greenhouse gases – could, for example, equal total energy consumption in France. The Bank has a substantial program to improve energy efficiency in this region and is working closely with the governments, including Russia, on their energy efficiency agendas. In fact, 'climate change and energy efficiency to achieve sustainable growth' is one of our three core strategic pillars in the Europe and Central Asia region."

—Philippe Le Houerou, Regional Vice President, Europe and Central Asia Region

In 2009, the World Bank signed an amended emission reduction purchase agreement with Alchevsk Steel Mill in the Ukraine to reduce emissions by an additional total of 1.3 million tCO₂e by replacing open hearth furnaces with basic oxygen furnaces and using continuously casting machines, initiatives that promote energy efficiency.

The World Bank has implemented carbon finance projects in 11 countries across the East Europe and Central Asia. This work has focused on improving energy efficiency in district heating steel and coke production

utilization of biomass and geothermal sources for production of heat and electricity utilization of wind, water, landfill gas and associated petroleum gas for electricity production; and sequestration of carbon in soil and standing trees. Moving forward, the region has seven projects in the pipeline in the areas of energy efficiency for households, reforestation, and reduction of fugitive gas releases. Some of the new projects will be based on a Green Investment Scheme-approach in the area of energy efficiency.

Middle East and North Africa

"Reducing the emissions of greenhouse gases in our client countries remains a major goal for the years to come. Projects already in the World Bank's carbon finance portfolio in Middle East and North Africa will reduce greenhouse gas emissions by 14 million tons of CO₂ equivalent by 2020. Carbon finance supports major investment programs and provides key technical assistance activities, and has become an important part of an integrated package of services we are offering to our clients."

—Shamshad Akhtar, Regional Vice President, Middle East and North Africa Region

In the Middle East and North Africa, the World Bank currently has carbon finance projects operating in Egypt, Tunisia, and Jordan. During 2009, the region made significant progress on the preparation of three new projects that will reduce greenhouse gas emissions: the Tunisia Sidi Daoud Wind Farm Project, the Egypt Vehicle Scrapping and Recycling Program, and the Yemen Electricity Distribution Loss Reduction Program. These pipeline projects show an important expansion of the region's current technology distribution into areas of energy efficiency, renewable energy, and transport.

In 2009, the Middle East and North Africa region also went beyond the project-by-project approach of the first generation of carbon funds, and developed programmatic approaches to assist developing countries to pursue low-carbon growth and to accelerate greenhouse gas emission reductions. On October 4, 2009, the first Carbon Partnership Facility Seller Participation Agreement was signed between the World Bank and Fonds d'Équipement Communal, the municipal bank of Morocco. The program is expected to cover 11 major Moroccan cities and to reduce greenhouse gas emissions by over 7 million tons of CO₂e over a 10-year period.

Latin America and the Caribbean

"Success to address climate change lies in developing a new generation of more effective approaches, instruments, and solutions customized to regional realities and priorities."

—Pamela Cox, Regional Vice President, Latin America and the Caribbean Region

Since 1999, the World Bank has worked on the implementation of 53 carbon finance projects in 15 countries across the region of Latin America and the Caribbean. This work has focused on improving the efficiency of industries, such as iron and steel, energy generation, and waste management, and reforestation.

In 2009, the World Bank signed the first emission reduction purchase agreement with Trinidad and Tobago to reduce emissions through the restoration of the Nariva wetlands, and the Bank's new Carbon Partnership Facility signed a Seller Participation Agreement with Caixa Econômica Federal in Brazil to develop Programmes of Activities in the area of landfills across Brazil.

By the end of 2009, the region had 18 projects in the pipeline, in the areas of

afforestation, biomass energy, household electric efficiency, hydroelectric generation, reforestation, reduction of fugitive gas releases, transport, and wind generation.



ten years of carbon finance experience

The past 10 years, since the inception of the World Bank Carbon Finance Unit, have clearly demonstrated that market mechanisms and carbon finance can be effective tools for implementing greenhouse gas mitigation.

In that time, the World Bank's carbon finance operations have expanded from pioneering the Prototype Carbon Fund—which was created in 1999 and launched in 2000 to help catalyze a nascent carbon market—to 10 funds and facilities with a current capitalization of more than \$2.5 billion. Creating the concept of carbon finance long before the Kyoto Protocol had entered into force in 2005, the Carbon Finance Unit was a grassroots leader in both the conceptualization and in the operationalization of carbon finance.

Today, carbon finance is an important market-based tool that contributes to meeting greenhouse gas emissions objectives by providing a revenue stream for mitigation projects. It has played a catalytic role in leveraging other sources of finance in support of low carbon investments, in a ratio of 1:5. Carbon finance revenues can remove such initial investment barriers as social inertia, lack

of awareness of climate change, and transaction costs, while providing financing for activities that reduce greenhouse gases. From 2002–2008, it is estimated that CDM transactions raised over \$100 billion of mostly private funds for low carbon investment.

However, the potential impact of carbon finance is far from fully realized. While the CDM and Joint Implementation (JI) mechanisms are important tools for private sector action associated with significant developmental and social co-benefits, their leveraging potential remains largely unfulfilled. Experience demonstrates that there is room to exploit synergies between policies and financial instruments that would scale up carbon finance and mitigation. Efforts to improve the current mechanisms are steps in the right direction. Follow-through will be key. It is essential to consolidate the “learning-by-doing” JI and CDM experience and make necessary adjustments.

As we enter the second decade of carbon finance, the World Bank is taking careful stock of its experience with the flexibility mechanisms. Thus far, this analysis suggests that further scaling up of carbon finance will require a close examination of the various parts of the regulatory process and roles played by the CDM regulatory bodies, including the Designated Operational entities (DOEs), the UNFCCC Secretariat, and the CDM Executive Board. This process must be one that seeks to build on the capacity to process large volumes of projects, to enhance transparency, consistency and predictability, to facilitate communication with practitioners, and to reduce the transaction costs of carbon finance operations. Such improvements are necessary to ensure continued success of the CDM. They are particularly critical for the viability of smaller projects and for widening the geographic reach of the mechanism.



state & trends of the carbon market

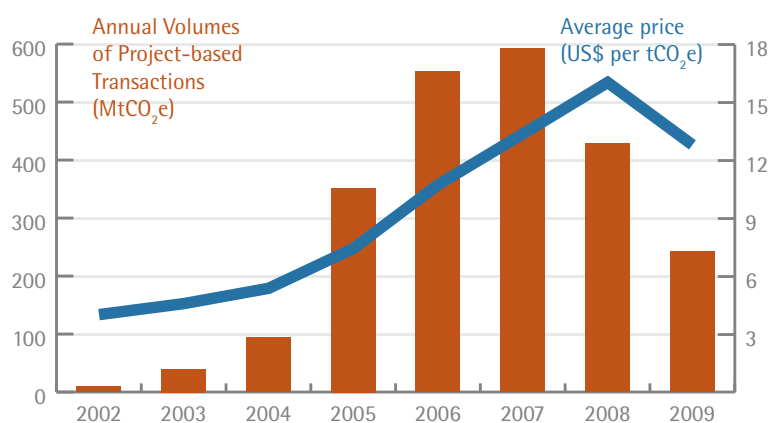
Carbon Markets and the Financial Crisis in 2009

In 2009, carbon markets continued to experience volatility as the world came to terms with diminished credit and skittish investors that emerged in the aftermath of the global financial crisis. The resulting drop in global economic output eased emission compliance requirements for actors regulated by either the Kyoto or the European Union Emissions Trading Scheme regimes. In a business environment fraught with unbalanced supply and demand, prices fell for all carbon assets. In addition, uncertainty surrounding a future climate regime weakened investor interest in post-2012 credits, which may lead to a challenging 2010 carbon market.

Cautious Optimism

Despite a challenging environment, the long-term outlook for carbon markets remains cautiously optimistic. A number of industrialized countries are proposing market-based approaches to tackle climate change, but progress has been slow. While the carbon market activity has decreased, developing countries have ramped up domestic climate initiatives that might support future global policy initiatives.

In addition, public and private sector actors have been actively exploring innovative solutions to existing market constraints. Current climate financing hardly covers 5 percent of developing country needs. In this regard, the political commitment indicated during the negotiations by industrial countries to provide new and additional resources in the neighborhood of \$30 billion for the period 2010–12 and mobilize \$100 billion per year by 2020 (including through carbon markets) is an encouraging step. Such efforts reflect the scope and magnitude of the efforts and ambitions necessary to truly scale up the mitigation and adaptation effort.



State and Trends Report

As described in the World Bank's 2010 *State and Trends of the Carbon Market* report, the carbon market demonstrated resilience to the global economic downturn and by the end of 2009 was back at the 2008 level. Following the trend of 2008, most of the carbon market value in 2009 can be attributed to transactions of allowances and derivatives under the European Union Emissions Trading Scheme. In addition, the economic

crisis reduced the emissions of a large part of industry, further reducing the compliance needs for many countries and companies, and decreased the overall demand for primary offsets.

The lack of clarity regarding the post-2012 situation contributed to the retraction of both the supply and the demand sides of existing regimes. At the same time, new initiatives in developing and developed countries are emerging,

which explore market-based approaches for climate change solutions. In that context, carbon finance remains an important tool to provide incentives to shift to a lower carbon development path. The report analyzes the evolution of the emerging schemes, as well as the major successes and remaining challenges of the existing frameworks.

land use, land-use change, and forestry

In the world of carbon finance, 2009 will be remembered as the breakthrough year for the global preservation of forests. It was the year that methodologies, tools, and CDM regulations for afforestation and reforestation began to yield long-awaited opportunities for forestry projects and extend benefits to the poorest rural areas and the local environment.

At the beginning of 2009, the global carbon market consisted of one single registered land use, land-use change, and forestry (LULUCF) CDM project. By year's end, the number of registered projects had ballooned to 11 (four of which fall under the World Bank's BioCarbon Fund). Meanwhile, the number of projects in the CDM afforestation and reforestation validation pipeline, more specifically LULUCF, is increasing and the BioCarbon Fund looks forward to an even better year in 2010 as more of its projects mature and reach registration.

As CDM afforestation and reforestation projects enter their implementation phase, they are beginning to realize their ability to sequester carbon, trigger a range of important environmental benefits, and improve rural livelihoods.

For instance, in Ethiopia, the BioCarbon Fund's Humbo Assisted Natural Regeneration Project is using carbon revenues to compensate farmers who have had to end grazing activities, fuel-wood collection, and charcoal production in favor of the reforestation of the mountain, which had become bare over time. In this region of Ethiopia, where four to ten tons of topsoil are lost on each hectare of land, the project is helping to alleviate the vulnerability brought about by soil erosion. In addition, the project has prompted the government to grant local communities rights to their forest and the range of products it produces.

As the role of forests in climate change mitigation continues to build momentum and gain prominence among international policy makers, the BioCarbon Fund is hopeful that more positive market signals will boost the demand of forestry carbon credits. This would enable the Fund to scale up its CDM afforestation and reforestation activities, to continue pioneering REDD and soil carbon activities, and test the boundaries for new project activity types.



carbon finance capacity building at the World Bank

Carbon Finance Assist (CF-Assist) is the flagship capacity building program for carbon finance at the World Bank. Its basic objective is to ensure that developing countries and countries with economies in transition are able to participate fully in the flexible mechanisms defined under the Kyoto Protocol.

In 2009, CF-Assist adjusted its program to respond to emerging clients' demands and climate mitigation priorities. This resulted in three program priorities: (i) scaling up carbon finance through programmatic approaches; (ii) expanding the use of carbon finance in urban areas; and (iii) strengthening carbon finance for low-carbon growth. Through structured and customized initiatives, CF-Assist supports clients to strengthen their institutional capacity. The goal is to enable client countries to undertake strategic assessments on low-carbon development, design policies and measures for emissions reduction plans in crucial sectors, and access innovative finance for programmatic climate mitigation action. CF-Assist helps by identifying carbon finance possibilities, expanding carbon finance in urban areas, and integrating it into climate finance and domestic actions for low carbon growth.

These new strategic directions build on the work carried out in the first four years of the program (2005-'09), during which CF-Assist has supported more than 60 countries. Some of the key accomplishments of CF-Assist during 2009 are:

- Exposure to carbon finance capacity building programs of more than 5,000 stakeholders from around the world
- Co-organization of the annual CARBON EXPO in Barcelona, Spain, with approximately 50 host countries
- Co-organization of Regional Programme of Activities (POA) workshops in Bangkok, Bogotá, and Montevideo
- Delivery of tailor-made workshops in numerous client countries

In addition to regular capacity building activities, CF-Assist has started to “wholesale” its products. This means working with and through regional partner institutions to host and disseminate knowledge products. Potential partners in Asia and Latin America are being identified.

CF-Assist has also continued to develop e-learning courses. The first product, a course on CDM/JI, has been completed, and the preparation of e-learning courses on Urban Energy, Cities and Climate Change, and CDM POAs have started. These courses will be part of a larger comprehensive e-learning program on Carbon Finance for Urban Areas.

CF-Assist has also started new initiatives such as South-North City Twinning and a Carbon Finance Capacity Building (CFCB) Program for Emerging Mega-Cities of the South. The initial workshop took place in Quezon City, Philippines, in September 2009. Additional workshops and customized support initiatives in Dar es Salaam, Jakarta, and Sao Paulo are in the planning stage.



Bangladesh: Reducing Greenhouse Gas Emissions from Brick Making and Improving Social Conditions

With over 4,000 brick kilns and hundreds of thousands of seasonal workers, Bangladesh's highly energy-intensive brick making industry represents not only a significant source of pollution but also an opportunity for Bangladesh to help reduce carbon emissions and benefit from carbon finance.

To take advantage of this opportunity, the World Bank's Community Development Carbon Fund, the government of Denmark, and the Industrial and Infrastructure Development Finance Company Limited (IIDFC) of Bangladesh have launched the "Improving Kiln Efficiency in the Brick Making Industry Project," which aims to introduce more efficient kiln technology into the country's brick making industry and improve the conditions of workers.

The project's key innovational aspect is the introduction of Hybrid Hoffman Kilns (HHK) - highly efficient kilns that reduce by nearly 50 percent the amount of coal burned to make each brick. Replacing one typical kiln currently used in Bangladesh with an HHK kiln reduces annual greenhouse gas emissions by approximately 5,800 tons of carbon dioxide equivalent (tCO₂e). In broader terms, if scaled up, this would mean reducing carbon dioxide emissions by about three million tCO₂e per year. This efficiency

gain comes from recycling heat in the brick making process and from mixing pulverized coal into the clay used to make the bricks.

The project is introducing 16 HHK kilns across Bangladesh. Once all the kilns are in operation, total annual carbon emissions are expected to fall by 116,000 tCO₂e. The drop in carbon emissions will not only generate carbon credits for sale on global markets, but will also significantly improve outdoor air quality. The project also aims to improve labor practices and occupational health and safety standards. In addition, because the kiln technology means the kilns no longer need to be located near clay sources, the kilns will be located outside floodplains. As a result, brick making production in Bangladesh will be changed from a seasonal activity that once stopped during the rainy season to a year-round activity, which allows workers to become permanent members of the labor force, earn above-average wages, and work under improved conditions. Furthermore, the community-benefits plan ensures social benefits for the employees, including availability of safety gear and first aid on-site, regular visits by a medical practitioner, and access to sanitary facilities.



CARBON EXPO 2009 puts the carbon market front and center

From May 27 to May 29, 2009, the World Bank joined the International Emissions Trading Association, Fira Barcelona, and Koelnmesse in sponsoring the 2009 Sixth Annual CARBON EXPO, the world's premier event for all members of the private sector, government, and civil society playing an active role in today's carbon markets.

Building on the success of previous years, the 2009 CARBON EXPO continued to serve as a prominent venue for information exchange and potential carbon finance deal-making with over 3,000 participants from 111 countries. The 276 exhibitors included buyers, sellers, traders and service providers, and the 250 speakers covered a number of topics including "Cities and Carbon Finance," which provided a case for how rapidly growing urban

areas can use carbon finance to implement large scale emission reduction programs to mitigate their special vulnerability to climate change.

Attendees also had the opportunity to meet high-level government representatives from 47 developing and transitioning countries, who, with support from the World Bank, presented their current emission reduction projects as well as related carbon investment and business opportunities.

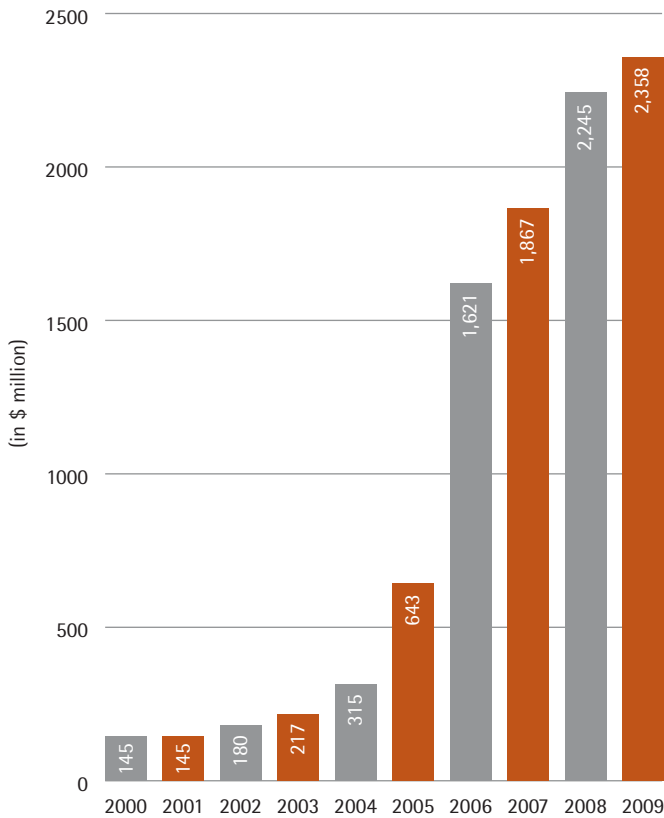
In addition, the Carbon Finance Unit presented its annual flagship publication on the carbon markets, *The State and Trends of the Carbon Market 2009*, providing economic overview of conditions and developments in the global carbon market in the past year.





financial performance

Carbon Funds and Facilities under management^{1,2}



The growth in the Carbon Fund Units funds under management is slowing as the end of the first commitment period draws nearer. The Kyoto Protocol has launched two post-2012 facilities, the Carbon Partnership Facility and Forest Carbon Partnership Facility, both of which are now actively raising funds. The hangover from the 2008/9 market turmoil and uncertainty following COP 15 Copenhagen have impacted some investors' interest in post-2012 investments. The CFU is actively freeing up allocated capital from underperforming projects in funds focused on the first commitment period. Funds released will be used to invest in other opportunities, such as call options in overperforming projects or new projects.

1) Excludes capital invested by NCDMF, NECF, and internal carbon funds.

2) Includes participation in CPF.



Report on Business



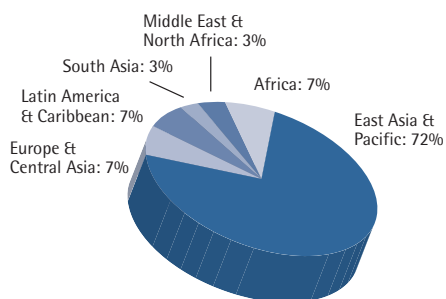


summary of operations

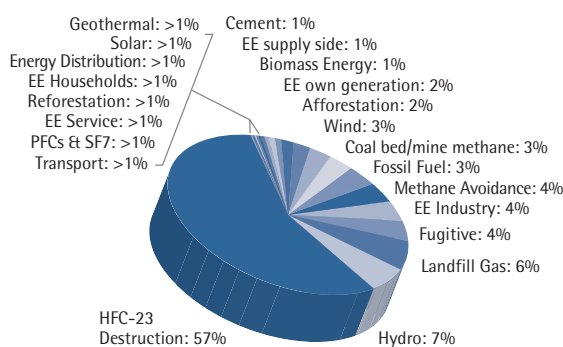
Aggregate Fund Status

In 2009, the Carbon Finance Unit's carbon funds signed a total of 15 emission reduction purchase agreements (ERPAs), with a clear increase in the waste management, forestry, and renewable energy sectors. There were many "firsts" last year, including Africa's first forestry project registered by the UNFCCC under the Kyoto Protocol, and the first in a least developed country worldwide; the first ERPA signed in the Democratic Republic of Congo (DRC), also for reforestation; the CFU's first purchase agreements signed in Thailand, and its first projects registered in Pakistan.

Geographic Distribution



Technology Distribution



	Number of projects	Value	tCO ₂
ERPAs Signed and Active	133*	\$1.84 billion	228 million
Pipeline Projects	47	\$208 million	53 million

Geographic Distribution

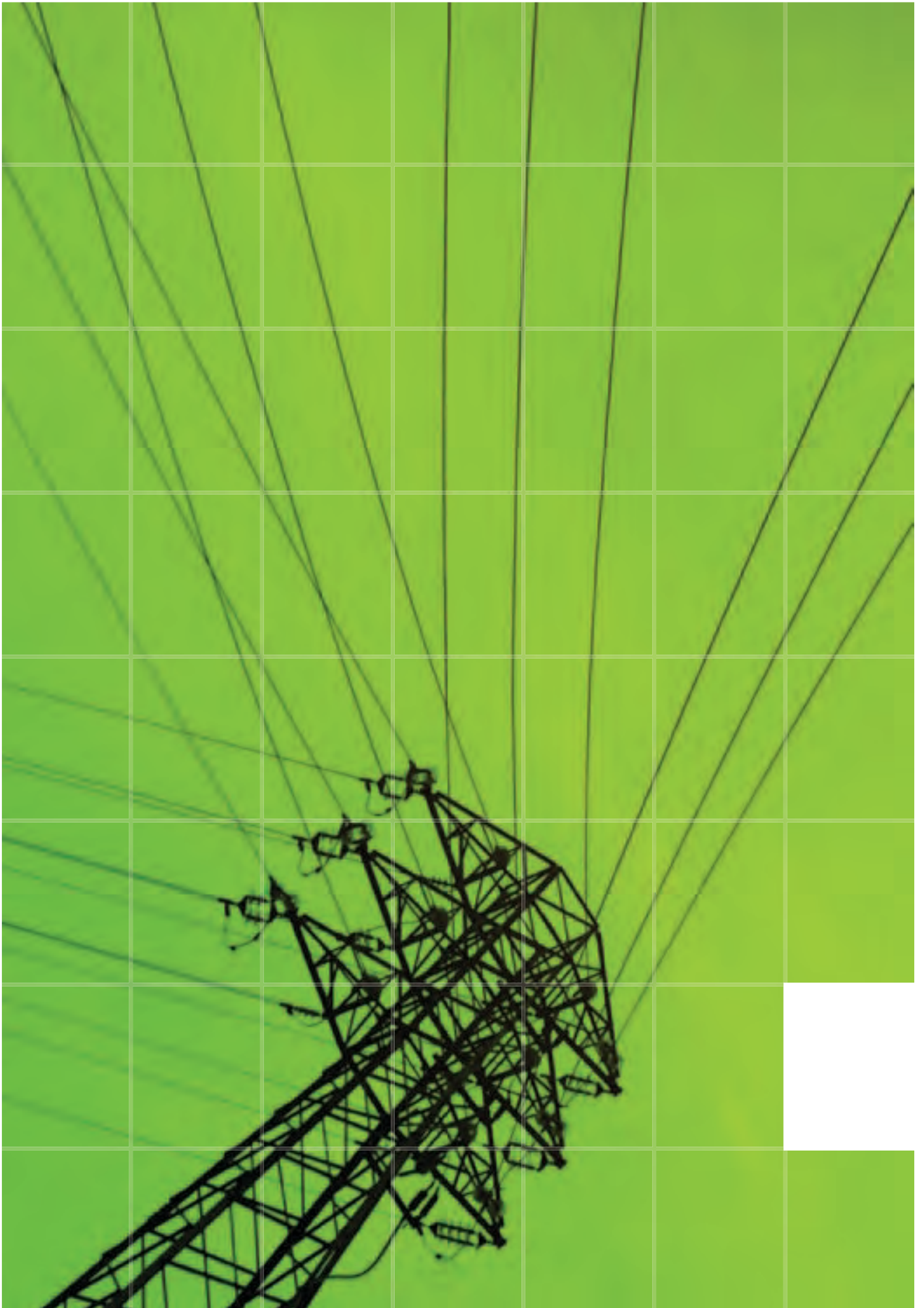
Lead by carbon finance operations in China, the East Asia and Pacific region has accumulated a total value of emission reductions of over \$1.33 billion, or 72 percent of all fully operational projects. With seven percent of the ERPA value respectively together, Africa, Europe and Central Asia, and Latin America and the Caribbean account for 21 percent of the portfolio. South Asia (3%) and the Middle East and North Africa region (3%) make up the remaining six percent.

Technology Distribution

HFC-23 projects account for the largest share of the carbon funds, at 57% of the portfolio. However, the Carbon Finance Unit continues to focus on projects in sectors such as renewable energy, energy efficiency, waste management and land use/forestry. Waste management projects dominated in 2009, accounting for 68% of the value of ERPAs signed in the year.

Charts are based on total value of emission reductions projects at the stage of emission reductions purchase agreements (ERPAs). All categorization of technology type is consistent with UN Risø methodology.

*The carbon funds with shares in the Umbrella Carbon Fund, count those shares as individual ERPAs. However, when determining the total ERPA figure for the Carbon Finance Unit, ERPAs that are part of the UCF but fall under other CFU carbon funds are not counted, in order to avoid double counting. These shares are considered a subset of the UCF's two ERPAs.





From the Chair of the Prototype Carbon Fund's Participants' Committee



Pioneering Kyoto mechanisms since the year 2000, the Prototype Carbon Fund (PCF) now enters further into its implementation phase. It continues to deliver rewards to the Fund Participants, but also presents new challenges. The Trustee and Fund Participants have cooperated well to find solutions for new issues, such as the exposure to foreign exchange fluctuations, contractual over-commitment, participants' registration, and procedures to transfer emission reductions (ERs) to the participants' accounts. PCF participants appreciate the information provided by the World Bank Carbon Asset Registry System, which has proven to be robust, comprehensive, and efficient. The new reporting tool enables participants to view their carbon asset portfolio in various ways. The vast majority of participants are receiving Certified Emission Reductions (CERs) from the registered CDM projects of the portfolio; transfer of Emission Reduction Units (ERUs) from JI projects was initiated. While these management procedures are functioning well, the PCF is facing new potential risks because of its pioneering role. For example, as some CDM projects have started as early as 2002, some of them are or will soon be requesting a renewal of their crediting period. Submitting such a request to the CDM Executive Board carries the risk that the baseline for the subsequent period may be altered or the request is rejected in total. Decisions like this would affect the expected volume of CERs or cut the number of years for which a project would be able to generate CERs. The participants are aware that even more risks and issues are waiting ahead, which need to be monitored and managed carefully.

Hans-Georg Adam
RWE

The Prototype Carbon Fund

Approved by the World Bank's Board of Executive Directors in July 1999, the Prototype Carbon Fund began operations in January 2000. It was structured as a public-private partnership comprised of six governments and 16 companies¹ and with an initial capitalization of \$180 million. Since its conception, the PCF has served as a learning-by-doing instrument to demonstrate the potential of carbon finance to act as a powerful tool for financing sustainable development projects in developing countries and in countries with economies in transition, while reducing (or sequestering) greenhouse gas emissions.

In 2007, the PCF closed its portfolio to new projects as it had committed all initial capital, an important milestone. This allowed the PCF to move from an initial phase focused on the allocation of resources for carbon purchases to a more mature phase focused on

implementation of projects. The PCF portfolio is comprised of 16 projects in non-Annex I countries and 8 projects in Annex I countries.

In 2008, the PCF accepted an additional \$39 million in funds, securing the possibility of purchasing late vintage emission reductions from projects already in its portfolio, benefiting project entities. Twenty-three out of the twenty-four PCF projects² are operational and have started generating emission reductions. Addressing operational issues and converting these emission reductions into Kyoto-compliant assets is now the main focus of PCF activities. As of December 31, 2009, eight of the PCF's CDM projects have issued Certified Emission Reductions (CERs). In early 2010, the PCF achieved its first transfer of Kyoto assets from its projects in Annex I countries (AAUs and ERUs). The learning-by-doing continues.

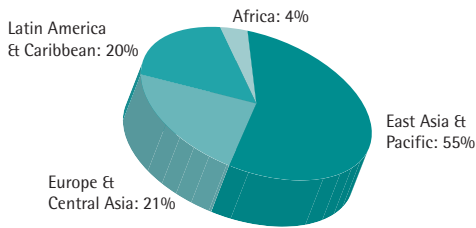
1. The PCF was initially comprised of 17 companies; however, in early 2009 one Participant novated its PCF participation to another PCF Participant.
2. The PCF's participation in the UCF is counted here as one project, although the UCF consists of 2 Project Design Documents.

Prototype Carbon Fund Status

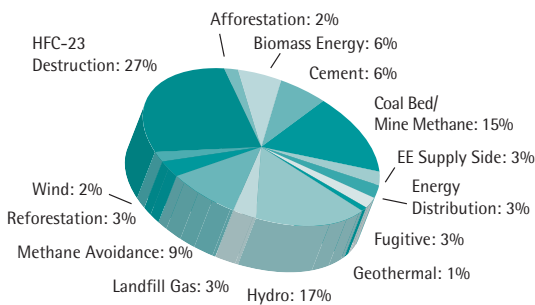
Country/Project Name		Project Description	PCF Contract ERs (tCO ₂ e)
Emission Reductions Purchase Agreements Signed			
1	Brazil: Alta Mogiana Bagasse Cogeneration	Increase efficiency in manufacturing processes and install new facilities to generate surplus electricity to be commercialized	110,000
2	Brazil: Lages Cogen Facility	Installed capacity of 28 megawatt electricity plus 25 tons per hour of steam, fueled by wood waste from the sawmill industries in the region	750,000
3	Brazil: Plantar Sequestration and Biomass Use	Charcoal production from sustainably harvested plantation, replacing coke for pig iron manufacture	1,514,286
4	Bulgaria: Pernik District Heating	District heating system upgrades for the city of Pernik	157,000
5	Bulgaria: Sofia District Heating	District heating system upgrades for the city of Sofia	1,084,000
6	Bulgaria: Svilosa Biomass	11 megawatt biomass-based boiler to utilize wood waste produced at the Svilosa pulp and cellulose plant, to replace coal	450,000
7	Chile: Chacabuquito Hydro	26 megawatt run-of-river hydro to replace coal or gas in the grid	1,000,000
8	China: HFC-23 Destruction (co-purchase)*	Installation of an incineration facility to decompose HFC-23 generated by the existing HCFC-22 manufacturing facility into carbon dioxide and hydrogen fluoride	5,000,000
9	China: Huitengxile Wind Farm	Construct and operate a 100 megawatt wind farm in Inner Mongolia in China. The project consists 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
10	China: Jincheng CMM (co-purchase)	Capture of coal mine methane (CMM) associated with coal mining operation and utilization of the gas to generate power through a 120 megawatt combined cycle power plant	3,341,507
11	China: Xiaogushan Hydropower	98 megawatt run-of-river hydroelectric plant located on the Heihe River in the Sunan Yugur province to replace coal in the grid	3,000,000
12	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	433,694
13	Costa Rica: Cote Hydro	6.8 megawatt hydro to be supplied to the national grid	172,120
14	Czech Republic: CEA Energy Efficiency (Umbrella)	Energy efficiency measures and renewables through the Ministry of Industry and Trade; 18 subprojects make up the umbrella project which includes two district heating projects and 16 mini hydro projects	500,000
15	Guatemala: El Canada Hydro	43 megawatt run-of-river hydroelectric plant on the west coast of Guatemala to displace energy produced from thermal power plants	1,724,400
16	Hungary: Pannonpower Pécs Fuel Conversion	Conversion of Pécs Power plant's existing coal-fired boilers to biomass	1,193,000
17	Indonesia: Indocement Sustainable Cement Production	Energy efficiency measures in Indocement plants by reducing clinker content in the produced cement; burning alternative fuels for clinker formation; utilizing heat power generation in three locations at Citeureup, Cirebon, and Tarjun	2,424,678
18	Latvia: Liepaja Solid Waste Management	Methane capture and utilization from waste management providing electricity to the national grid	387,933
19	Moldova: Soil Conservation	Afforestation of 20,000 hectares of degraded and eroded state-owned and communal agricultural lands throughout Moldova	1,300,000
20	Philippines: NorthWind Bangui Bay Project	Construction and operation of 25 megawatt capacity wind farm on a strip of land on the foreshore of Bangui Bay in Ilocos Norte	356,000
21	Poland: Stargard Geothermal	District heating system to utilize geothermal energy to replace coal in the city of Stargard	240,000
22	Romania: Afforestation of Degraded Agricultural Land	Afforestation of 6,852 hectares of public land	854,985
23	South Africa: Durban Municipal Solid Waste	Collection and generation of electricity at two landfill sites. Initially electricity generation of one megawatt (0.5 megawatt at each site) with the potential to expand to two megawatts	700,000
24	Uganda: West Nile Electrification	Two 1.75 megawatt hydro to replace a number of diesel generator sets in the West Nile region. The project is also installing a 1.5 megawatt generator	443,432

* Includes share of the UCF

Geographic Distribution



Technology Distribution



Charts are based on total value of emission reductions projects at the stage of emission reductions purchase agreements (ERPAs). All categorization of technology type is consistent with UN Risø methodology.

Prototype Carbon Fund Geographic Distribution

The PCF maintained its portfolio diversity and continued to operate projects around the world in both developing countries and economies in transition. Driven largely by investments in China, the East Asia and Pacific region accounts for the largest share of the portfolio, with 55 percent. The East Europe and Central Asia region represents the second largest share of the portfolio with 21 percent of the total value, while Latin American and the Caribbean region represents the third largest share at 20 percent.

Prototype Carbon Fund Technology Distribution

The PCF technology distribution covers 14 different technology types. HFC-23 destruction is the largest portion of the portfolio (27%), followed by hydro (17%) and coal bed/mine methane (15%).

PCF Project Status (cumulative)

	Number of projects	Value	tCO ₂
ERPAs Signed and Active	24	\$172,232,149	28,737,036

Brazil: Lages Methane Avoidance Project

With the support of the World Bank's Prototype Carbon Fund, the Lages Methane Avoidance Project in Brazil is proving that methane and sulfur oxide emissions produced by the sawmill industry can be reduced with the incentive of carbon credits. Rather than allowing stockpiles of wood waste to decay and disposing them in unsustainable ways that degrade land and water resources, the Lages project uses the wood waste as a renewable source of fuel to produce electricity and steam, and reduces the industry's reliance on fossil fuels. With this new fuel source, the World Bank's operating partner Tractebel Energía is able to produce 28 MW of electricity and 25 tons of vapor per hour. Tractebel Energía sells the electricity directly to industrial clients and a local transmission company for retail distribution. The steam heat is sold to two of the biggest regional wood companies. Since November 2004, this added efficiency has generated emission reductions of more than 200,000 tCO₂e per year. The Prototype Carbon Fund will purchase 750,000 tons of these emission reductions.



Prototype Carbon Fund Participants



GOVERNMENT OF CANADA
www.cdm-ji.ca



THE CHUGOKU ELECTRIC POWER CO., INC.
www.energia.co.jp/e/index.html



NORSK HYDRO
www.hydro.no/en



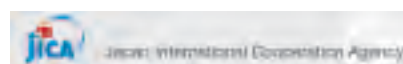
GOVERNMENT OF FINLAND
www.ymparisto.fi/default.asp?node=18782&lan=en



DEUTSCHE BANK
www.db.com



RWE
www.rwe.com



Japan International Cooperation Agency
www.jica.go.jp/english



ELECTRABEL
www.electrabel.com



SHIKOKU ELECTRIC POWER CO., INC
www.yonden.co.jp/english/index.html



GOVERNMENT OF THE NETHERLANDS
www.cdminfo.nl



FORTUM
www.fortum.com/sustainability



STATOIL ASA
www.statoil.com



GOVERNMENT OF NORWAY
www.carbonneutralnorway.no



GDF SUEZ
http://www.gdfsuez.com



TOHOKU ELECTRIC POWER CO., INC.
www.tohoku-epco.co.jp/index-e.htm



GOVERNMENT OF SWEDEN
www.swedishenergyagency.se



KYUSHU ELECTRIC POWER CO., INC
www.kyuden.co.jp/en_index



TOKYO ELECTRIC POWER COMPANY (TEPCO)
www.tepco.co.jp/en/index-e.html



BP P.L.C.
www.bp.com



MITSUBISHI CORPORATION
www.mitsubishicorp.com/en/index.html



CHUBU ELECTRIC POWER CO., INC.
www.chuden.co.jp/english/index.html



MITSUI & CO., LTD.
www.mitsui.co.jp/en

Prototype Carbon Fund Participants Committee

Hans-Georg Adam (Chair), RWE
Akihito Nagata, JBic
Christine Fedigan, GDF SUEZ
Erik Bjørnebye, Government of Norway

Lisa Walker, BP Gas Marketing
Olle Björk, Government of Sweden
Takeshi Hokari, Mitsui & Co., Ltd.

Hungary: Pannonpower Biomass Project

In Hungary, the government is recognizing the true costs of burning fossil fuels and the need for a diverse and secure fuel supply by implementing measures that increase the use of renewable resources. However, as is the case in many other countries, Hungary faces a number of constraints, including a scarcity of readily accessible renewable resources and the inability of these resources to compete with fossil fuels in the open market.

Fortunately, Hungary is home to Pannonpower, the operator of a biomass power plant in the city of Pécs, which is one of the largest renewable energy facilities in Central Europe. Since 1962, Pannonpower has owned and operated the Pécs power plant. Prior to support from the Prototype Carbon Fund, the plant operated four generators fired by locally mined coal. Because of stricter emissions limits and the need to extend the life of the power plant, Pannonpower decided to implement a complex fuel switch and refurbishment project that included converting two of the coal-fired units to natural gas and converting a third to biomass, one of the most abundant renewable fuels in Hungary. Today, it has significantly increased Hungary's generation of renewable electricity as well as improved air quality.

The biomass project would not have materialized without the government's support for renewable fuels and the incentive of carbon payments provided by the Prototype Carbon Fund. Pannonpower is a classic example of how a carbon revenue stream both strengthens a project's overall rate of return and plays a crucial role in reducing project risk and attracting investors.

In the case of Pannonpower, the "green premium" the project received helped the Pannonpower overcome initial barriers.

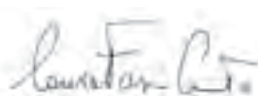




From the Chair of the Community Development Carbon Fund's Participants' Committee



The Community Development Carbon Fund has begun its sixth fiscal year facing a number of challenges: completing the portfolio of projects, improving the process leading to deposit of certified emission credits into the participants' accounts, and positioning the Fund as a valid information source regarding global efforts to mitigate and adapt to the negative impacts of climate change. The fund has done well. Adjustments and amendments were made in the project portfolio so as to maximize both the returns on the investments and the benefits to the communities where the investments were made. Steps to help accelerate the certification of emission credits have been taken and a number of in-depth assessments of the operations and achievements of the Fund have been initiated. The international discussion as to which shape the post-Kyoto era will take has just begun. The process leading to a renewal of international agreements on the issue of climate change will be long and difficult. However, the Fund has already set the basis for becoming a fundamental contributor to the international discourse on the merits of the carbon market and the need to strengthen the carbon finance business worldwide.


 A handwritten signature in black ink, appearing to read 'Laura Fassio Canuto'.

Laura Fassio Canuto
 Adviser, Environment & Sustainable Development
 Ministry of the Environment, Land & Sea
 Permanent Mission of Italy to the United Nations

The Community Development Carbon Fund: Commitment to the Poorest

The Community Development Carbon Fund (CDCF) promotes a co-benefits approach to climate change mitigation by linking carbon finance to tangible poverty reduction and sustainable development outcomes through small-scale projects in some of the world's poorest countries. The fund emphasizes the generation of community benefits by the projects it finances. Most projects target communities that lack essential services, such as electricity or basic health, and have a low per capita income. Benefits from project activities include upgraded roads, refurbished health clinics, better access to fuel for cooking and heating, job creation, and improved access to electricity. With this focus, the CDCF has

currently committed 49 percent of its funds to buy emission reductions from small-scale projects in countries that are either officially designated as least developed countries (LDCs) by the United Nations or qualify for lending from the World Bank Group's International Development Association (IDA).

In addition, the CDCF strives to expand the reach of the carbon market by developing small-scale methodologies for CDM projects that benefit the poorest communities. The CDCF also aims to facilitate learning by doing by collaborating with local intermediaries (banks, micro-credit institutions, NGOs, small- and medium-sized enterprises) to develop CDM projects.

Community Development Carbon Fund Status

	Country/ Project Name	Project Description	Community Benefits	CDCF Contract ERs (tCO ₂ e)
Emission Reductions Purchase Agreements Signed				
1	Argentina: Olavarria Landfill Gas Recovery	Capture methane and carbon dioxide at Olavarria municipal landfill; use methane for rural electricity supply	A potable water distribution network connecting 80 percent of the homes and a pilot solar water heating system at the municipal hospital in rural Espigas; gastrointestinal disease and high energy costs reduced	131,000
2	Argentina: Salta Solid Waste Management	Install gas collection and flaring system for the landfill site in the municipality of Salta	Improved infrastructure and working conditions for 100 people separating, classifying, storing and recycling inorganic components of municipal waste	40,200
3	Bangladesh: Solar Home Systems	Install Solar Home Systems (sizes 30 – 85 watt-peak), and replace kerosene for household lighting	Better quality of lighting and electricity for other appliances such as a television; a new industry of solar home installation, with rural women as technicians	372,700
4	Bangladesh: IDCOL Solar Home Systems	Install Solar Home Systems (sizes 30 – 85 watt-peak), and replace kerosene for household lighting	Better quality of lighting and electricity for other appliances such as a television; a new industry of solar home installation, with rural women as technicians	192,000
5	Bangladesh: Improving Kiln Efficiency of the Brick Making Industry	Build 20 new energy efficient Hybrid Hoffman Kilns (HHK) and improve the efficiency of existing kilns used in the brick making industry in Bangladesh. The Hybrid Hoffman Kiln (HHK) technology will reduce the amount of coal used per brick by recycling heat in the brick making process as well as by mixing pulverized coal into the clay from which the bricks are made.	Disseminate HHK technology to both reduce the 3 MtCO ₂ e emitted each year by the brick making sector as well as outdoor air pollution. The Environmental and Social Management Framework (ESMF) is expected to raise occupational health and safety standards in the sector, reduce the environmental burden of the sector and improve labor practices and create all year round employment. The community benefits plan will specifically support the provision of ablution facilities, a small multipurpose facility for providing first aid and regular primary health care and safety gear and appropriate clothing at each kiln.	189,000
6	Bolivia: Urban Wastewater Gas Capture	Cover anaerobic lagoons of a wastewater treatment facility in Santa Cruz; collect and flare methane gas	A sewage system in the north of Santa Cruz (pop. 5,000) to improve public health	200,000
7	China: Guangrun Hydropower Development	Construct and operate three hydropower plants with total capacity of 28 megawatts on the Guangrun River	One-fifth of carbon revenue for a poverty alleviation fund used by the county government. Other benefits include increased water supply, upgraded flood control, and water for 1,000 hectares of farmland	485,000
8	China: Hubei Eco-farming Biogas	Change traditional manure management and recover methane for household cooking and lighting needs by developing biogas digesters	Biogas burners for household cooking and heating will reduce indoor pollution and respiratory diseases. Improved manure management will reduce water contamination. Biogas recovery will diversify energy sources and reduce deforestation	370,000
9	China: Shandong Poultry Manure Biogas	Anaerobic digestion and biogas capture to generate electricity from five million chickens	Construction of 6.3 kilometers of rural highways, and an irrigation and drinking water project in the village of Qujiagou. Free fertilizer and training for community households to increase income by using new fertilizer	465,000
10	Colombia: Furatena Energy Efficiency and Rural Development	Energy efficiency improvements in the collection and processing of "panela" (brown sugar panels) at 120 small, family-owned manufacturing facilities	Increased farm income, training of at least 300 farmers in improved production; managerial training for 120 small rural farms; 300 hectares to pilot organic production; a land-use environmental plan; biomass as the plant's main fuel	60,000
11	Colombia: Rio Frio Waste Water Treatment	Collect methane and nitrous oxide from waste water treatment plant of Rio Frio	Reduction of local air pollution by biogas capture and effluent treatment. River water-quality improvements. A social program to address health conditions (including HIV/AIDS) among the poorest youth	236,000

	Country/ Project Name	Project Description	Community Benefits	CDCF Contract ERs (tCO ₂ e)
Emission Reductions Purchase Agreements Signed				
12	Georgia: Small Hydro Rehabilitation	Install at least 15 megawatts additional power through rehabilitation and construction of small hydropower stations	A potable water supply system to benefit 45 households and schools; rehabilitation of three small bridges, and construction of a social center, where one of the small hydropower stations is located	114,000
13	Guyana: Skeldon Bagasse Cogeneration	Use bagasse as high-efficiency fuel for a sugar factory and excess electricity for the national grid	Improved electrical service; at least 10 megawatts of electricity produced by GuySuCo for the national grid; job creation and improved economic activity	165,000
14	Honduras: La Esperanza Hydroelectric	Install 12.7 megawatt run-of-river hydropower plant	Improved electricity service in the town of La Esperanza (pop.10,000). Employment for 148 people during construction. Planting of 25,000 seedlings for reforestation	54,345
15	India: FaL-G Brick Units in Micro Sector	200 brick production units with FaL-G technology saving energy and nitrous oxide emissions	Personal accident insurance and health insurance for workers. Reduced air pollution compared with traditional kilns	451,590
16	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.	Improved consumer access to clean water will create a host of health, economic and environmental benefits, including reduction of water-borne diseases like dysentery and trachoma, and reduction of the time households (typically the women in a household) spend trying to collect clean water.	55,000
17	India: Street Lighting Energy Efficiency Project	Reduce electricity consumption and emissions by improving the street lighting network in 8 municipalities.	Reduced electricity consumption leading to lower fossil fuel emissions. Training and education of the municipal employees about efficient use of electricity. Reduced energy bills will make electricity more affordable for the poor.	79,000
18	Kenya: Olkaria II Geothermal Expansion	Expansion of geothermal plant from 70 megawatts to 105 megawatts	Water lines and storage tanks for clean water. Construction of classrooms, administration blocks, boarding facilities, health centers, cattle dips. Upgrading of rural roads	650,000
19	Kenya: Optimization of Kiambere Hydro Power Station	Expansion of hydropower station by upgrading turbines to increase output by 20 megawatts	The community benefits plan is intertwined with the Kenya Olkaria II Geothermal Expansion and the Redevelopment of Tana Power Station through an overarching community benefits scheme	162,720
20	Kenya: Re- development of Tana Power Station	Expansion of a hydropower station by constructing two 4.3 megawatt and two 5.5 megawatt run-of-river dams	The community benefit plan is intertwined with the Kenya Olkaria II Geothermal Expansion and the optimization of Kiambere Hydro Power Station projects	226,000
21	Moldova: Biomass Heating and Energy Conservation	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 decrease in cost of heat. Heating improvements and energy efficiency reduce forest degradation for fuel wood	348,502
22	Nepal: Biogas Support Program	Commercial dissemination of 200,000 household biogas plants using animal waste in rural Nepal	Reduced kitchen smoke; reduced drudgery of women and children. Better sanitation by connection of latrines to biogas plants; increased enrollment in schools. Creation of 12,000 rural jobs. Savings of 2,600 kilograms of firewood per household annually	1,000,000
23	Nepal: Village Micro-hydro	Installation of micro-hydro power plants (5 – 500 kilowatts) with cumulative capacity of 15 megawatts	Replace diesel power for agro-processing mills and 142,000 households. Reduction in batteries for radio and flashlights, and reduced environmental chemical pollution	191,220

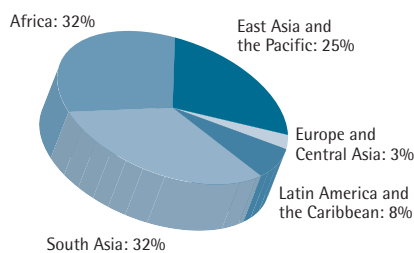
Country/ Project Name				Project Description	Community Benefits	CDCF Contract ERs (tCO ₂ e)
Emission Reductions Purchase Agreements Signed						
24	Nigeria: Aba Cogeneration	Install gas-fired cogeneration system for electricity and heat. Sell system's carbon dioxide to breweries	Reliable electricity for street lighting. New one kilometer asphalt access road to the local community. Health center staffed with one medical doctor and one senior nurse; nursery and primary school for up to 200 students	1,145,000		
25	Pakistan: Community Based Renewable Energy Development in Northern areas and Chithral	Install 12 micro-hydro plants in northern Pakistan with a total capacity of 4.5 megawatts. The electricity will displace fossil fuels and fuel wood	Power for community energy needs while substituting the use of diesel fuel	360,000		
26	Peru: Santa Rosa Hydroelectric	Three run-of-river hydro projects in Lima, Peru, in the Santa Rosa irrigation area (4.1 megawatts total)	A trash rack cleaner for agricultural wastewater. During construction 125 direct new jobs, and 15 new jobs during operation. A new fence for the school, two new classrooms, a computer room (with 10 computers), and a community center La Merced	88,300		
27	Philippines: Laguna de Bay Watershed Community Carbon	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. Currently no wastewater treatment and limited treatment of pig-farm and industrial waste	40,614		
28	Philippines: ROXOL Wastewater Treatment and Methane Gas Recovery	Construction and operation of a 100,000 liters/day ethanol production plant with waste-to-energy recovery.	Capacity building of citizen's cooperatives. Vocational skills training for youth; grants for high school students; rehabilitation of existing pre-school/day care center. Implementation of the Reading Program Implementation of Nutrition Education and Feeding Program. Provision of community medical service and health insurance. Implementation of micro lending program	200,000		
29	Rwanda: Electrogaz Compact Fluorescent Lamp (CFL) distribution	Expand the use of high-efficiency lighting technology in Rwanda's residential sector through the distribution of high-quality Compact Fluorescent Lamps.	Provides affordable electricity to the poor	156,000		
30	Senegal: Lighting Energy Efficiency in Rural Electrification Program	Low-energy consumption compact fluorescent bulbs instead of incandescent bulbs for domestic lighting	Compact fluorescent bulbs instead of kerosene lamps and batteries. Electricity for productive uses, social services, and schools	120,000		
31	Thailand: AEP: Livestock Waste Management Lighting Energy	Covered lagoons to capture and utilize methane for power generation	Lighting on streets, access to safe drinking water, scholarships for poor students, mosquito spray equipment, working capital for the community cooperative shop, and capacity-building.	230,000		
32	Uganda: Kakira Sugar Works Cogeneration	Expand existing sugar crushing and cogeneration plant to 21 megawatts, with 12 megawatts for national grid	Installation of a fuel station for farmers supplying sugarcane. Capacity-building plan for community organizations benefiting 4,000 farmers. Enhanced living standards of project entity's workers	342,000		
33	Uganda: Municipal Waste Compost	Recover the municipal solid waste and use it to enrichen soil conditions	Construction of a schools, latrine pits, health centers and roads. Provision of scholastic materials. Provision of more efficient stoves to households to reduce number of trees cut. Establishment of training and education centers for agriculture, water and energy saving practices. Better access to clean water through wells, water storage tanks or rain water harvesting jars	209,185		

Community Fund Status

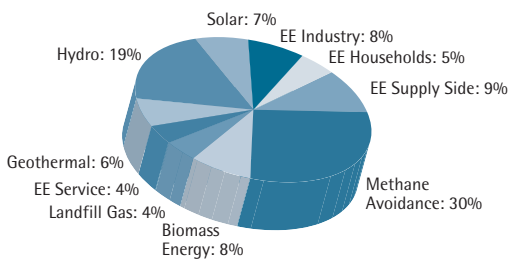
In 2009, the CDCF continued to emphasize small-scale projects that provide community benefits. The CDCF signed five new emission reduction purchase agreements (ERPAs), bringing it to a total of 33 portfolio projects, and now has \$97.9 million in funds committed. The CDCF has two additional projects in the pipeline, valued at \$3.9 million. Please note that “Portfolio” projects refer to ERPA signed projects only. “Pipeline” projects refer to projects at Carbon Finance Document (CFD) stage and Project Idea Note (PIN).

	Number of projects	Value	tCO ₂
ERPAs Signed and Active	32	\$97,989,265	9,073,535
Pipeline Projects	2	\$3,965,000	305,000

Geographic Distribution



Technology Distribution



Charts are based on total value of emission reductions projects at the stage of emission reductions purchase agreements (ERPAs). All categorization of technology type is consistent with UN Risø methodology.

Community Development Carbon Fund's Geographic Distribution

Over the course of 2009, the CDCF continued to meet its mandate of committing 25 percent of its total capitalization to purchasing emission reductions from projects located in the world's poorest countries. Africa continues to be the region where the fund is most concentrated, with 32 percent of capital allocations. South Asia makes up 32 percent of the portfolio and East Asia and the Pacific account for 25 percent of the portfolio value.

Community Development Carbon Fund's Technology Distribution

CDCF focuses on a wide range of technologies to generate carbon credits, which has brought benefits to poor communities across the globe. Methane avoidance accounts for the largest portion of the investment, with 30 percent of the portfolio. Energy efficiency improvement projects account for 19 percent of the value of the portfolio.



Community Development Carbon Fund Participants



GOVERNMENT OF AUSTRIA
www.ji-cdm-austria.at



REGIONAL GOVERNMENT OF BRUSSELS-CAPITAL
www.bruxelles.irisnet.be



GOVERNMENT OF THE WALLOON REGION (BELGIUM)
www.jp.daiwacm.com/english/index.html



GOVERNMENT OF CANADA
www.cdm-ji.ca



GOVERNMENT OF DENMARK
www.um.dk



GOVERNMENT OF ITALY
www.minambiente.it



GOVERNMENT OF LUXEMBOURG
www.environnement.public.lu/air_bruit/dossiers



GOVERNMENT OF THE NETHERLANDS



GOVERNMENT OF SPAIN
 Ministry of Environment, and Rural and Marine Affairs: www.mma.es
 Ministry of Economy and Finance: www.meh.es



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www.basf.com



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www.daiwasmbc.co.jp/english/
www.daiwasmbcpi.co.jp/english/index.html



ELECTRICIDADE DE PORTUGAL (EDP)
www.edp.pt



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www.endesa.es



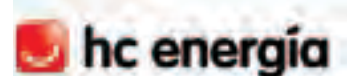
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GAS NATURAL SDG, SA
www.gasnatural.com



GÖTEBORG ENERGI AB
www.goteborgenergi.se



HC ENERGIA
www.hcenergia.com



IDEMITSU KOSAN CO., LTD.
www.idemitsu.co.jp/e/index.html



KFW BANKENGRUPPE
www.kfw.de/carbonfund



NIPPON OIL CORPORATION (NOC)
www.eneos.co.jp/english



THE OKINAWA ELECTRIC POWER COMPANY, INC. (OEPCC)
www.okiden.co.jp



RAUTARUUKKI OYJ
www.ruukki.com



STATKRAFT CARBON INVEST AS
www.statkraft.com



STATOIL ASA
www.statoil.com



SWISS RE
www.swissre.com

CDCF Participants' Committee

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Laura Canuto(Chair)
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Rwanda Electrogaz Compact Fluorescent Lamp Distribution Project

With only 7 percent of its total population connected to the national power grid, Rwanda faces acute electricity shortages. There is a need to supply more electricity and make consumption more efficient – every watt of electricity counts and must be stretched as far as possible. By improving the energy efficiency across the country, Rwanda can both take advantage of the carbon credit regime under the Kyoto Protocol and raise the living standard of the poor. This is the purpose of the Rwanda Electrogaz Compact Fluorescent Lamp Distribution Project, supported by the World Bank's Community Development Carbon Fund.



The Compact Fluorescent Lamp Distribution project aims to reduce greenhouse gas emissions and generate intrinsic community benefits by distributing 800,000 high-quality compact fluorescent lamps to Rwandan households that have both been connected to the grid for years or have only recently acquired electricity under the country's National Electrification Program (which seeks to raise the national grid connectivity from 7 percent to 36 percent of the population by 2020). This countrywide project primarily focuses on urban areas serviced by the national public electricity utility Electrogaz. Because technologies such as high-efficiency lamps free up electricity, they are a crucial tool in offsetting price increases that come with extending the power grid connections to the poor. The compact fluorescent lamp installation is expected to bring down costs for consumers, enabling poorer clients to afford access to electricity while moving away from traditional fuels, such as kerosene lamps and batteries. To support the project, mitigate project risk, and spur investor interest, the CDCF will purchase approximately 150,000 tCO₂e from the project.







From the Chair of the BioCarbon Fund Tranche 1



The BioCarbon Fund continues to be the main instrument to realize CDM forestry projects under the Kyoto Protocol. The first afforestation and reforestation CDM project registered under the UNFCCC (November 2006) was developed under this fund. 2009 was a good year for CDM afforestation and reforestation projects, with the Executive Board registering 11 projects. To date, 13 projects of this kind have been registered, five of them fostered by the BioCarbon Fund. For 2010, we expect an increase in the registration of forestry projects under the CDM.

In the context of international negotiations, forests are becoming a matter of significant importance. In this field, CDM afforestation and reforestation projects in general, and the BioCarbon Fund activity in particular, provide very helpful experiences in developing performance-based incentives.

The BioCarbon Fund is working to develop significant foundation for afforestation and reforestation in the carbon market, while still developing projects that are not CDM-eligible, in order to develop methodologies that can be useful for REDD-plus and soil carbon activities. The BioCarbon Fund continues to be a pioneer in order to expand the role of agriculture, forestry, and land use in the carbon market.

Teresa Solana Méndez de Vigo, Chair of Tranche 1, BioCarbon Fund
Ministry of the Environment, and Rural and Marine Affairs (Spain)

The BioCarbon Fund

Officially operational since May 2004, the BioCarbon Fund (BioCF) provides capital for projects that sequester or conserve greenhouse gases in forests and agro-ecosystems. The fund tests and demonstrates how agriculture, forestry, and land use activities can generate high-quality reductions in greenhouse gases, while simultaneously providing environmental and livelihood benefits that are both long-term and sustainable, and able to be measured, monitored, and certified. The fund is designed to ensure that rural areas in developing countries have the opportunity to benefit from carbon finance.

The BioCarbon Fund consists of two Tranches with two parallel Windows. Window 1 of both Tranches focuses on the purchase of emission reductions from land use, land-use change, and forestry (LULUCF) activities eligible for crediting under the Kyoto Protocol. Currently, LULUCF is limited

to afforestation and reforestation activities, thereby excluding other forestry activities that might help sequester carbon. Window 2 has been designed to test how agriculture, forestry and other land use activities currently excluded under the Kyoto Protocol might be used as climate mitigation options that meet the standards of the BioCarbon Fund. This includes reducing emissions from deforestation and forest degradation (REDD-plus) and carbon sequestration through the adoption of sustainable agricultural land management practices, activities which are being pursued through the voluntary carbon market. The two-window approach ensures that the BioCarbon Fund not only facilitates the growth of the current carbon markets related to forestry but that it also stays on the cutting edge of how to expand the role of agriculture, forestry and land use in the carbon markets.

BioCarbon Fund Tranche 1 Status

	Country/ Project Name	Project Description	Benefits	Main Social Benefits	BioCF Contract ERs (tCO ₂ e)
Emission Reductions Purchase Agreements Signed (Tranche 1)					
Afforestation/Reforestation					
1	Albania: Assisted Natural Regeneration	Afforest/reforest 3,000 hectares of highly degraded communal forest and pastureland to develop a multi-functional native broadleaf and mixed broadleaf forest	Creation of habitat for native flora and fauna; enrichment of species diversity; reduced soil erosion; and reduced siltation of watercourses	Short- and mid-term employment; stimulation of the local industry; reduced maintenance costs of irrigation and drainage infrastructure; sustainable timber and nontimber products	230,360
2	China: Pearl River Watershed Management	Reforest 4,000 hectares of shrub/grassland, and demonstrate watershed management	Biodiversity corridors; reduced soil erosion; improved regulation of hydrological flows and reduced flooding and drought	Local employment; timber and nontimber products; and sustainable livelihoods	462,014
3	Colombia: San Nicolás Agroforestry	Afforest and reforest 1,000 hectares of abandoned pasture	Restoration of natural habitat and corridors for the conservation of biodiversity; sustainable watershed management	Employment for the local communities; increased food supply and safety; community training	120,000
4	Colombia: Caribbean Savannah	Pilot the use of carbon sinks through silvopastoral and reforestation systems to arrest the process of land degradation in 2,200 hectares	Enhance productivity; increased habitat for biodiversity; rehabilitated local ecosystems; reduced soil erosion	Local employment; sustainable income from wood harvesting; improved livestock productivity; training in silvopastoral management	246,992
5	Costa Rica: Coopeagri Forestry	Extend the scope of national program of payments for environmental services through agroforestry, natural regeneration, and commercial reforestation in 1,100 hectares of degraded land	Natural habitat for biodiversity protection; increased water retention and regulation of hydrological flows; reduced land erosion	Local employment; increased incomes from payment for environmental services; additional income from forest production agroforestry; training of farmers	68,228
6	Ethiopia: Humbo Community Managed Natural Regeneration	Restore 2,700 hectares of biodiverse natural forest with the farmer-managed natural regeneration technique	Reduction of soil erosion and local flooding; reduced sediment runoff currently threatening Lake Abaya	Employment and new sustainable income and food sources; investments in local infrastructure and food security activities; community training	165,000
7	Honduras: Pico Bonito Forestry	Agroforestry systems for small-scale producers, reforestation for conservation, and commercial plantations	Protection of water catchments; stabilized landscapes; rebuilt topsoils; and enhanced water supply and hydrological flow	Local employment; sustainable sources of income; training of communities; and on-site technical assistance	450,082
8	India: Improving Rural Livelihoods	Afforest/reforest 3,600 hectares as tree plantations on poor farmers' lands in Orissa and Andhra Pradesh	Reduced erosion; protection of biodiversity and	Employment and new sustainable income and food sources; investments in local infrastructure and food security activities; community training	276,000
9	Kenya: Greenbelt Movement	Pay community forest associations to reforest 1,500 hectares of degraded public and private land	Reduced erosion; protection of water catchments; and regulation of hydrological	Local employment; sustainable sources of income; training of communities; and on-site technical assistance	375,000

Country/ Project Name	Project Description	Benefits	Main Social Benefits	BioCF Contract ERs (tCO ₂ e)	
Emission Reductions Purchase Agreements Signed (Tranche 1)					
Afforestation/Reforestation					
10	Madagascar: Biodiversity Corridor Restoration	Restore forest corridors linking fragmented habitats and establish sustainable fruit gardens	Biodiversity corridors; increased viability of native species; restoration of degraded soils and lands, and stabilized hydrological flows	Local employment; sources of income from sale of timber	200,000
11	Moldova: Soil Conservation	Afforest/reforest 20,000 hectares of degraded state-owned and communal agricultural lands	Restoration of habitats to increase native biodiversity; erosion reduction; improved hydrological regime	Local employment; income from sale of timber and nontimber products; prevention of future land degradation	600,000
12	Nicaragua: Precious Woods	Reforestation on 800 hectares of degraded pasture with teak and valuable native wood species	Restoration of ecological forest functions such as prevention of erosion, groundwater protection, soil regeneration	The project will provide some employment for seasonal tasks such as planting, weeding, pruning and thinning and harvesting	183,578
13	Niger: Acacia Community Plantations	Develop up to 17,300 hectares of acacia plantations on degraded land, mostly managed by local communities. Intercropping with groundnuts and cowpeas	Soil regeneration and erosion control; increased natural habitat; dune fixing; wind and sun protection; rehabilitation of degraded land	Local employment; income from arabic gum sale; fuelwood and animal forage; and training of communities	500,000
14	Uganda: Nile Basin Reforestation	Establish 2,000 hectares of pine and mixed native species plantation to expand national wood resources and support communities for tree-planting	Creation of natural habitat; reduced pressure on natural forests; reduced frequency of fires; and reduced land degradation and erosion	Local employment; source of income from private woodlots; fuelwood; improved local public infrastructure; and stimulation of secondary industries	261,221
REDD					
15	Colombia: San Nicolás	Avoided deforestation and induced regeneration of 4,500 hectares	Conservation of natural habitat and corridors for biodiversity; sustainable watershed management	Generate financial resources to improve the livelihoods of small-scale landowners; sustain watershed management; and conserve biodiversity	76,694
16	Honduras: Pico Bonito	Avoided deforestation on 3,000 hectares in national park buffer zone	Biodiversity conservation; protection of water catchments; and enhanced water supply and hydrological flow	On-site technical assistance; sustainable forestry management training; establishment of sustainable livelihoods; and permanent sharing of profits for community investment	397,702
17	Madagascar: Biodiversity Corridor Conservation	Pilot avoided deforestation activities in 425,000 hectares through the creation of a sustainable use protected area	Financing for the implementation of a management plan for the protected area; biodiversity conservation; controlling illegal exploitation of the area's natural resources	Support to communities in establishing partnerships and funding development projects; promotion of alternatives to slash and burn agriculture; promotion of non-forest revenue-generating activities (i.e. ecotourism)	430,000

Tranche 1 Project Status

Tranche 1 closed December 2009 with contributions of \$53.8 million from 14 governments and companies. It currently consists of 14 afforestation/reforestation transactions of which four were registered under the CDM by the end of 2009. The remainder are at an advanced stage of preparation. Tranche 1 also contains three transactions for REDD, all of which have signed emission reductions purchase agreements additional to previously existing projects.

	Number of projects	tCO ₂
ERPAs Signed and Active	17	5,042,871
Pipeline Projects	2	900,000

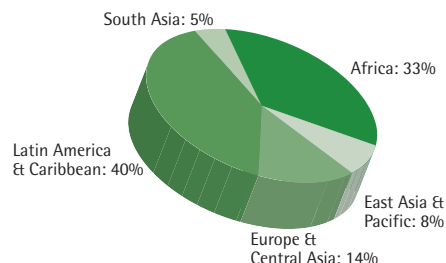
BioCF Geographic Distribution (Tranche 1)

The BioCF Tranche 1 portfolio is distributed throughout the world. Approximately 33 percent of assets support projects in Sub-Saharan Africa, a region that represents a very small percentage of the global carbon market. In this way, the BioCF is helping to extend the benefits of the carbon market to less affluent communities that have historically received fewer investments in non-forestry projects.

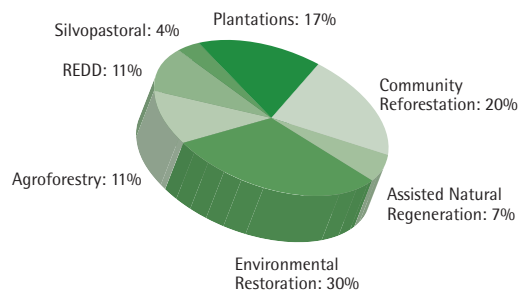
BioCF Technology Distribution (Tranche 1)

BioCF Tranche 1 focuses on afforestation and reforestation (A/R) primarily through environmental restoration and community reforestation activities. These activities account for 50 percent of the Tranche 1 portfolio. Other A/R areas of work include plantations, agro-forestry, assisted natural regeneration, and silvo-pastoral systems. Finally, 11 percent of the portfolio is dedicated to REDD.

Geographic Distribution (Tranche 1)



Technology Distribution (Tranche 1)



Charts are based on total value of emission reductions projects at the stage of emission reductions purchase agreements (ERPAs). All categorization of technology type is consistent with UN Riso methodology.

Uganda: Nile Basin Reforestation

In August 2009, Uganda's National Forestry Authority and a coalition of local community organizations registered the first forestry project under the Kyoto Protocol CDM in Africa. The objective of the Uganda Nile Basin Reforestation project is to establish 2,000 hectares of pine and mixed native species plantations in the Rwoho Central Forest Reserve. These are grassland areas that were previously degraded because of deforestation and erosion. In a country with only



a few thousand hectares of remaining timber plantations, this project stands as an example of sustainable forest management. The expansion of available timber in Uganda is crucial for the country to meet a growing demand of wood and to reduce the

pressure on its remaining native forests. Because East Africa has few forest plantations based on native arboreal species, the region faces a tremendous shortage of capacity for managing such projects. One of the intended goals of the Nile Basin Reforestation project is to help build this capacity and, thereby, decrease the technological barrier and risk faced by future projects.

Furthermore, the project will have positive spillover effects for local livelihoods and the environment. Because the small rivers located on the project reserve include parts of the upper watershed of Lake Victoria, the project will reduce erosion-induced discharge, increase water flows during the dry season, and mitigate ongoing land degradation. In terms of livelihoods, the project will provide inexpensive wood for fuel and create local employment in the form of nursery work, such as weeding, fire protection, thinning, and pruning.



BioCarbon Fund Tranche 1 Participants



GOVERNMENT OF CANADA
www.cdm-ji.ca



ECO-CARBONE
www.eco-carbone.com



SUMITOMO CHEMICAL CO., LTD.
www.sumitomo-chem.co.jp/english/index.html



GOVERNMENT OF ITALY
www.minambiente.it



IDEMITSU KOSAN CO., LTD.
www.idemitsu.co.jp/e/index.html



SUMITOMO JOINT ELECTRIC POWER CO., LTD.
www.sumikyo.co.jp



GOVERNMENT OF LUXEMBOURG
www.environnement.public.lu/air_bruit/dossiers



JAPAN IRON & STEEL FEDERATION (JISF)
www.jisf.or.jp/en/index.html



SUNTORY
www.suntory.com



KINGDOM OF SPAIN
Ministry of Environment, and Rural and Marine Affairs: www.mma.es
Ministry of Economy and Finance: www.meh.es



JAPAN PETROLEUM EXPLORATION CO., LTD.
www.japex.co.jp/english/index.html



TOKYO ELECTRIC POWER COMPANY (TEPCO)
www.tepco.co.jp/en/index-e.html



AGENCE FRANÇAISE DE DÉVELOPPEMENT
www.afd.fr



THE OKINAWA ELECTRONIC POWER COMPANY, INC. (OEPC)
www.okiden.co.jp



BioCF Tranche 1 Participants' Committee

Public sector
Teresa Solana Méndez de Vigo (Spain)
Laura Canuto (Italy)

Private sector
Takenobu Shiina (Suntory Limited)
Hiroyuki Kajiwara (Sumitomo Chemical Co.)



Pat Gernon, Chair of Tranche 2, BioCarbon Fund



This report details the progress made during 2009 towards completing the allocation phase of the Tranche 2 BioCarbon Fund. Emission reduction purchase agreements have now been completed for four projects in the portfolio.

The fund is novel in character. It continues to develop market demand for bio-carbon sequestration projects and to push the REDD-plus and soil carbon agendas forward.

Public and private sector participants continue to work together in a spirit of mutual cooperation to derive maximum benefit from their investment in terms of delivering carbon credits and the associated environmental and social benefits accruing in those countries in which the fund operates.

On behalf of the participants, I wish to thank the World Bank's BioCarbon Fund team for all their hard work during the course of the year. The success of the fund very much depends on the talents and commitment that the team brings to bear on its day-to-day management.

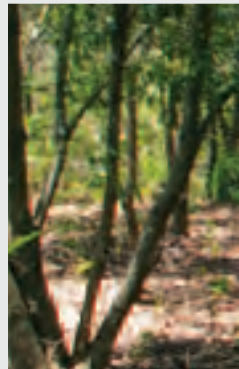
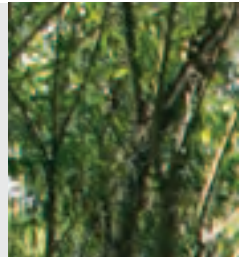
Pat Gernon, Chair, BioCarbon Fund, Tranche 2
Department of the Environment, Heritage and Local Government (Ireland)

Democratic Republic of Congo: Ibi Bateke Carbon Sink Plantation Project

In August 2009, the government of the Democratic Republic of Congo and the local Congolese firm NOVACEL signed the country's first emission reductions purchase agreement as part of the World Bank's Ibi Bateke Carbon Sink Plantation Project. Under the agreement, the World Bank's BioCarbon Fund is purchasing half a million carbon credits as part of an initiative to reforest 4,350 hectares of degraded land on the Plateau Bateke, located 150 kilometers from the capital of Kinshasa. The project is using carbon finance to generate funds for health, education, and agroforestry activities, while also trapping an estimated 2.4 million tons of carbon dioxide over the next 30 years. The Ibi Bateke Project is the first in the country to benefit from the Clean Development Mechanism.

The BioCarbon Fund has played a pivotal role in enabling the project developer, NOVACEL, to obtain private sector loans to finance the project's upfront investment. The BioCarbon Fund also facilitated the participation of a second carbon buyer, Orbeo (a subsidiary of the French conglomerate Société Generale and Rhodia) which is buying a similar amount of credits.

The Ibi Bateke Project demonstrates how such innovative financial instruments as the BioCarbon Fund can facilitate the generation of a revenue stream for a poor community in the form of carbon credits. Not only will the project sell its carbon credits, but the grassy savanna of the Plateau Bateke that has been depleted by man made fires will be transformed into a managed forest of acacia, eucalyptus, and other indigenous vegetation. The forest will sequester carbon, provide a sustainable supply of wood for fuel, prevent bush fires, and provide shelter to wildlife.



BioCarbon Fund Tranche 2 Status



Tranche 2 Project Status

BioCF Tranche 2 closed participation in March 2008, with contributions of \$36.6 million from seven governments, companies, and organizations. Tranche 2 consists of four afforestation/reforestation transactions and a number of A/R, REDD-plus and soil carbon projects under preparation.

	Number of projects	tCO ₂
ERPAs Signed and Active	4	1,624,790
Pipeline Projects	8	3,610,000

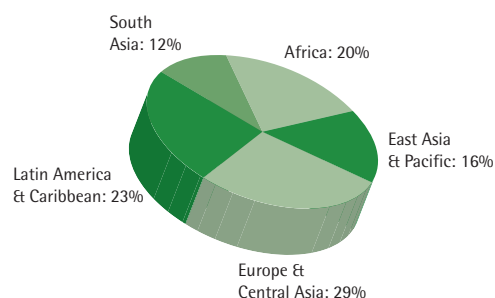
BioCF Geographic Distribution (Tranche 2)

The BioCF Tranche 2 portfolio is geographically diverse, with the largest share of projects in the regions of Latin America and the Caribbean, and Europe and Central Asia. This diversity enhances the ability of Tranche 2 to contribute to the carbon market through knowledge-sharing and learning-by-doing activities around the globe.

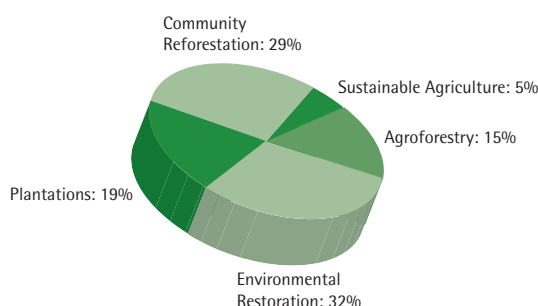
BioCF Technology Distribution (Tranche 2)

Most BioCF Tranche 2 projects focus on afforestation and reforestation activities, primarily environmental restoration and community reforestation, which together account for 61% of the Tranche 2 portfolio. Looking to the future, Tranche 2 is pioneering soil carbon agriculture activities and will also dedicate some resources to REDD-plus activities.

Geographic Distribution (Tranche 2)



Technology Distribution (Tranche 2)



Charts are based on total value of emission reductions projects at the stage of emission reductions purchase agreements (ERPAs). All categorization of technology type is consistent with UN Risø methodology.

BioCarbon Fund Tranche 2 Participants



DEPARTMENT OF THE ENVIRONMENT,
HERITAGE AND LOCAL GOVERNMENT,
IRELAND
[www.environ.ie/en/Environment/
Atmosphere/ClimateChange](http://www.environ.ie/en/Environment/Atmosphere/ClimateChange)



AGENCE FRANÇAISE DE DÉVELOPPEMENT
www.afd.fr



SYNGENTA FOUNDATION FOR SUSTAINABLE
AGRICULTURE
www.syngentafoundation.org



GOVERNMENT OF SPAIN
Ministry of Environment, and Rural and
Marine Affairs: www.mma.es
Ministry of Economy and Finance:
www.meh.es



DAVORINA LIMITED
(CONSENSUS BUSINESS GROUP)
www.consensusbusiness.com



ZEROEMISSIONS
www.zeroemissions.com



NATSOURCE BIOCF II INVESTMENTS
CORPORATION
www.natsource.com



From the Chair of the Netherlands Clean Development Mechanism Facility



For many years, the Netherlands has been active in climate change: constructively participating in climate change negotiations, establishing carbon funds at several banks, and deepening implementation-related policies and rules through participation in the CDM Executive Board.

The World Bank, through the Netherlands CDM Facility, has contracted a considerable part of our government's need to demonstrate compliance with the Kyoto Protocol. We are proud of the contributions to projects that support sustainable development in the countries involved.

Some market players have expectations of ever increasing prices for CERs. In these turbulent economic times, sellers of CERs to the Netherlands CDM Facility can be pleased to do business with such stable and reliable parties as the World Bank and the Dutch government - both of which are triple A rated.

Now the challenge is gradually shifting towards the delivery of the credits. We are confident that this phase also be successfully concluded by the World Bank. Together we are preparing for the post-Kyoto period and the challenges ahead.



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



Netherlands Clean Development Mechanism Facility Status

The Netherlands Clean Development Mechanism Facility (NCDMF) purchases emission reductions on behalf of its one participant, the Dutch Ministry of Housing, Spatial Planning, and the Environment. Operating across Africa, Asia, Central Europe, and Latin America, the NCDMF has purchased such reductions both from substantial greenhouse gas mitigation projects, such as HFC-23 destruction in China, coal-mine methane capture, and landfill gas capture, as well as from improving energy efficiency and generating renewable energy (hydro and geothermal power). This diversity in the portfolio serves to promote the full potential of the CDM, while ensuring delivery of emission reductions to the Netherlands.

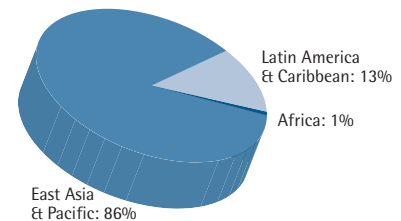
Netherlands Clean Development Mechanism Facility Geographic Distribution

Geographically, 84 percent of the NCDMF portfolio is concentrated in the East Asia and Pacific region due to a few large projects in China. The NCDMF's work in Latin America consists of many relatively small projects, which together make up nearly 13 percent of the portfolio. Africa accounts for about 1 percent of the total.

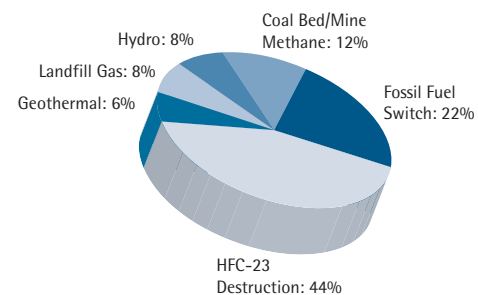
Netherlands Clean Development Mechanism Facility Technology Distribution

The Facility's mandate to purchase emission reductions only through 2012 has prompted it to focus the technical composition of its portfolio largely on projects mitigating heavy greenhouse gases. For this reason, 44 percent of the value of the portfolio is in HFC-23 destruction and 22 percent is in fossil fuel switch projects. The remaining 34 percent is divided among the following: coal-bed and coal-mine methane, 12 percent; hydro, 8 percent; landfill gas, 8 percent; and geothermal, 6 percent.

Geographic Distribution



Technology Distribution



Charts are based on total value of emission reductions projects at the stage of emission reductions purchase agreements (ERPAs). All categorization of technology type is consistent with UN Risø methodology.

Indonesia Lahendong II Geothermal

Expansion of sustainable power generation is a critical issue in the outer islands of Indonesia's Northern Sulawesi State where the Minahasa power grid is located. With peak demand growing at a rate of 4.4–6.9 percent a year, the self-contained power grid is pushing the limits of its aging facilities and is unable to rely on other grids for back-up generation due to its isolation. Peak demand is expected to grow at an annual rate of 4–6 percent.

Registered as a CDM project in 2009, Lahendong II has added 20 MW of new geothermal generating capacity to the Minahasa power grid which supplies electricity to the inhabitants of northern Sulawesi. In so doing, it has not only helped the remote region satisfy its growing needs for electricity, but has simultaneously helped reduce the region's dependency on diesel and other fossil fuels, thereby creating local health benefits. In addition, the project also acts as an economic stimulus by providing jobs that help lift individuals out of poverty.



From the Ministry of Economic Affairs



When addressing climate policy, the Netherlands is a firm believer that market instruments have to play a crucial role in fighting climate change. In fact, the Dutch government 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) projects in Eastern European countries. In close partnership with the World Bank Group, the Netherlands has worked to develop procedures and guidelines in this challenging area, and has been involved in institutional capacity building in several Eastern European countries.

In August 2004, the Ministry of Economic Affairs agreed with the World Bank and the International Finance Corporation to develop JI projects for the Netherlands through the creation of the Netherlands European Carbon Facility (NECF). The Facility has been implemented with a unique co-management arrangement between the three parties. In 2008, NECF reached an important milestone by reaching its aim to close its portfolio of emission reductions purchase agreements.

Last year was an exciting time for JI because we are now harvesting what we have planted in the past years. Efforts and investments in JI are starting to pay off. Verified emission reduction units and pre-2008 emission reductions are being delivered to the Dutch JI account. We are all learning how to do the job: sellers, verifiers, and buyers. We are looking forward to the results for 2010 and have confidence that our expectations for the performance of the NECF will be met.



Ministerie van Economische Zaken

Bert de Vries
Deputy Director-General of Energy, Telecom and Markets
Ministry of Economic Affairs
The Netherlands



Netherlands European Carbon Facility Status

The Netherlands European Carbon Facility (NECF) purchases emission reductions on behalf of its one participant, the Dutch Ministry of Economic Affairs. It is established under one agreement and administered by both the World Bank and the International Finance Corporation (IFC). This report covers only the portion of the NECF managed by the World Bank.

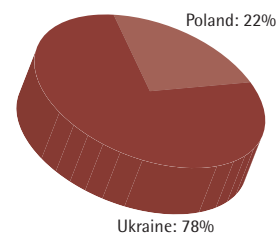
Netherlands European Carbon Facility Geographic Distribution

All projects within the NECF are mainly in Eastern Europe. The portion of the NECF portfolio managed by the World Bank is located in Ukraine and Poland, accounting for 78 percent and 22 percent respectively.

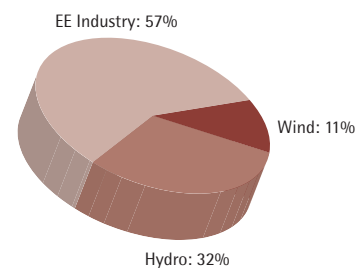
Netherlands European Carbon Facility Technology Distribution

The composition of the World Bank's NECF portfolio is mostly represented by energy efficiency projects, which account for 57 percent of the value of the portfolio. The remaining 43 percent is split between renewable energy projects: hydro (32 percent) and wind (11 percent).

Geographic Distribution



Technology Distribution



Charts are based on total value of emission reductions projects at the stage of emission reductions purchase agreements (ERPAs). All categorization of technology type is consistent with UN Risø methodology.

UkrHydroEnergO Hydropower Rehabilitation Project in Ukraine

In Ukraine, the World Bank's Netherlands European Carbon Facility is working with the local firm UkrHydroEnergO to rehabilitate 46 separate hydroelectric power units in order to eliminate pollution currently caused by the country's thermal plants.

Located on the Dnipro and the Dnister rivers, these hydroelectric units, some of which were first commissioned 70 years ago, are now rapidly losing efficiency.

The rehabilitation will provide increased generation capacity and improved efficiency, as well as supply the capacity to respond to incremental spikes in electricity demand that occur during peak hours and that are currently met using thermal energy. The displacement of thermal generation by renewable energy is expected to yield emission reductions of approximately 1 million tCO₂e from 2008–2012.

Ultimately, the project will bring many benefits to the local community and to Ukraine as a whole. Not only will the air and water quality improve with the modern technology, but the power supply will be more reliable as the rehabilitated hydropower plants provide critical electricity supply during peak times. The project also includes technical assistance to improve reservoir management, plant operation, and installation of a dam safety monitoring system, which will greatly help to improve the operation of the plants.



From the Italian Government



The government of Italy overwhelmingly recognizes that climate change poses an unprecedented challenge for the planet, and that with this comes a clear need for all major emitting countries in both the developed and developing world to move to a lower-carbon economy based on the long-term sustainable management of natural resources and energy inputs.

The Italian Carbon Fund (ICF) continues to further these ends as it works to expand a pipeline of diverse projects using market mechanisms to reduce greenhouse gas emissions and simultaneously eradicate poverty around the world. Moreover, carbon finance is playing an important role in helping Italy achieve its 2012 targets for the Kyoto Protocol. Just as important, the ICF is becoming a model for developing a strategic partnership between private and public sectors to finance mechanisms that integrate environmental considerations.

Lastly, the government of Italy would like to express its gratitude to the World Bank and its ICF members for their diligent work in helping to build carbon markets. We believe that such collaborative and fruitful partnerships will serve as part of the foundation to resolve the climate change crisis in the coming decades.



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



The Italian Carbon Fund Status

Country/Project Name	Project Description	ICF Contract ERs (tCO ₂ e)
Emission Reductions Purchase Agreements Signed		
1	China: HFC-23 Destruction (co-purchase)*	5,999,616
2	China: Nanjing Steel Converter Gas Recovery	1,293,495
3	China: Yunnan Whitewaters Hydropower Development	2,200,000
4	India: Allain Duhangan Hydro	2,820,250
5	Russia: Associated Gas Recovery for the Komsomolskoye Oil Field	900,000
6	Tunisia: Djebel Chekir Landfill Gas Recovery and Flaring	1,930,000
7	Tunisia: Gas Recovery and Flaring for Nine Landfills	1,120,000

*Represents share of the UCF

China: NISCO Project Implements Oxygen Converter Gas Recovery System

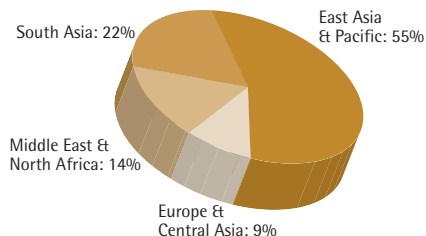
In China, the World Bank's Italian Carbon Fund is supporting work with the Nanjing Iron and Steel Company to generate carbon credits through the increased efficiency of the steel industry. The Nanjing Iron and Steel Converter Gas Recovery and Utilization for Power Generation Project (NISCO) is one of the first energy efficiency projects approved by the National Authority in China under the Kyoto Protocol's CDM. It is a pioneer in the use of market-based mechanisms to mitigate greenhouse gas emissions and is paving the way for the development of future projects to improve energy efficiency in China's steel sector.

NISCO is implementing a new technology called the Oxygen Converter Gas Recovery system. This system is used to recover the high temperature waste gas generated in large quantities in the production of crude steel. The captured waste gas then generates power.

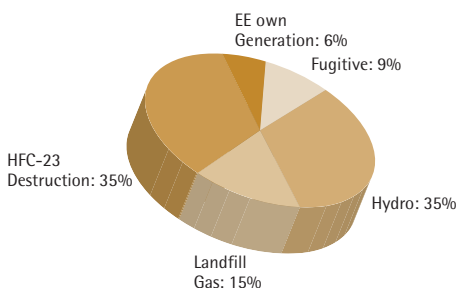
The electricity generated from the captured gas is used to meet the company's internal power needs for its production process, thereby, reducing the company's reliance on the power grid, which is coal-generated. As a result, the NISCO Project is reducing greenhouse gas emissions by approximately 106,000 tCO₂ per year.



Geographic Distribution



Technology Distribution



Charts are based on total value of emission reductions projects at the stage of emission reductions purchase agreements (ERPAs). All categorization of technology type is consistent with UN Risø methodology.

Italian Carbon Fund Status

From its inception to December 2009, the Italian Carbon Fund has signed seven emission reductions purchase agreements and participated in a HFC-23 investment with other funds, for a total emission reduction of 16.3 million tons of CO₂e. With the signature of the ERPA for the Rosneft Project and after fully committing its pledged capital, the fund was closed to new projects in August 2008. A significant milestone was reached in 2009 with the registration of all CDM projects in the portfolio.

	Number of projects	Value	tCO ₂
ERPAs Signed and Active	7	\$145,880,777	16,263,745

Italian Carbon Fund Geographic Distribution

Italian Carbon Fund projects that have signed emission reductions purchase agreements are mostly concentrated in the East Asia and the Pacific region (55%), with the remaining located in South Asia (22%), Middle East and North Africa (14%) and Europe and Central Asia (9%) regions.

Italian Carbon Fund Technological Distribution

The technologies covered by the projects of the Italian Carbon Fund include the investment in HFC-23 destruction (35%) as well as projects in hydropower (35%), landfill gas (15%), recapture fugitive gas (9%), and energy efficiency own generation (6%).



The Italian Carbon Fund Participants



ITALIAN MINISTRY FOR THE ENVIRONMENT,
LAND AND SEA
www.minambiente.it



ENEL TRADE S.P.A.
www.enel.com



IRIDE MERCATO S.P.A.
www.iride-mercato.it



CEMENTERIE ALDO BARBETTI S.P.A.
www.barbetti.it



ERG S.P.A.
www.erg.it



ITALCEMENTI GROUP
www.italcementigroup.com



E.ON ITALIA S.P.A.
www.eonitalia.it

The Italian Carbon Participants' Committee

Corrado Clini (Chair), Ministry for the Environment, Land and Sea

Sara Leggio, Ministry for the Environment, Land and Sea

Federica Fricano, Ministry for the Environment, Land and Sea

Stefano Apuzzo, E.ON Italia S.p.A.

Fabio Di Benedetto, ERG S.p.A.



From the Chair of the Danish Carbon Fund



Formed in 2005, the Danish Carbon Fund consists of representatives of Danish industry together with the Danish Energy Agency. The fund is an important part of the effort to reach Denmark's emission reduction targets. I am pleased that the portfolio has progressed well during 2009 and that the fund is almost fully committed. The participants are well prepared for the opportunities in a continued carbon market after 2012.

Frank Rasmussen
Dong Energy



The Danish Carbon Fund – Adapting and Making Progress

The Danish Carbon Fund (DCF) became officially operational in January 2005. The original capitalization of the DCF was €58 million; however, in 2008 the DCF agreed to increase its capitalization to €90 million, partly as a means of hedging against the risk of under-delivery of emission reductions from the projects in its portfolio. This additional capitalization provides the DCF with added possibilities. It also postponed the date of fully committing the available capital to contract emission reductions.

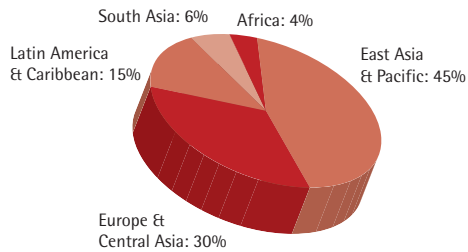
In 2009, the DCF signed an emission reduction purchase agreement (ERPA) with the Thailand Saphthip Wastewater Management project. In addition, three DCF projects – the two China Baotou Energy Efficiency projects and the Mexico Monterrey II LFG project – were successfully registered in 2009. The next couple of years promise significant progress towards fully committing the capital available in the DCF and increasing the delivery of CERs.

As with other players in the carbon market, the DCF continues to be affected by the regulatory changes and delays in the Clean Development Mechanism but is reacting swiftly and adapting to these realities. Despite these challenges, the DCF continues to demonstrate commitment to sustainable development and show its spirit of innovation in the carbon market by developing many CDM Programmes of Activities, one of which is located in a least developed country, Bangladesh.

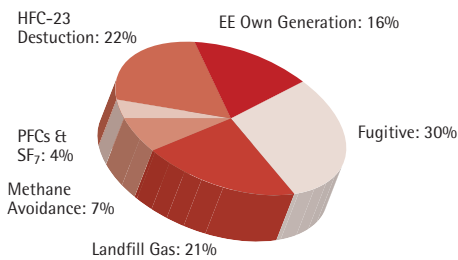
Country/Project Name		Project Description	DCF Contract ERs (tCO ₂ e)
Emission Reductions Purchase Agreements Signed			
1	China: Baotou Energy Efficiency	The project has two components. The first component uses coke dry quenching to recover sensible heat from red-hot coke ovens. The recovered waste heat is used to generate electricity and to supply additional heat, thereby displacing coal-fired power generation for the grid and coal-fired boilers in the plant. The second component involves the installation of dry type dust removal equipment in the blast furnace gas to increase the recovered gas pressure for power generation in the top-gas recovery turbine	900,000
2	China: HFC-23 Destruction*	Installation of an incineration facility to decompose HFC-23 generated by the existing HCFC-22 manufacturing facility into carbon dioxide (CO ₂) and hydrogen fluoride (HF)	2,000,000
3	Mexico: Monterrey II Landfill Gas	Captured landfill gas will be flared and used in power generation, thereby reducing methane emissions	1,000,000
4	Nigeria: SF ₆ Reduction	Reduce emissions of sulfur hexafluoride (SF ₆)—a greenhouse gas with a global warming potential 23,000 higher than carbon dioxide—from Nigeria's electricity grid. The project will improve the maintenance of breakers and switch gear to reduce the leakage of SF ₆ from insulators. The project will transfer technology and knowledge, and carbon revenues will contribute to upgrading Nigeria's power supply	358,333
5	Pakistan: Lahore Composting	The project constructs and operates a waste processing and composting plant in Lahore, Pakistan	310,049
6	Russia: Associated Gas Recovery for the Komsomolskoye Oil Field	Construction of a booster compressor station with a gas conditioning unit and a gas pipeline to the national gas transmission system, which will result in recovery of gas currently burnt during flaring	1,620,000
7	Thailand: Saphthip Wastewater Management Project	Reduce emissions by recovering and using as fuel the methane produced by the wastewater from the Saphthip Company's bioethanol plant	375,000

*Represents share of the UCF

Geographic Distribution



Technology Distribution



Charts are based on total value of emission reductions projects at the stage of emission reductions purchase agreements (ERPAs). All categorization of technology type is consistent with UN Risø methodology.

Danish Carbon Fund Status

The Danish Carbon Fund has signed six ERPAs worth a total value of €53.8 million (\$77 million) and total emission reductions of 6.6 million tons CO₂. In 2009, the DCF signed one new ERPA, the Saphip Wastewater Management Project in Thailand. The new project reduces emissions at the Saphip Company's bioethanol plant by recapturing methane produced in the course of water treatment and uses it as fuel for operations. The wastewater undergoes a staged treatment process using up-flow anaerobic sludge blanket reactors to generate and capture methane-containing biogas. The methane is then used to power two 20-ton-per-hour-capacity boilers that supply steam that powers the ethanol plant's backup capacity.

	Number of projects	Value	tCO ₂
ERPAs Signed and Active	7	\$77,076,454	6,563,333
Pipeline Projects	9	\$50,518,278	3,849,488

Danish Carbon Fund Geographic Distribution

The DCF cash portfolio is concentrated in East Asia and the Pacific (45%), Europe and Central Asia (30%), and Latin America and the Caribbean (15%). The regions of South Asia (6%) and Africa (4%) combine to make up 10 percent of the portfolio.

Danish Carbon Fund Technological Distribution

The technologies covered by DCF investments include recapture of fugitive gas (30%), HFC-23 destruction (22%), capture of landfill gas (21%), energy efficiency own generation (16%), methane avoidance (7%), and PFCs and SF₇ (4%).

China: The Baotou Iron & Steel Coke Dry Quenching and Waste Heat Utilization for Electricity Generation Project

In China's Outer Mongolia Province, the Danish Carbon Fund is working with the Baotou Iron & Steel Group Company to replace two coke dry quenching systems with more efficient coke dry quenching systems in the Nippon Steel Corporation.

Coke dry quenching is more efficient than wet quenching because it recovers the waste heat from red-hot coke and uses it to generate electricity. This technology is not widely used in China. There is currently no large-scale dry quenching operation in the country and there are no regulations pushing iron and steel companies to install dry quenching. For this reason the Baotou Iron & Steel Coke Dry Quenching and Waste Heat Utilization for Electricity Generation Project will serve as a proof of concept that this more ecologically friendly form of generation is a viable source of energy and one worth exploring further.



The Danish Carbon Fund Participants



GOVERNMENT OF DENMARK
www.neas.dk



DONG ENERGY
www.dongenergy.com



NORDJYSK ELHANDEL A/S
www.nordjysk-elhandel.dk



AALBORG PORTLAND A/S
www.aalborgportland.com



MAERSK OLIE OG GAS A/S
www.maerskoil.com



From the Ministry of Economy and Finance



The government of Spain, through the Ministry of Economy and Finance, has supported the development of the carbon market through several actions, among which we would like to emphasize our contributions to carbon funds. We have channelled most of this investment effort through the World Bank, because this institution has been a trailblazer in combining climate change mitigation actions with the promotion of sustainable development in recipient countries.

The creation of the Spanish Carbon Fund in 2005 was our first important landmark in carbon finance. Shortly after its inception, a significant group of Spanish companies decided to join in. The success of the fund among developers and our desire to exploit all its potential led the Ministry of Environment to open a second tranche in 2008.

Our experience in the Spanish Carbon Fund reveals that the flexible mechanisms of the Kyoto Protocol have been an important piece of the climate change puzzle. In the course of the years, the Spanish Carbon Fund has promoted technology transfer in different sectors, has leveraged the investments of the private sector, and has granted financial viability to a great number of development projects in a decentralized manner. In a nutshell, it has helped to underpin new growth models in a broad group of countries. In terms of management, we have learnt to work cooperatively with different partners and to join efforts to fulfil the technical, financial, and regulatory requirements. For all these achievements, we believe that the World Bank must maintain its key role in support of carbon finance, in order to bring international finance closer to the needs of the developing world in the coming years.



María Jesús Fernández
Director General for International Finance
Ministry of Economy and Finance



From the Ministry of Economy and Finance



The Spanish Carbon Fund (SCF) represents, to date, the most ambitious initiative carried out by the Spanish government to promote low carbon development through the Kyoto Protocol's project-based mechanisms. Through the Spanish Carbon Fund, the Spanish government and relevant Spanish companies have been working together with the World Bank for half a decade in promoting low carbon development in different regions around the world, including initiatives in least developed countries.

The SCF pipeline includes projects that cover a variety of sectors and technologies, such as renewable energies (wind and hydro power projects), waste management, energy efficiency, or transport. As Chair of the Participants' Committee during the last two years, I must say that the fund has proven to be an instrument that mobilizes financial flows that contribute to cost-effective emission reductions, while promoting sustainable development.

Project-based mechanisms, and especially CDM, constitute a key element of the Spanish Climate Change Strategy. Carbon markets provide a cost-effective tool for realizing ambitious mitigation actions worldwide and fostering cooperation among countries in achieving emission reductions. The way forward to effectively tackle the climate change challenge requires strengthening this cooperation, as well as adopting deep and firm mitigation commitments. In this context, we are convinced that carbon markets will play a reinforced role in the future international climate change regime, where billions of euro coming from public and private sources shall be channeled towards developing countries. The experience gained with the Spanish Carbon Fund encourages us to continue working in this field.

Alicia Montalvo
General Director, Bureau for Climate Change
Ministry of Environment and Rural and Marine Affairs



The Spanish Carbon Fund Status

	Country/Project Name	Project Description	SCF Contract ERs (tCO ₂ e)
Emission Reductions Purchase Agreements Signed			
1	Brazil: Nova Gerar Carbon Finance and Waste Management II	This umbrella project involves three landfills from the metropolitan area of Rio de Janeiro and one from the metropolitan area of Recife. Three of the projects are new sanitary landfills; the fourth landfill is an operation that will stop receiving waste by 2010 at which point a program will be implemented to support the local waste pickers. Landfill gas will be collected from all four landfills. Electricity might be generated as a result	1,000,000
2	China: HFC-23 Destruction*	Installation of an incineration facility to decompose HFC-23 generated by the existing HCFC-22 manufacturing facility into carbon dioxide and hydrogen fluoride	8,503,401
3	China: Bao Steel	The project will use COREX technology to deoxidize iron to shift away from coking coal. It lessens energy consumption and carbon dioxide emissions, and also skips the traditional stages of coking and sintering, thereby further reducing carbon dioxide emission	3,000,000
4	China: Meishan Coke Dry Quenching	The project recovers the waste heat of the hot coke from the coke-oven in the Meishan Iron & Steel plant by introducing advanced coke dry-quenching technology to replace the wet-quenching process. The recovered heat will be used for electricity generation and heat supply	750,000
5	China: Tianjin Landfill Gas Recovery and Utilization	Construction of a landfill gas utilization system to generate electricity for landfill operations and to feed to the power grid of Tianjin City. The project will be implemented on the Shuangkou municipal landfill. The Shuangkou landfill is a sanitary landfill that was partially financed by the World Bank under the Tianjin Urban Development and Environment Project	635,000
6	Egypt: Alexandria Onyx Landfill Gas Capture and Flaring	Installation of new landfill gas collection systems to collect gas emissions from the Borg el Arab and El Hammam landfill sites in Alexandria. The project collects residual emission gas, which Onyx does not currently have an obligation to treat	1,100,000
7	India: Karnataka Wind Power Project	Construction and operation of wind power projects at two sites in the Indian state of Karnataka	178,917
8	Mexico: La Venta II	An 85 megawatt wind project in the south region of the Isthmus of Tehuantepec, in the Mexican state of Oaxaca	1,800,000
9	Mexico: Mexico City Transport	Activities will promote a shift toward 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. High-polluting colectivo buses will be scrapped	354,606
10	Mali/Mauritania/Sénégal: OMVS Félou Hydroelectric	Construction and operation of a run-of-river hydroelectric installation on the Sénégal River. The project will deliver electricity to national power utilities in the sub-region (Mali, Mauritania, and Sénégal) through the creation of an additional 59 to 62 megawatts of installed hydropower generation capacity at an existing weir	280,000
11	Russia: Associated Gas Recovery for the Komsomolskoye Oil Field	Construction of a booster compressor station with a gas conditioning unit and a gas pipeline to the national gas transmission system, which will result in recovery of gas currently burnt during flaring	1,400,000
12	Thailand: Bioenergy Sugar Ethanol Wastewater Management	Construction of an anaerobic cover lagoon to treat waste water from the ethanol producing factory at the Thai Sugar Ethanol facility in Kancharaburi	500,000
13	Ukraine: Alchevsk Steel Mill Revamping and Modernisation**	Improving efficiency of steel production by replacing old Open Hearth Furnaces with modern basic oxygen furnaces.	336,254
14	Uruguay: Montevideo Landfill Gas Recovery	The Montevideo Landfill Gas Recovery Project consists of the design, implementation, and monitoring of a landfill gas extraction, treatment, and flaring facility at the Montevideo landfill. Such a facility will allow the capture and destruction of methane generated through the anaerobic decomposition of organic matter disposed of in the landfill	1,000,000

*Represents share of the UCF

**Includes Spanish Carbon Fund Tranche 1 and Tranche 2

Spanish Carbon Fund Status 2009

As of December 2009, the Spanish Carbon Fund signed 14 emission reductions purchase agreements and participated in a HFC-23 investment with other funds for a total of 20.7 million tons of CO₂e. Another 17 projects remain in the pipeline as part of the development of new projects and programmes of activities aimed at completing the portfolio. Among them were two projects at carbon finance document stage, totaling 0.8 million tons of CO₂e. In addition, 13 projects corresponding to 8.3 million tons of CO₂e had signed letters of intent. Finally, two project idea notes expected to generate 1.1 million tons of CO₂e completed the Spanish Carbon Fund pipeline.

	Number of projects	Value	tCO ₂
ERPAs Signed and Active	14	\$217,769,422	20,668,287
Pipeline Projects	17	\$127,408,722	10,230,533

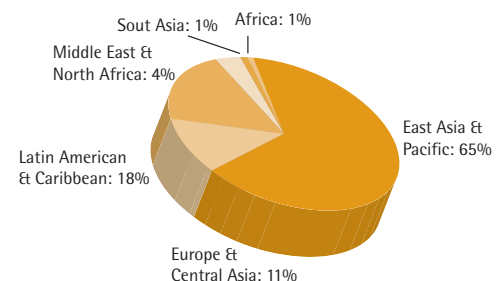
Spanish Carbon Fund Status Geographic Distribution

In terms of carbon dioxide equivalence, most of the Spanish Carbon Fund projects that have signed emission reductions purchase agreements are concentrated in East Asia and the Pacific (65%), followed by Latin American and Caribbean (18%), Europe and Central Asia (11%), the Middle East and North Africa (4%), South Asia (1%), and Africa (1%).

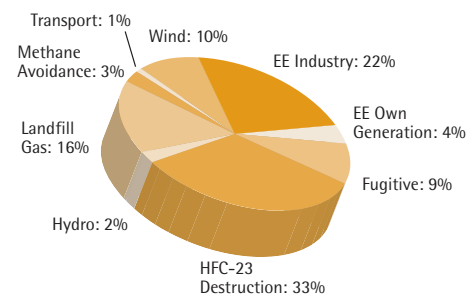
Spanish Carbon Fund Status Technological Distribution

In terms of technological distribution, the Spanish Carbon Fund has sought diversification in its portfolio. Projects included in the fund encompass a wide range of technologies such as HFC-23 destruction (33%), energy efficiency in industry (22%), landfill gas (16%), and wind (10%).

Geographic Distribution



Technology Distribution



Charts are based on total value of emission reductions projects at the stage of emission reductions purchase agreements (ERPAs). All categorization of technology type is consistent with UN Risø methodology.

China: Tianjin Shuangkou Landfill Gas Recovery and Gas Utilization

In China, technologies that use landfill gas to produce electricity or heat remain in their infancy. To help harness the sustainable electric generation potential of China's landfills, the World Bank's Spanish Carbon Fund is partnering with the Tianjin Clean Energy and Environmental Engineering Company on the Tianjin Shuangkou Landfill Gas Recovery and Gas Utilization project.

Located 137 kilometers southeast of Beijing, the project is the first modern sanitary landfill in Tianjin that is designed and constructed in full accordance with national standards and includes impermeable liners and a collection and treatment system for liquid runoff. The state-of-the-art landfill gas collection system will capture methane and other gases, such as carbon dioxide and non-methane organic compounds. It will then use these gases to produce electricity to supply the North China Power Grid.

The project will reduce greenhouse gas emissions by approximately 1,558,228 tCO₂e over the 10-year crediting period, which lasts from 2008 to 2017. The project will also produce a total of 218,509 MWh of electricity during this crediting period, 95 percent of which will be sent to the grid while the remaining 5 percent will be used on-site ex ante.



Spanish Carbon Fund Participants



GOVERNMENT OF SPAIN
Ministry of Environment, and Rural and Marine Affairs: www.marm.es
Ministry of Economy and Finance: www.meh.es



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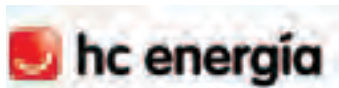
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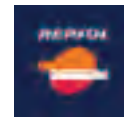
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SCF Participants' Committee 2010

Alicia Montalvo Santamaria (Chair),
Ministry of Environment and Rural and Marine Affairs
Maria Perez Ribes,
Ministry of Economy and Finance
Ana de Vicente Lancho,
Ministry of Economy and Finance
Ismael Aznar Cano,
Ministry of Environment and Rural and Marine Affairs
Teresa Solana Mendez,
Ministry of Environment and Rural and Marine Affairs
David Corregidor,
Endesa
Daniel Casado Garcia,
EON Generación
Jaime Martin Juez,
Repsol





From the Chair of the Carbon Fund for Europe Participants' Committee



Operated by the World Bank in partnership with the European Investment Bank, the Carbon Fund for Europe has been operational for close to three years. The participants of the Carbon Fund for Europe are all European compliance buyers: four governments and one company. All buyers share a strong commitment to participating in the carbon market to meet their Kyoto and European Emission Trading System targets up to and beyond 2012.

With five emission reduction purchasing agreements signed, the fund is contributing to helping developing countries and emerging economies achieve sustainable low-carbon development through clean development projects. The fund is now facing special challenges to ensure timely delivery of emission reductions. This is mainly because of delays and other underperformance risks throughout its pipeline and portfolio, as well as the relatively late set-up of the fund shortly before the start of the Kyoto compliance period. The Trustee is putting all its efforts into finding different solutions on how to meet the volume shortfall in order to enable participants to fulfill their compliance position.

The situation for this fund is not unique and reflects the latest slow development in the carbon market with increasing uncertainty because of the lack of international agreement on a successor to the Kyoto Protocol. Although there seems to be continuous support for the future role of flexible mechanisms, the market needs clear political signals and more efficiency in the project approval process. We hope that 2010 will provide such signals in order to enhance the success of investments in sustainable development.

Anne C. Bolle
Managing Director
Statkraft Carbon Invest AS

The Carbon Fund for Europe

Operational since March 2007, the Carbon Fund for Europe (CFE) is a trust fund administered by the World Bank in cooperation with the European Investment Bank. The fund is co-managed by both institutions, with the European Investment Bank bringing to the table in-depth understanding of the European economy and a project pipeline in developing countries while the World Bank offers its expertise and experience in carbon markets.

The Carbon Fund for Europe purchases credits from projects eligible under the Kyoto Protocol CDM and JI mechanisms, and compatible under the European Union Emissions Trading Scheme.

Since its inception, the CFE has signed five emission reduction purchase agreements. Moving forward, the fund expects to continue to build on its dynamic pipeline and diverse set of technologies to support the advancement of developing countries and sustainable development.

The Carbon Fund for Europe Status

Country/Project Name		Project Description	CFE Contract ERs (tCO ₂ e)
Emission Reductions Purchase Agreements Signed			
1	Egypt: Landfill and Processing Services for Southern Zone in Cairo	Reduction of methane gas emissions by diverting high organic waste from direct disposal at a landfill to a composting plant. Of the revenues generated from the sale of emission reductions, 6% will be used to implement social services projects. The compost will be sold to farmers at current market prices	219,243
2	Jordan: Amman Landfill Gas	Avoidance of methane emissions from the Ghabawi Sanitary Landfill by installing a plant for landfill gas collection and electricity generation. The electricity is delivered to the grid and replaces electricity produced from power plants using heavy fuel oil, which means that in addition to the methane emission reduction on the landfill there will also be a carbon dioxide emission reduction from the power plant.	900,000
3	Malaysia: Kota Kinabalu Composting	Reduction of methane gas emissions by diverting high organic waste from direct disposal at a landfill to a composting plant. The sorting facility will provide employment opportunities, in particular for local waste pickers at the landfill. The project will also promote technology transfer and capacity building of local staff in solid waste management.	340,000
4	Russia: Associated Gas Recovery for the Komsomolskoye Oil Field	Construction of a booster compressor station with a gas conditioning unit and a gas pipeline to the national gas transmission system, which will result in recovery of gas currently burnt during flaring	1,400,000
5	Thailand: Small Scale Livestock Waste Management Program (ERDI):	Improvement of livestock waste management practices in Thailand to reduce GHG emissions and take advantage of captured renewable energy of small scale swine farms equating to approximately 4,000 animals per farm for an aggregate 500,000 animals. The project will apply anaerobic digesters which will capture the biogas and use it to generate electricity for on-farm consumption or sale to the national grid.	500,000

The Carbon Fund for Europe Participants



DEPARTMENT OF THE ENVIRONMENT,
HERITAGE AND LOCAL GOVERNMENT,
IRELAND

[www.environ.ie/en/Environment/
Atmosphere/ClimateChange](http://www.environ.ie/en/Environment/Atmosphere/ClimateChange)

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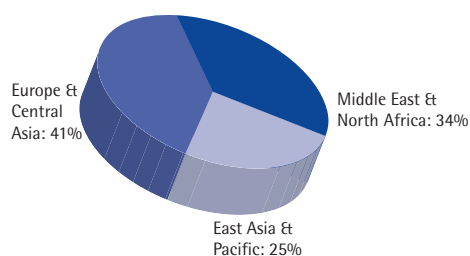
GOVERNMENT OF LUXEMBOURG
[www.environnement.public.lu/air_bruit/
dossiers](http://www.environnement.public.lu/air_bruit/dossiers)

Carbon Fund for Europe Fund Status

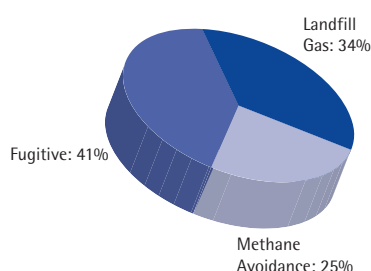
In its third year of activity, the Carbon Fund for Europe, capitalized at €50 million (\$71 million), has signed five emission reduction purchase agreements totaling a value of €34 million (\$48.9 million). As of December 31, 2009, the fund had an additional seven projects in the pipeline estimated at €28 million.

	Number of projects	Value	tCO ₂
ERPAs Signed and Active	5	\$48,879,555	3,359,243
Pipeline Projects	7	\$40,213,980	3,005,549

Geographic Distribution



Technology Distribution



Charts are based on total value of emission reductions projects at the stage of emission reductions purchase agreements (ERPAs). All categorization of technology type is consistent with UN Risø methodology.

Carbon Fund for Europe Geographic Distribution

The majority of the Carbon Fund for Europe's portfolio projects in nominal value terms are located in the Europe and Central Asia region, accounting for 41 percent of committed capital. The Middle East and North Africa region is not far behind, with 34 percent of committed capital, whereas the East Asia and the Pacific region makes up 25 percent. For projects in the pipeline, 63 percent in nominal value terms, are located in the Europe and Central Asia region and 33 percent in Africa. In addition, the CFE has one pipeline project in the East Asia and Pacific region and one in the Latin America region.

Carbon Fund for Europe Technology Distribution

Out of the CFE's five signed ERPAs, 41 percent (in nominal value terms) use recapture of fugitive gas technology, 34 percent utilize recapture of landfill gas, and 25 percent are based on methane avoidance technology. Pipeline projects comprise other technologies, such as energy efficiency in households, transport, and hydro power.

Thailand: Small Scale Livestock Waste Management Programme of Activities

Currently, most farms in Thailand treat animal waste using normal scraping and hose-down cleaning methods in tandem with a series of anaerobic lagoons located on the farm. The waste material is thus ultimately left to decay in each farm's anaerobic lagoon system where it emits significant amounts of methane gas into the atmosphere and generates a festering odor and foul water runoff that pollutes nearby waterways.

The Small Scale Livestock Waste Management Programme of Activities is working to address these issues by improving livestock waste management practices in Thailand and converting the anaerobic lagoons into enclosed systems that capture and utilize the methane waste to generate electricity and heat to be used by farms. Initially, the project is slated to generate approximately 557,740 tCO₂e of emissions over the course of two 10-year crediting periods.







From the Chair of the Forest Carbon Partnership Facility



A lot has happened since we announced the Forest Carbon Partnership Facility in Bali in December 2007. There the Parties to the UNFCCC agreed that reducing emissions from deforestation and forest degradation, conservation, and other forest activities (a package of activities called “REDD-plus”) should play a role in a future climate regime. In response, many forest developing countries have decided to prepare themselves for future financial incentives for REDD-plus. They are actively working on organizational frameworks for REDD-plus and integrating REDD-plus into their low-carbon development strategies. These countries are demonstrating what it will take to get ready for a REDD-plus regime, and we are all learning from their experience. Recently several donor countries have pledged significant short-term funding for REDD-plus. We know public finance will be critical in the immediate future to fund readiness activities, but also to fund the necessary investments to reduce emissions in the forest sector. These tremendous efforts are against the backdrop of adverse financial conditions. And yet, the public sector certainly has an important role to play, including creating the conditions enabling future private sector investments in REDD-plus. This is especially true, although some prospects of cap-and-trade legislation for unlocking finance for REDD-plus are unresolved in several countries, and the UNFCCC deliberations on a future climate regime await resolution.

This is the context of the Forest Carbon Partnership Facility’s contributions. It has created a methodological framework and inclusive forum for REDD-plus, where numerous partners come together to discuss what it takes to become ready for REDD-plus, and review various country approaches.

The World Bank, for its part, is proud to be able to facilitate and contribute to this partnership with its innovative governance structure. In the year ahead, the Bank is looking to share its implementation role with other development partners - bilateral and multilateral - so that the needs of forest countries can be fully met.

A handwritten signature in black ink, appearing to read "Katherine Sierra".

Katherine Sierra
FCPF Chair and Vice President,
Sustainable Development, the World Bank

Forest Carbon Partnership Facility

Forests are a crucial component of the Earth’s web of life as we know it and must play a similar role in the reduction of greenhouse gas emissions. The Forest Carbon Partnership Facility (FCPF), which became operational in June 2008, is a global partnership focused on the reduction of emissions from deforestation and forest degradation, forest carbon stock conservation, sustainable management of forests, and enhancement of forest carbon stocks (commonly known as REDD-plus). REDD-plus is part of the international climate change agenda recognizing the role of tropical and subtropical forests in climate

change mitigation and the need for a large-scale system of incentives designed to reward countries for adopting policies and programs that reduce forest carbon emissions.

The FCPF has the dual objectives of building capacity for REDD-plus and testing a program of performance-based incentive payments in some pilot countries, on a relatively small scale, in order to set the stage for a much larger system of positive incentives and financing flows in the future. Two separate mechanisms have been set up to support the following objectives.

Readiness Mechanism

The FCPF's initial activities relate to technical assistance and capacity building for REDD-plus in countries in the tropics and subtropics across Africa, East Asia and the Pacific, South Asia, and Latin America and the Caribbean. Specifically, the FCPF is helping countries arrive at a credible estimate of their national forest carbon stocks and sources of forest emissions, work out their national reference scenarios for emissions from deforestation and forest degradation, adopt and complement national strategies for stemming this, and design national measurement, reporting, and verification systems for REDD-plus. These activities are referred to as "REDD-plus Readiness" and supported by the Readiness Fund of the FCPF. They create a framework for future REDD-plus investments or performance-based payments (e.g., under the Carbon Fund, as described below).

Carbon Finance Mechanism

It is expected that around five countries that will have made significant progress towards REDD-plus readiness will participate in the Carbon Finance Mechanism and receive financing from the Carbon Fund, through which the facility will implement and evaluate pilot incentive programs for REDD-plus based on a system of compensated reductions. The selected countries, having demonstrated ownership of REDD-plus, and showing progress in the design of an adequate monitoring capacity and the preparation of adopting credible reference scenarios and options for reducing emissions, will benefit from performance-based payments. These will be based on having verifiably reduced emissions from deforestation and/or forest degradation through their Emission Reductions Programs. The FCPF coordinates its work with other REDD-plus initiatives, including the UN-REDD Programme and the Forest Investment Program. Within the Carbon Finance Mechanism, payments will only be made to countries that achieve measurable and verifiable emission reductions.

Together, these two mechanisms seek to learn lessons from first-of-a-kind operations and help to develop a realistic and cost-effective large new instrument for tackling deforestation, to help safeguard the Earth's climate, reduce poverty, manage freshwater resources, and protect biodiversity. However, it is important to note that the Facility itself is not a panacea to "save the world's forests." Rather, the lessons generated from the FCPF's methodological, pilot implementation, and carbon finance experience will provide insights and knowledge for all entities interested in REDD-plus. The FCPF, thus, seeks to create an enabling environment and garner a body of knowledge and experiences that can facilitate development of a much larger global program of incentives for REDD-plus over the medium term.

The World Bank supports the FCPF by acting as Trustee for the Readiness Fund and the Carbon Fund; as Secretariat to the FCPF; by providing technical support to the REDD Country Participants; and by conducting due diligence on such matters as fiduciary policies and environmental and social safeguards.

In 2009, FCPF work began to gain traction as Guyana, Panama, and Indonesia became the first three countries to submit Readiness Preparation Proposals. The World Bank is conducting due diligence on these proposals with a view to entering into grant agreements of up to \$3.6 million to support their REDD-plus readiness efforts. Many more countries are already following in the footsteps of these first countries, including the Democratic Republic of Congo, Ghana, and Mexico.

REDD COUNTRY PARTICIPANTS

REDD Country Recipients.
The 37 tropical and sub-tropical developing countries thus far selected by the Participants Committee of the Forest Carbon Partnership Facility to be assisted in their efforts to reduce emissions from deforestation and degradation—called REDD—by providing value to standing forests.

Argentina	Gabon	Nicaragua
Bolivia	Ghana	Panama
Cambodia	Guatemala	Papua New Guinea
Cameroon	Guyana	Paraguay
Central African Rep.	Honduras	Peru
Chile	Indonesia	Suriname
Colombia	Kenya	Tanzania
Congo, D.R. of	Lao P.D.R.	Thailand
Congo, Rep. of	Liberia	Uganda
Costa Rica	Madagascar	Vanuatu
El Salvador	Mexico	Vietnam
Equatorial Guinea	Mozambique	
Ethiopia	Nepal	

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Forest Carbon Partnership Facility Governance

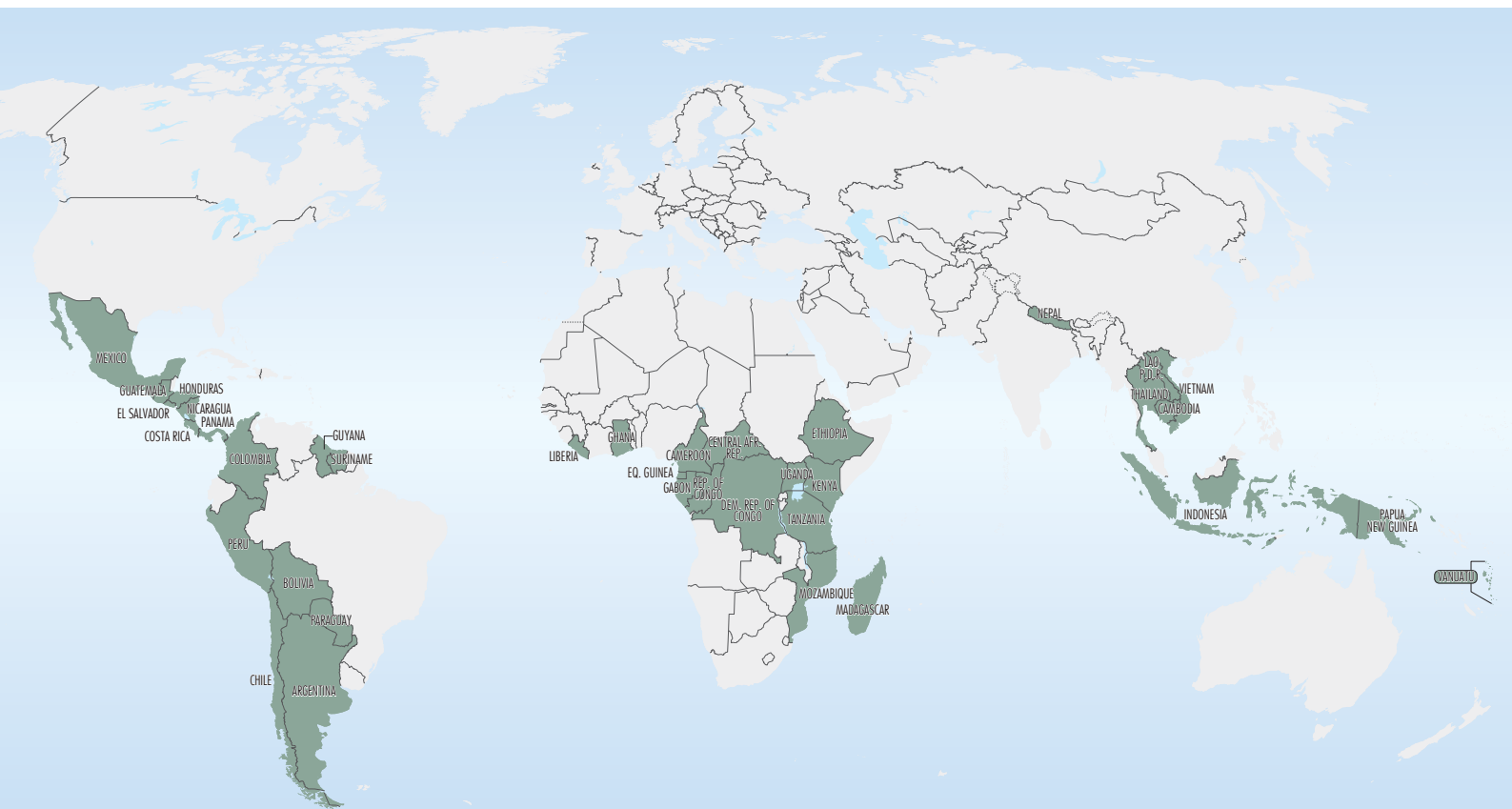
In 2009, the number of REDD Country Participants in the FCPF grew from a total of 25 to 37 (14 in Africa, 15 in Latin America and the Caribbean, and 8 in Asia and the Pacific). These are shown on the map below. In addition to the REDD Country Participants, there are 14 governments and organizations that have committed financial resources to the Readiness Fund or the Carbon Fund.

The FCPF governance structure includes a 28-member Participants' Committee elected by the 51 REDD countries and financial contributors and six Observers nominated by forest-dependent indigenous peoples and other forest dwellers, nongovernmental organizations, international organizations, the UN-REDD Programme, the UNFCCC Secretariat, and the private sector.

Forest Carbon Partnership Facility Governance

Agence Française de Développement
 European Commission
 Government of Australia
 Government of Denmark
 Government of Finland
 Government of Germany
 Government of Japan
 Government of Norway
 Government of Switzerland

Government of the Kingdom
 of the Netherlands
 Government of the United Kingdom
 (Department for International
 Development and Department of Energy
 and Climate Change)
 Government of the United States
 Kingdom of Spain
 The Nature Conservancy



The Way Forward





from projects to programs

Scaling Up Greenhouse Gas Mitigation: Innovation in Programmatic Approaches

The enormity of the challenge of a changing climate and the complexity of implementing potential solutions is becoming all the more apparent. Project-based greenhouse gas emission reduction intervention is not expected to be the sole solution. It is critical that lessons from project-based mechanisms contribute to the development of new approaches. The World Bank is playing a key role in developing new approaches to scaling up mitigation efforts, including the application and innovation in CDM Programme of Activities.

Large-scale greenhouse gas emission reduction programs are expected to be based on a framework of policy-linked and technology-based interventions defined by country-specific

circumstances and capacities. The Carbon Finance Unit has been actively exploring such opportunities, broadly categorized into four types of interventions, as shown in the box below. The programmatic approach provides a unique learning opportunity to understand operational challenges in scaling-up. The experience to date with developing large-scale interventions indicates an urgent need to build financial, legal, and implementation capacity of the program's coordinating entities and develop systems to enable participation of a large number and broad range of stakeholders. The methods to quantify greenhouse gas emissions can be customized to reflect the requirements for accuracy and precision of the calculations.

Example of technology specific intervention

- Government-led financial program to promote small hydro power plants

Example of greenhouse gas specific intervention

- Collaboration between the Montreal Protocol, Global Environment Facility, and environmental agencies on HFC reduction programs in the air-conditioning and refrigeration sectors

Example of industry specific intervention

- Reduction of gas flaring by the petroleum industry led by public-private partnerships

Example of system-wide intervention

- Municipalities leading and coordinating city-wide greenhouse gas mitigation activities, across waste, transport, and energy end-use sectors

Pioneers: Sector Specific Programs

The CDM programmatic approach, in early discussions, was perceived as primarily a tool for promoting CDM in less-developed regions: for widely dispersed micro-scale activities and for end-use energy efficiency or renewable energy activities. This perception is reflected in the fact that a majority of the Programme of Activities to date focus on distribution of cook-stoves, installation of efficient light-bulbs, and biogas plants. However, a new generation of programs has now begun to emerge. This includes deployment of energy efficient equipment technologies, such as industrial chillers and the commercial application of renewable energy technologies.

The Carbon Finance Unit has helped spearhead the development of more than 12 Programmes of Activities in as many countries

across all regions. The list of “firsts” is topped by the first Programme of Activities registered in Uganda. This nationwide program promotes municipal solid waste management. The list continues with the first solar home systems program (in Bangladesh), the first rural electrification linked compact fluorescent lighting program (in Senegal), the first program for improving efficiency in transmission and distribution systems (in Yemen and Punjab, India), the first deployment of high-efficiency transformers (across China), the first taxi replacement program (in Egypt), and the first forest management program (in Nicaragua). It is expected that emerging experience from these programs will provide insights to polish and strengthen the regulations governing CDM Programme of Activities.



Vision: Multisector City-wide Programs

“Urbanization and climate change are the defining phenomena of this century, and they are inextricably linked”

– A City-wide Approach to Carbon Finance, The World Bank

Urban areas account for 71 percent of greenhouse gas emissions and are among the areas witnessing the fastest growth across the developing world. Efforts at scaling up greenhouse gas mitigation need to involve and directly address the challenges and opportunities in urban areas. Cities provide a unique opportunity to combine rapid urbanization that helps raise standards of living and quality of life with greenhouse gas mitigation. Access to carbon finance at the city level, possibly in the form of a Programme of Activity coordinated by the city authority, would ensure the integration of carbon impact assessment in every decision.

A typical city authority is responsible for managing a host of urban services across five key sectors: energy, water, solid waste, transport, and forestry. Examples of individual projects under a “city-wide program” could include such interventions as the following: improved

efficiency in street lights, in water distribution, and waste treatment systems; increased access to public transport; and creation of urban forests.

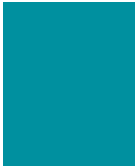
In 2010, the World Bank Carbon Finance Unit, in collaboration with the Urban Unit, published *A City-wide Approach to Carbon Finance*, in response to the need for cities to be able to take a more direct role in mitigating global greenhouse gas emissions. The publication outlines the generic steps to creating a city-wide program, including the following: the creation of a greenhouse gas inventory; establishment of a coordination office; identification of departments and agencies that would implement and monitor specific project interventions; and alternate methodologies for quantifying implementation, sector-specific interventions, and emission reductions.

Ultimately, the effort of the proposed approach is to provide flexibility for a city to devise its own program and choose to cover one or all five sectors mentioned above. Moreover, the interventions can be implemented at any pace, include innovative interventions and technologies as they become available, and use appropriate and acceptable new methods for calculating greenhouse gas emissions across the sectors.

Learning-by-Doing

Innovation, by definition, is an effort to discover the possibility of translating vision into action. The CDM is built on ‘learning-by-doing’, and that approach is likely to be the mantra of the programmatic approach (Programme of Activities). It is important for stakeholders to engage constructively to share their knowledge, new ideas, and emerging experiences. The urgent need for scaling-up and for acting now has been accepted—it is time to *act together* and *act innovatively*.





programmatic approaches to carbon finance

Carbon Partnership Facility

Expanding Infrastructure

Infrastructure and energy needs in developing countries are expanding rapidly with population and economic growth. Planning has already begun for the large, long-term investments that will be required to meet these needs. Developing countries face a major challenge in meeting energy demands and expanding infrastructure, while taking into account the impact on climate change. Decisions made over the next decade will put in place infrastructure that will last for much of this century.

Low-Carbon Growth Opportunities

There is an important opportunity for developing countries to transition toward low-carbon growth by incorporating climate-friendly approaches to energy and infrastructure development. A wide range of financing sources will be needed to promote low-carbon investments, including carbon finance. The CDM and JI have shown how carbon markets can attract investment for low-carbon development - for example, projects in renewable energy, waste management, and energy efficiency. Carbon markets can leverage underlying investment as much as nine-fold in some sectors, and can also be used to deliver social and environmental benefits.

Uncertain Carbon Markets

Following the timid outcome at Copenhagen, the UNFCCC, national, or regional regulatory frameworks do not yet include clear measures to tackle the broad range of emission sources at the scale and duration needed to reduce emissions globally at the necessary rate. There remains substantial uncertainty about the future after the first Kyoto commitment period ends in 2012. Moreover, the current CDM largely promotes a project-by-project approach, which is not conducive for supporting large, longer-term investments in energy and infrastructure.

What the Carbon Partnership Facility Does

The Carbon Partnership Facility (CPF) is one of the World Bank's major new carbon finance instruments. It is designed to develop and market emission reductions on a larger scale by providing carbon finance to investments focused on delivering post-2012 emission reduction assets. It consists of the Carbon Asset Development Fund, which supports the preparation of emission reduction programs (for example, through grants), and the CPF Carbon Fund, which will purchase the emission reductions generated by CPF programs. To scale up carbon finance beyond the project scale, the CPF will collaborate with governments and market participants on investment programs and sector-based interventions that are consistent with low-carbon economic growth and the sustainable development priorities of developing countries.

Linking Carbon Finance to World Bank Operations

The facility will draw on the World Bank's financial and knowledge resources to strategically integrate carbon finance with sustainable development plans by linking carbon finance to Bank operations. It will facilitate the implementation of low-carbon programs across an array of sectors and technologies - energy efficiency, waste management, energy generation and distribution, and transportation - in situations where governments need policy measures or investments.

Innovative Approaches to Carbon Finance

In the current Kyoto period, the CDM has operated largely on a project-by-project basis. The CPF will utilize scaled-up, programmatic approaches, such as the Programme of Activities, to enable carbon finance systematically to support partner country initiatives to move in the direction of low-carbon economies. It will also target areas that have not been reached effectively by CDM in the past, such as urban transport and energy efficiency, and will pilot city-wide carbon finance programs.

A Partnership of Buyers and Sellers of Carbon Credits

The Carbon Partnership Facility will bring together buyers from industrialized countries and developing country sellers of emission reductions, as well as developing and donor country governments, into a partnership with shared decision-making. As of the end of 2009, the CPF Buyer Participants included the Government of Spain and Endesa SA, and the Seller Participants were the Fonds D'Équipement Communal of Morocco, Caixa Econômica Federal of Brazil, and the Ministry of Industry and Trade of Vietnam. Donors to the Carbon Asset Development Fund included the Government of Norway and the European Commission.

Future Potential

The Carbon Partnership Facility has the potential to support developing country government initiatives to transform emissions-intensive sectors. This will require new policy frameworks supported by a range of financing instruments to catalyze investments in clean technologies. Carbon finance, through the CPF's current programmatic approach, and potentially through sector-based market mechanisms, can make an important contribution. The Carbon Partnership Facility aims to pave the way to that goal.





forests – part of the solution

Forest Carbon Partnership Facility (FCPF)

One of the most tangible results coming out of the Copenhagen talks at COP 15 was an emerging consensus around an increased role for developing countries’ forests in reducing carbon emissions from deforestation and forest degradation, and through the conservation of forests, the sustainable management of forests and the enhancement of forest carbon stocks. This set of activities is referred to as REDD-plus. The three-page draft text presented in Copenhagen and prepared by the Ad Hoc Working Group on Long-Term Cooperative Action on REDD-plus covers the scope of activities, reporting, and safeguards, including the need to respect the knowledge and rights of indigenous peoples, and the importance of addressing safeguards for REDD-plus activities.

Financial Commitment

In addition, developed countries announced significant financial commitments for REDD-plus. Six countries—Australia, France, Japan, Norway, the United Kingdom, and the United States—pledged \$3.5 billion at COP 15 for REDD-plus as part of the financial package for climate change for the period 2010-2012. Furthermore, significant new funding has since been pledged by Germany, the European Commission, Finland, and Slovenia, increasing the initial commitment to around \$4.6 billion. If these “fast start” pledges materialize, forests may make up 35 percent or more of climate finance to developing countries by 2012. The climate financing package covers all fields of climate action, so the position of REDD-plus is noteworthy and a sign that the role of tropical and subtropical forests in particular is a key element of a future climate change

mitigation regime. The advent of REDD-plus might herald a dramatic change in the makeup of global climate finance to date. Although deforestation is the second leading cause of greenhouse gas emissions, accounting for about 15 percent of emissions, forests currently constitute only about 1.5 percent of Clean Development Mechanism projects.



What the Forest Carbon Partnership Facility Does

The Forest Carbon Partnership Facility (FCPF) assists tropical and subtropical forest countries in developing the systems and policies for REDD-plus and is expected to provide some of them with performance-based payments for emission reductions. The FCPF contributes to demonstrating how REDD-plus can be applied at the country level, what is essentially a sectoral mitigation approach.

The FCPF will continue its work to strengthen the framework and processes for REDD-plus Readiness, helping countries get ready for future systems of financial incentives for REDD-plus. Using this framework, each participating country will develop an understanding of what it means to become ready for REDD-plus, in particular by developing reference scenarios of emissions, adopting a REDD-plus strategy of policies and investments, designing monitoring systems, and setting up REDD-plus national management arrangements in ways that include participation of the key national stakeholders.

The FCPF has created a forum for increased understanding and trust among countries on REDD-plus. REDD Country Participants and Donor Participants alike are exchanging knowledge and experiences in REDD-plus through valuable discussions, including those of the Readiness Preparation Proposals presented by Country Participants.

Moving forward, the FCPF expects to continue expanding its role as a provider of technical assistance and grants to country governments to develop strategies to promote forests as a mechanism of climate change mitigation. FCPF also plans to launch the Carbon Fund mechanism in 2010, to provide performance-based incentives for emission reductions generated by REDD-plus activities undertaken in the Readiness phase. Furthermore, the FCPF will enhance its coordination with other relevant initiatives, including the UN-REDD Programme and the Forest Investment Program. These three initiatives are preparing joint papers and means of cooperation among multilateral REDD-plus institutions, which might, for example, integrate relevant elements of meetings, create a joint platform for sharing policy discussions and country experiences and lessons.



Annex





Carbon Finance

AT THE WORLD BANK



Glossary

Assigned Amount Unit (AAU)

A Kyoto Protocol unit equal to one metric ton of carbon dioxide equivalent. Each Annex I Party issues AAUs up to the level of its assigned amount, established pursuant to Article 3, paragraphs 7 and 8, of the Kyoto Protocol. Assigned amount units may be exchanged through emissions trading.

Adaptation

Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities; for example, 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.

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.

Avoided Deforestation

Preventing deforestation by compensating countries for carbon dioxide reductions realized by maintaining their forests.

Bagasse

The fibrous residue left after crushing sugarcane.

Biomass Fuel

Fuels produced from dry organic matter or combustible oils produced by plants. These fuels are considered 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.

Cap-and-trade System

An approach used to control pollution by providing economic incentives for achieving reductions in the emissions of pollutants.

Carbon Asset

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

Carbon Credits

They provide a way to reduce greenhouse gas emissions on an industrial scale by capping total annual emissions and letting the market assign a monetary value to any shortfall through trading. Credits can be exchanged between businesses or bought and sold in international markets at the prevailing market price.

Carbon Finance

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

Carbon Finance Documents

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 (as in the case of the Prototype Carbon Fund) 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 emission reductions in an effort to meet their national limits on emissions, either under the Kyoto Protocol or under other agreements, such as that among member states of the European Union. The term comes from the fact that carbon dioxide is the predominant greenhouse gas and other gases are measured in units called carbon dioxide equivalent.

Carbon Sequestration

The process of removing carbon from the atmosphere and depositing it in a reservoir.

CDM Executive Board

A 10-member panel elected at Conference of the Parties 7, which supervises the CDM.

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. CERs are issued for emission reductions from CDM project activities. Two special types of CERs (temporary CERs and long-term CERs) are issued for emission reductions from afforestation and reforestation CDM projects.

Clean Development Mechanism (CDM)

A mechanism provided by Article 12 of the Kyoto Protocol, through which developed countries may finance greenhouse gas emission reduction projects in developing countries, and receive credits for doing so which they may apply toward meeting mandatory limits on their own emissions.

Clean Energy or Clean Technology

Although there appears to be no strict definition, clean energy is any energy that causes little or no harm to the environment. Wind energy, solar energy (in all its forms—photovoltaic, geothermal, solar thermal, etc.), hydrogen and fuel cells, wave and tidal energy and biomass are all examples of clean energy.

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 project.

Conference of the Parties (COP)

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

Countries with Economies in Transition

Those Central and Eastern European countries and former republics of the Soviet Union in transition from state-controlled to market economies.

Designated National Authority

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.

European Union Emissions Trading Scheme (EU ETS)

In January 2005, the European Union Emissions Trading Scheme commenced operation as the largest multi-country, multi-sector greenhouse gas emissions trading scheme worldwide. The scheme is based on Directive 2003/87/EC, which entered into force on October 25, 2003.

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.

Greenhouse Gases (GHGs)

The atmospheric gases responsible for causing global warming and climate change. Six gases are listed in Annex A of the Kyoto Protocol. The major greenhouse gases are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O). Less prevalent—but very powerful—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.

Hectare (ha)

A metric unit of measure equivalent to unit of area equal to 10,000 square meters, or 2.47 acres.

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 HCFC-22, used in air conditioning, refrigeration and as a feedstock.

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 World Bank in relation to the development and operation of CDM projects.

Intergovernmental Panel on Climate Change (IPCC)

Established in 1988 by the World Meteorological Organization and the UN Environment Program, the IPCC surveys worldwide scientific and technical literature and publishes assessment reports that are widely recognized as the most credible existing sources of information on climate change. The IPCC also works on methodologies and responds to specific requests from the Convention's subsidiary bodies. The IPCC is independent of the Convention.

International Development Association (IDA)

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

Joint Implementation (JI)

A mechanism under the Kyoto Protocol through which a developed country can receive "emission reduction units" when it helps to finance projects that reduce net greenhouse gas emissions in another developed country (in practice, the recipient state is likely to be a country with an "economy in transition"). An Annex I Party must meet specific eligibility requirements to participate in Joint Implementation.

Kyoto Protocol

An international agreement standing on its own, and requiring separate ratification by governments, but linked to the UNFCCC. The Kyoto Protocol, among other things, sets binding targets for the reduction of greenhouse gas emissions by industrialized countries. It entered into force on February 16, 2005.

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

A greenhouse gas inventory sector that covers emissions and removal of greenhouse gases resulting from direct human-induced land use, land-use change and forestry activities. 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)

The world's poorest countries. 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.

Letter of Intent

Document required prior to negotiating the terms of the emission reductions purchase agreement.

Mitigation

In the context of climate change, a human intervention to reduce the sources or enhance the sinks of greenhouse gases. Examples include 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.

Programme of Activities

Emission reductions that are achieved by multiple verifiable activities executed over time as a direct response to a government measure or private sector initiative. Programmes typically result in a multitude of greenhouse gas-reducing activities in multiple sites over the life of the programme.

Project Idea Note

A document prepared by a project proponent regarding a project proposed for the World Bank's carbon funds or facilities. The note is set forth in a format provided by the Carbon Finance Unit and available on its website www.carbonfinance.org.

Reforestation

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

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 (tCO₂e)

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

Tranche

The Spanish Carbon Fund and the BioCarbon Fund consist of tranches. For example, the BioCarbon Fund's first tranche supports a wide variety of land use, land-use change and forestry projects, some providing emission reductions potentially eligible for credit under the Kyoto Protocol, and some that explore options for carbon credits that achieve them by activities other than afforestation and reforestation and therefore not eligible for Kyoto credits in the first commitment period. Depending on the interests of contributors, various additional tranches may be opened, each one with a specific focus, which could be sectoral or geographic, e.g., arid or semi-arid land management, or marine, coastal and aquatic ecosystem management. BioCF Tranche 2 focuses on forests and agro-ecosystems.

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 man-made 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.

Voluntary Market

The unregulated market which allows individuals, companies and organizations to purchase emission reduction credits to offset the emissions they produce.

World Bank Board of Executive Directors

The IBRD (World Bank) Board is composed of 24 Executive Directors. The Executive Directors of the IBRD serve ex-officio as Directors of IDA and the IFC provided that the country that appoints them or any one of the countries that elects them, is also a member of IDA.

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