



2010 annual report

carbon finance for sustainable development



carbon finance

for sustainable development



Carbon Finance
AT THE WORLD BANK



carbon finance
for sustainable development

2010 ANNUAL REPORT
10

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Joelle Chassard
Manager, Carbon Finance Unit
The World Bank

From the Carbon Finance Unit

2010 was a tumultuous year for carbon finance but the year ended on a positive note: at the Conference of the Parties in Cancun negotiators put in place important building blocks for a post-2012 climate agreement. Progress was made on reforming the CDM, such as through changes to the registration process, standardized baselines and the additionality concept, in an effort to facilitate access to the CDM of low-income countries. We are heartened to see countries take the climate change challenge seriously, pledge funds, extend their commitments beyond 2012 and start to recognize the full mitigation and adaptation potential of forests. We also see innovative proposals and commitments by developing countries and national initiatives take shape.

The Carbon Finance Unit of the World Bank has continued to focus on the commitments made to its ten Kyoto Funds. Together with fund participants, project entities, the UNFCCC and auditors, we are working very hard to ensure that the projects in our portfolio deliver emission reductions. This is not an easy task but we are happy to see projects, even in difficult sectors and using cutting-edge technologies, come to fruition.

At the same time, our carbon finance team is looking to the future to develop the potential of the carbon market further. A number of sectors and countries need particular attention—including least developed countries and forested nations which to date have not seen the full benefits of the mechanisms. The Forest Carbon Partnership Facility is entering a challenging phase where discussions are being translated into plans, and plans are being converted into national REDD+ strategies. It

requires stakeholder consultations and participation, and is new and challenging to many participants. However, seeing how REDD+ has become an increasingly important part of the climate negotiations, we are thankful that the Partnership started these discussions in 2008 and that it has contributed to helping forested nations fully engage in the international dialogue on REDD+.

Building on the lessons we have learned from working in the poorest countries and with rural communities, we plan to expand carbon finance in areas such as soil conservation and work on standardized baselines. We are also exploring innovative financial instruments to bridge the capital financing gap by front-loading future carbon revenues. While the first phase of the Kyoto Protocol has focused on project-based mitigation, the future must include new approaches, whereby the cost of implementing emission reductions decreases, and actual mitigation increases dramatically. One of our facilities, that became operational in 2010—the Carbon Partnership Facility—is applying the CDM Programme of Activities approach to increase the scale of mitigation activities, including through the first city-wide carbon finance program.

At the end of 2010, we launched the Partnership for Market Readiness, an initiative that is different from our previous activities in that it is not designed to purchase emission reductions, but rather seeks to provide funding and technical assistance to developing countries for the innovation of market-based instruments for emission reductions. The Partnership brings together developed and developing countries as well as experts and stakeholders, to provide a platform for discussions on market-based instruments and piloting.

We have the strong foundation of a decade's body of work on which to build. We are confident that our commitment, in partnership with others, will help in the battle to reduce the effects of climate change.



PCF

In early 2010, the Prototype Carbon Fund (PCF) successfully completed its first transfer of Kyoto assets from its Joint Implementation (JI) projects to Participants. At the close of 2010, nearly all projects in the PCF portfolio had generated Emission Reductions (ERs), and a large share of the PCF's Clean Development Mechanism (CDM) projects had successfully completed the CDM project cycle and issued Certified Emission Reductions (CERs).

Fund Capital	\$219.8 million
Date Operational	April 2000
Participants	22
Private Capital Invested	58%



CDCF

The Community Development Carbon Fund (CDCF) now has 29 Emission Reductions Purchase Agreements (ERPAs) with a value of \$83 million. Fifty-five 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 (IDA) and the United Nations' Least Developed Country designation.

Fund Capital	\$128.6 million*
Date Operational	March 2003
Participants	25
Private Capital Invested	45%

* Includes \$5 million total participation of the Danish Carbon Fund.



BioCF

The BioCarbon Fund (BioCF) has signed 22 contracts to purchase ERs from afforestation and reforestation activities, seven of which have been registered under the Kyoto Protocol's CDM up to the end of 2010, with the remainder in advanced stages of preparation. In addition, the BioCF is innovating with REDD+ and sustainable land management projects currently excluded from the Kyoto Protocol.

TRANCHE 1	
Fund Capital	\$53.8 million
Date Operational	May 2004
Participants	14
Private Capital Invested	51%

TRANCHE 2	
Fund Capital	\$36.6 million
Date Operational	March 2007
Participants	7
Private Capital Invested	44%



NCDMF

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

Fund Capital	*
Date Operational	May 2002
Participants	1
Private Capital Invested	0

* Not disclosed.



NECF

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

Fund Capital	*
Date Operational	August 2004
Participants	1
Private Capital Invested	0

* Not disclosed.



Italian Carbon Fund

With a capitalization of \$155.6 million, the Italian Carbon Fund (ICF) has signed seven ERPAs totaling \$131.6 million and 15.5 million tonnes of carbon dioxide equivalent (tCO₂e). The portfolio includes projects operating under the Kyoto Protocol's CDM and JI mechanisms.

Fund Capital	\$155.6 million
Date Operational	March 2004
Participants	7
Private Capital Invested	30%



Danish Carbon Fund

The Danish Carbon Fund (DCF) consists of nine ERPA's with a total carbon reduction volume of 6.1 million tCO₂e. At the end of 2010, the Fund had three additional projects in its pipeline, on track for ERPA signature in 2011.

Fund Capital	€90 million
Date Operational	January 2005
Participants	5
Private Capital Invested	78%



Spanish Carbon Fund

Divided into two tranches since 2008, the Spanish Carbon Fund Tranche 1 (SCF T1) consists of 19 signed ERPA's. With total commitments of €110.0 million, the Fund has invested 50 percent of its total capital pledged. In addition to acquiring project-based ERs, Tranche 2 (SCF T2) participates in Green Investment Schemes (GIS). SCF T2 had invested almost \$20 million in the purchase of CERs and Assigned Amount Units (AAUs) as of December 2010.

TRANCHE 1	
Fund Capital	€220 million
Date Operational	March 2005
Participants	12
Private Capital Invested	23%

TRANCHE 2	
Fund Capital	€70 million
Date Operational	April 2008
Participants	1
Private Capital Invested	0%



Umbrella Carbon Facility

Consisting of 11 private sector participants plus five carbon funds administered by the World Bank, the Umbrella Carbon Facility (UCF) holds a capital of €799.1 million, 78 percent of which represents private investment. In 2010, the facility delivered 13.13 million tCO₂e in CERs, bringing the total amount of emissions delivered since inception up to 61.58 million tCO₂e in CERs. Tranche 2 of the UCF was open to participation in 2010 and fully capitalized in 2011.

Fund Capital	€799.1 million*
Date Operational	August 2006
Participants	16
Private Capital Invested	78%

* Includes €224.54 million total participation of carbon funds administered by the World Bank.



Carbon Fund for Europe

With total capitalization of €50 million, the Carbon Fund for Europe (CFE) has signed seven ERPA's with a total amount of 3.1 million tCO₂e. The fund currently has two additional projects in its pipeline.

Fund Capital	€50 million
Date Operational	March 2007
Participants	5
Private Capital Invested	20%



Forest Carbon Partnership Facility

Operational since June 2008, the capital for the Forest Carbon Partnership Facility (FCPF) currently stands at \$100 million. In 2010, 10 REDD Countries had submitted formal 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	\$100 million
Date Operational	June 2008
Participants	52*
Private Capital Invested	10%

* 15 financial contributors and 37 REDD Country Participants.



Carbon Partnership Facility

The First Tranche of the Carbon Partnership Facility (CPF) became operational on May 15, 2010 and by end-2010 had €140 million in commitments and an additional €11 million in contributions to the Carbon Asset Development Fund.

Fund Capital	€140 million
Date Operational	May 2010
Participants	9*
Private Capital Invested	25%

* 4 Buyer Participants and 5 Seller Participants.

A woman wearing a patterned headwrap and a striped shawl is working in a field. She has a large woven basket on her back and is tending to plants in the foreground. The background is a lush green field with trees.

Carbon Finance at the World Bank





Inger Andersen

Vice President, Sustainable Development
The World Bank



The World Bank has remained steadfast in helping countries pursue their climate change mitigation and adaptation efforts, despite the lack of clarity on a climate regime beyond 2012 and a global economic slowdown. From our perspective, climate change and development are unequivocally linked. Our work tackles these global issues from multiple angles, covering a broad spectrum of interventions that promote sustainable development.

The Carbon Finance Unit at the World Bank approaches sustainable development from a unique perspective, facilitating climate change mitigation action through carbon markets. For over 10 years, the Carbon Finance Unit has been a global leader and innovator in this market space. It has worked through triumphs and challenges, emerging as a dedicated team and network with a wealth of knowledge and experience. The World Bank supports the development of methodologies and ground-breaking financial mechanisms linked to carbon finance. It is also committed to creating an environment that supports discussions that help accelerate work on climate change mitigation.

2010 was an eventful year for the carbon finance market. We have observed the consequence of the global economic slowdown, specifically on the carbon market which remained flat. However, we also witnessed encouraging signals at the United Nations Framework Convention on Climate Change Conference of the Parties in Cancun.

We have started to build on the commitments coming out of Cancun and will continue to respond to the needs of our partners. This includes fulfilling our commitments under the World Bank-managed Carbon Finance Unit's Kyoto funds and it also means developing new facilities and financial instruments that will bridge the gap between the Kyoto Protocol and future mitigation regimes.

In this year's Annual Report, we report on the status of carbon finance activities at the World Bank and illustrate some key themes of our work such as the challenges associated with developing innovative carbon finance solutions that focus on low-income countries and scaling up mitigation. We are engaged with governments, international organizations, indigenous peoples, civil society and the private sector to build capacity in these countries, especially in sectors such as forests and agriculture, to expand the benefits of the Clean Development Mechanism.

The World Bank is committed to supporting climate mitigation through market mechanisms and preparing for the next generation of sustainable development activities. We take our role as a pioneer in this space very seriously. With our network of carbon finance actors, we must continue to work towards deepening carbon markets, achieving scaled up emission reductions, and supporting new sectors in an effort to mitigate the effects of climate change.

Innovating Climate Finance



The Big Picture: Carbon Finance and Climate Finance

Financing and implementing low-carbon investment is often challenging, especially in Least Developed Countries (LDCs). Although the sale of emission reductions (ERs) provides revenues once the project is operational, carbon finance does little to provide up-front financing or other early-stage implementation support. As a result of implementation and financing hurdles, a number of good projects fail to materialize.

The World Bank is leveraging its multi-disciplinary expertise to tackle this problem. The Carbon Finance Unit has taken a number of steps to help address implementation constraints, such as putting in place screening and risk management tools, as well as mechanisms that facilitate or (in a few cases) provide financing. The climate finance challenge is a big-picture issue requiring innovative solutions, and the Funds and Facilities at the World Bank are actively involved in developing these solutions.

The Climate Finance Challenge

Reducing emissions costs money. Stabilizing GHG concentrations below climatically dangerous levels is estimated to require a low-carbon investment in developing countries of \$139-175 billion per year by 2030. In an ideal world, a global carbon market would channel financing to investments that would reduce emissions at least cost. In reality, the investment is difficult to bring to fruition, as evidenced by the large volumes of potential ERs from unrealized investments.

A range of barriers hamper low-carbon investment.

There are significant risks related to the carbon market and its structure, including market fragmentation (i.e., the variability in valuation of ERs depending on where, how, and when they were created), lack of predictability of future carbon regimes, and uniformly high preparation costs. Low-carbon projects also tend to experience technology and location risks, particularly related to unconventional technologies, the local business environment, and politics. Taken together, these market failures hinder investment from flowing to some of the least-cost sources. Another hurdle is that, in general, low-carbon investments have difficulty securing adequate, affordable, and sufficiently long-term financing. The possibility of receiving carbon revenues cannot mobilize commercial financing unless the revenues are relatively certain and free from risks related to possible changes in carbon regulations.

Financing increasingly will need to go to areas that have historically attracted limited investment funding.

European markets increasingly turn to LDCs for sourcing CERs. However, these countries present a number of barriers to investment, including typically small market size, weak business environments, high levels of perceived risk, relatively low competitiveness, and dependence on foreign direct investment for a large proportion of their capital formation. Many of the sectors under exploration for a post-2012 market, notably in the REDD+ space, use new methodologies or may not be amenable to conventional financing. Organizing and financing carbon projects in areas such as low-tillage agriculture and sustainable land management will require the development of new models for program implementation and financing.

Working Towards Solutions

We have addressed project non-performance risk through screening and risk management. Tools were put in place to screen out, at an early stage, projects that clearly did not have the necessary financing and implementation capacity. Standard provisions were included in ERPAs that enabled buyers to reduce purchase commitments if certain project milestones were not met, allowing funds to be released and re-committed elsewhere. To promote financing, ERPAs were structured to be “bankable,” creating a cash flow against which financial institutions could lend. In limited cases, Carbon Funds and Facilities provided a small share of the contract up front (subject to adequate security, typically in the form of an irrevocable letter of credit from a highly rated bank).

We are taking a proactive approach to supporting project financing and implementation by linking our work

with broader World Bank Group interventions. At the program level, the Carbon Partnership Facility (CPF) is limiting its pipeline to initiatives supported through World Bank Group operations. In this way, the full array of World Bank support—including project development, capacity building, institutional development, safeguards, and financing—is available to the programs from which CPF develops and purchases carbon assets. We hope to dovetail with the steadily increasing volumes of funding for low-carbon investments, such as from the Climate Investment Funds and the Global Environment Facility. The ability to align carbon finance with World Bank Group financed operations reduces preparation costs and improves the likelihood of successful project implementation. We are also exploring ways to bring carbon finance to the early stages of project development.



Exchanging Experiences



CARBON EXPO 2010:
Putting the Carbon Market Front and Center
CARBON EXPO 2010 took place in Cologne, Germany on May 26-28, 2010. Around 3,000 participants from 110 countries and 240 exhibitors attended the carbon market's leading global trade fair and conference for emissions trading, carbon abatement solutions, and new mitigation technologies, organized by the World Bank, the International Emissions Trading Association (IETA), and Koelnmesse.

CARBON EXPO gave attendees an opportunity to hear the latest news on the carbon market and form important partnerships, a crucial element in tackling climate change. These include partnerships between public and private actors,

developed and developing countries, and players involved in the carbon market on local, national, regional, and global levels.

An important activity every year at CARBON EXPO is the release of the World Bank's *State and Trends of the Carbon Market* report. In 2010, *State and Trends* again provided an overview of economic conditions and developments in the global carbon market. In addition, the World Bank launched two other major publications: the Carbon Finance Unit's *Annual Report* and a study chronicling the World Bank's first decade in carbon finance, *10 Years of Experience in Carbon Finance – Insights from working with the Kyoto mechanisms*.

A number of ceremonies also took place during the event with World Bank partners, celebrating various milestones in the life of carbon project development. For example, two Assigned Amount Unit Purchase Agreements (AAU PAs) under a Green Investment Scheme (GIS) were signed between the World Bank, as trustee of the Carbon Fund for Europe and the Spanish Carbon Fund, and the Ministry of Environment of the Czech Republic. They are the first AAU transactions for the World Bank's carbon funds and the first GIS supported by the World Bank. The Carbon Partnership Facility, focused on large-scale emission reduction (ER) programs, celebrated the signing of a Participation Agreement with His Excellency Eng. Omar Ma'ani, the Mayor of Amman, Jordan for the Amman Green Growth Program.

Carbon Projects in Africa: News from the 2010 Africa Carbon Forum

The Africa Carbon Forum took place in Nairobi, Kenya on March

3-5, 2010. It was the second of its kind and a great success, with a large number of participants, well-attended seminars, and engaged audiences. Over a thousand people attended from across the region, representing the public sector, private sector, and civil society.

The World Bank participated actively with speakers representing the Carbon Finance Unit, the Africa Region, and the World Bank Institute (one of the event organizers). While the topics covered in the sessions were varied, ranging from forestry to Programmes of Activities, there was one underlying central theme. Delegates wanted to understand the obstacles to implementing carbon projects in Africa and how to overcome them. Discussions revolved around the lack of financing, experience, and technical skills, as well as the Clean Development Mechanism rules, regarded as unnecessarily complex considering the reality of low-emitting African nations. To date, these issues have resulted in a low number of African projects: only 2 percent of CDM projects registered by the United Nations Framework Convention on Climate Change (UNFCCC) are located in Africa.

However, there was a sense of optimism and accomplishment. Project developers enthusiastically shared success stories with audiences. At a press conference, World Vision and the World Bank presented the Ethiopian Humbo Regeneration Project, the first large-scale CDM forestry project registered with the UNFCCC in Africa.

Interviews with a number of participants emphasized the unique challenges Africa faces, particularly the fact that the continent's relatively low levels of greenhouse gas (GHG) emissions have hindered large numbers of CDM projects. Project developers have understandably concentrated on other regions with "low-hanging fruit" before going to Africa. The late start has resulted in a general lack of exposure to discussions regarding GHG emission reductions and project experience. There are numerous challenges hampering the development of CDM projects: the lack of private sector involvement, the

reluctance of most African governments to take a strong initiative, and the general unwillingness of local banks to provide financing because they are not familiar with evaluating the risk of carbon projects. Another issue mentioned by participants was the general "brain-drain" from the public to the private sector. Technical assistance tended to be concentrated on one or two government officials per country, who leave for better opportunities in the private sector or international organizations once they become experts in the field.

The next Africa Carbon Forum will take place in Marrakesh on July 4-6, 2011. By then, many in the audience hope to have addressed the particular challenges they were struggling with, including identifying financing, lack of technical knowledge, and challenges such as land titling and monitoring.



Navigating the Carbon Market



State and Trends of the Carbon Market

After 5 consecutive years of robust growth, the total value of the global carbon market remained stable in 2010 at about \$142 billion. The value of the primary CDM market fell by double digits for the third year in a row, ending lower than its 2005 level, the first year of the Kyoto Protocol. The AAU market, which grew in 2009 with strong sovereign support, also shrank in 2010. Finally, the market segment that had grown most in 2009—allowances under the US Regional Greenhouse Gas Initiative (RGGI)—saw that year's gains erased in 2010.

As these segments declined, the dominance of the European Union Allowance (EUA) market became more pronounced than ever. EUAs accounted for 85 percent of global carbon market value in 2010. This share, primarily driven by the EU Emissions Trading Scheme (EU ETS), rises to 97 percent if the value of the *secondary* CDM transactions is also taken into account, dwarfing all other segments of the market.

What was particularly interesting in 2010 was the role played by politics and regulation in the carbon market. Although it was a flat year from the perspective of transactions, both positive developments and challenges affected the market. The successful outcomes of negotiations in Cancun

resulted in a slightly positive market sentiment. However, this was partially offset by various disruptions in the EU ETS market shortly thereafter. Similarly, optimistic news from California was delivered alongside bearish news at the national level in the United States, Japan, and Australia. While nationwide regulatory environments remain uncertain, low-carbon initiatives in developing economies have gained increasing support and offer the potential to collectively overcome the international regulatory gap. These initiatives signal that, one way or another, solutions that address the climate challenge will emerge.

Despite signs of economic recovery and rising greenhouse gas emissions, the overall residual demand for Kyoto assets over the next 2 years remains low, at about 136 million tCO₂e, virtually all from European governments.

Moving forward, regulation and predictability will support the full recovery of market confidence in the viability of carbon markets as an effective tool for low-carbon growth.



State and Trends of the Carbon Market Report, 2011

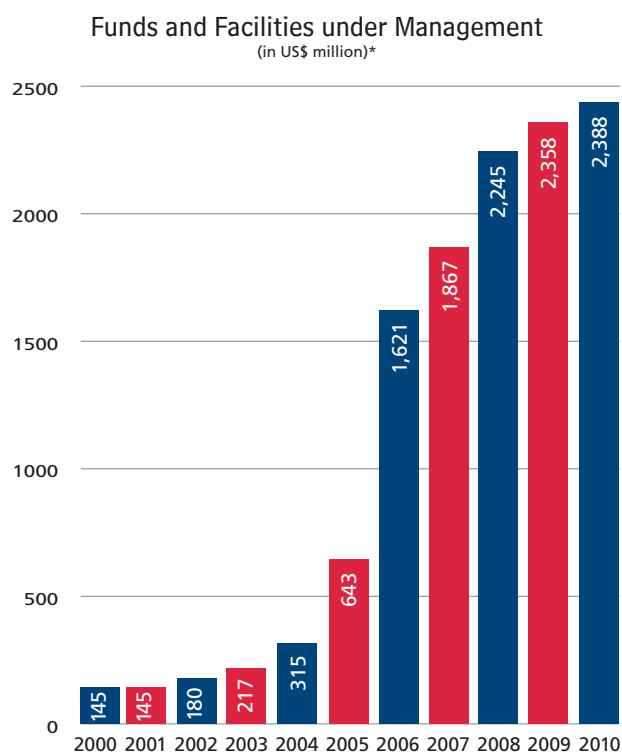
The *State and Trends of the Carbon Market* report is produced each year by the Carbon Finance Unit of the World Bank. The 2011 report, released at CARBON EXPO 2011 in Barcelona, describes the carbon markets in 2010. It will be available in June 2011 in print and online at www.carbonfinance.org.

Financial Performance of the World Bank's Carbon Finance Unit

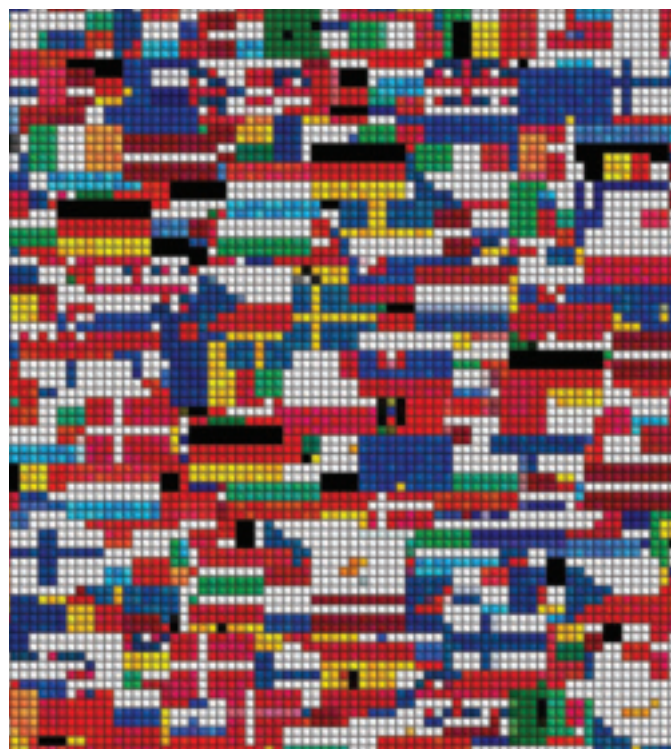
The capital managed by the World Bank's Carbon Finance Unit (CFU) continues to expand as the CFU broadens its initiatives to include activities beyond the end of the Kyoto Protocol's first commitment period in 2012. In 2010, the CFU launched the second tranche of its Umbrella Carbon Facility (UCFT2), capitalized at €105 million. It will purchase ERs generated between 2013 and 2018. The UCFT2 has 17 projects under consideration from a variety of sectors, including solid waste, wind, efficient lighting, and transport. Together, they have the potential to reduce emissions of carbon dioxide and other GHGs by up to 26 million tonnes over the purchasing period.

Also in 2010, the CFU launched the Partnership for Market Readiness (PMR), a new partnership among policy makers from government agencies and other relevant stakeholders. The Partnership will help countries build their capacity for using market instruments to scale up mitigation efforts, such as domestic trading schemes and new mechanisms. The PMR is aiming for a capitalization of \$100 million, and became operational in April 2011.

Looking ahead, the CFU will continue to innovate and pioneer carbon funds and facilities that fill identified gaps in the carbon market.



* Funds and facilities under management, excluding the NCDMF, NECF and capital invested by Internal Carbon Funds, were converted to US\$ million using the prevailing exchange rate at the conclusion of the given year. In 2010, funds and facilities under management grew by €45.4 million and US\$80.5 million.



Working in our Regions



Africa

“While a new architecture is to be defined under the international post-2012 climate regime, Africa has already shown its strong determination to make carbon finance a transformational tool that supports low-carbon growth on the continent.”

Obiageli Ezekwesili, Regional Vice President, Africa Region

Africa has continuously expressed a strong interest in benefitting from Carbon Finance instruments, either through the CDM or through the voluntary markets. Last year saw many carbon project successes in the region, such as the BioCarbon Fund’s Humbo Assisted Natural Regeneration project in Ethiopia, the Ibi Bateke Agroforestry project in the Democratic Republic of Congo, and the Biodiversity Corridor Conservation REDD+ project in Madagascar. These projects also demonstrated poverty alleviation, social gains, and biodiversity preservation.

There were also important developments for the future of carbon finance in the Africa region, including the signing of unprecedented contracts to purchase carbon credits and the dissemination of knowledge between countries. In Kenya, the first project to purchase ERs from carbon sequestered in soils was finalized (see Kenya: Sustainable Agricultural Project, page 19). Also in Kenya, the Olkaria Geothermal project was registered, pioneering geothermal energy projects benefitting from the CDM and other carbon finance mechanisms.

Geothermal energy holds great potential in Africa, as it reduces the need for costly fossil fuel imports and supplements decreased hydroelectricity production caused by droughts. In Uganda, the first PoA in Africa was signed for the Municipal Waste Compost Program in Kampala, with the Community Development Carbon Fund (CDCF) purchasing the ensuing carbon credits. South-south exchanges were encouraged, and solid waste management officials in both Uganda and Kenya benefited from on-site training sessions hosted by sponsors of the Mariannahill/La Mercy Landfill Gas to Energy project in Durban, South Africa.

Despite great successes, events in 2010 served as a reminder that there is still work to be done. The high level of expectations attached to carbon finance in Africa has not yet been matched with an equivalent level of achievement, particularly with regards to delivery of CERs and their associated revenues. The methodologies and procedures under the CDM have proved inadequate for the specific challenges faced in Africa. Out of the 17 ERPAs signed in Africa to date, only seven projects have been registered under the CDM. Most strikingly, only two projects have received payments for Verified ERs. African countries have given strong signals that any future carbon finance regime must respond to the particular development needs of the continent, calling upon the international community to think beyond the current CDM structure and open carbon markets to LDCs. The CFU is already pioneering the next generation of carbon finance to better serve these needs (see *The Way Forward*, page 78).

South Asia

“During the last decade, the South Asia region has played a catalytic role in climate change mitigation and sustainable development. We have supported projects that build the capacity of our countries, allowing us to access the Clean Development Mechanism and benefit from emissions markets, such as the European carbon market. As we move forward to the post-2012 era, the region will be putting greater emphasis on programs that help South Asian countries scale up carbon finance in support of low-carbon growth, particularly through public and private sector partnerships.”

Isabel Guerrero, Regional Vice President, South Asia Region

As the South Asia region strives to meet its development goals, there is an enormous risk of growth in GHG emissions. For example, over 500 million people in South Asia have no access to electricity. The methods used to meet future demands for energy and economic prosperity will have far-reaching consequences for global GHG emissions. In this respect, an important objective of the World Bank’s South Asia Region is to support development by addressing climate change-related risks and harnessing opportunities that promote

low-carbon growth. The World Bank continues to play a key role in facilitating South Asia’s transition to a low-carbon economy while promoting climate-resilient development.

Relative to 2009, the level of carbon market activity declined somewhat in 2010—with only two new ERPAs signed and two more under negotiation. Delays in validation and registration of CDM projects, due to the limited availability of Designated Operational Entities in the region, continued to plague the CDM portfolio. Despite these setbacks, the South Asia Carbon Finance Portfolio remains strong: it has 21 carbon mitigation operations in four countries (Bangladesh, India, Nepal, and Pakistan), and three new projects were added to the regional pipeline in 2010 (Bangladesh Brick Kiln, Bangladesh National Solar, and India National Ganga River Basin Authority Project). The ERPAs that have been signed or are on track to be signed before 2012 amount to 10.7 million tCO₂e.



East Asia and Pacific

“Carbon Finance has helped our clients in the East Asia and Pacific region tremendously, supporting the adoption of new technologies that reduce the carbon intensity of their economies and respond to climate change challenges. Following the success in Cancun, we must continue to help our clients prepare for a future beyond the Kyoto Protocol and 2012. We must keep inventing ways to use both carbon finance and other financing tools to raise and invest the billions of dollars needed to significantly lower greenhouse gas emissions. We continue to strive to ensure that our clients have full access to the emerging architecture of market-based climate financing.”

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

The World Bank’s work in carbon finance has grown rapidly in the East Asia and Pacific region, driven by high population and GDP growth rates, rapid technology uptake, and the region’s ability to secure project financing under the CDM. Since the inception of the World Bank’s carbon funds, the East Asia and Pacific region has continuously contributed a number of CDM projects. Many of these projects are in China, and there are also significant and innovative project portfolios in Indonesia, Malaysia, the Philippines, Thailand, and Vietnam.

The East Asia Region is now piloting a combination of carbon finance and new lending instruments, such as the Clean Technology Fund. It is deeply involved in exploring the latest initiatives in carbon finance, such as scaling up through PoAs and protecting forests through the Forest Carbon Partnership Facility. Furthermore, through the Partnership for Market Readiness, the Region is working with client countries to define new market-based mitigation instruments, provide advice on economic and fiscal policy, and implement new financing strategies that target climate change and GHG mitigation. In addition, the East Asia and Pacific Region is working with WBI to provide capacity building, dedicated training, and South-South Experience Exchanges drawing from China’s success with CDM and PoAs.

In 2010, three ERPAs were signed in the region: the Manila Bus Dispatch and Tracking System project, the Yingkou Economic Development Zone Heating project, and the Daishiqiao District Heating project. These new ERPAs will reduce GHG emissions by the equivalent of 1,592 kilotonnes of carbon dioxide. At the end of the year, the region had projects in the pipeline in China, Indonesia, Malaysia, Philippines, Thailand, and Vietnam.



Europe and Central Asia

“The World Bank is focused on helping countries in the Europe and Central Asia region promote sustainable growth through climate action. In fact, we have made Climate Action one of the three pillars of the World Bank’s Europe and Central Asia regional strategy. There is ample opportunity and need for action on both adaptation and mitigation. Accordingly, we have initiated a pilot program on adaptation, and we are working with our client countries to make significant improvements in energy efficiency. To support these efforts, the World Bank has been able to offer a wide range of instruments, from analytical work and investment lending, to new forms of climate finance. Carbon finance is an important and innovative instrument we will continue to use when implementing our strategy and helping our countries grow in a sustainable manner.”

Philippe Le Houverou, Regional Vice President, Europe and Central Asia Region

In 2010, the World Bank signed two Assigned Amount Units Purchase Agreements for a Green Investment Scheme (GIS) in the Czech Republic. These Purchase Agreements were the first of their kind for the World Bank’s Carbon Funds. Revenue from these transactions will be transformed into grants for energy efficiency measures and renewable heat production in residential buildings throughout the Czech Republic. Also in 2010, Russia approved its first Joint Implementation (JI) projects, one of which was supported by the Spanish Carbon Fund (the ERPA was signed 2 years earlier).

The World Bank has implemented carbon finance projects in 11 countries across Eastern Europe and Central Asia. Its work has focused on a variety of sectors, including energy efficiency in district heating, efficient steel and coke production, biomass and geothermal heat and electricity production, wind and hydropower generation, landfill gas and petroleum gas capture, and carbon sequestration through land use and forestry. Moving forward, the region is working on a number of projects designed to promote energy efficiency in public buildings and industry.



Middle East and North Africa

“With three Programmes of Activities in preparation, the Middle East and North Africa region has been at the forefront of the effort to scale up carbon finance in a post-2012 setting. One of these programs, developed by the Greater Amman Municipality with the support of the World Bank, boasts a novel approach that targets the reduction of greenhouse gas emissions from entire cities. This is of particular interest for a region expecting the urban population to grow 65 percent by 2030.”

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

In the Middle East and North Africa region, the World Bank currently holds a portfolio of 12 carbon finance projects in Egypt, Jordan, Morocco, Tunisia, and Yemen. The projects cover a broad range of sectors, including renewable energy generation, energy distribution, methane avoidance, and transport. When faced with the challenge of an uncertain international climate regime post-2012, the region responded quickly with the preparation of three PoAs under the Carbon Partnership Facility. As a result, the region is positioned to have a strong portfolio after 2012.

One of the PoAs under development addresses a new climate change challenge: cities are the fastest growing source of global GHG emissions. In May 2010, the Carbon Partnership Facility and the Greater Amman Municipality signed a Seller Participation Agreement for the Amman Green Growth Program, representing the first city-wide PoA in the world (see Jordan: Amman Green Growth Program, page 76).



Latin America and the Caribbean

“Latin America and the Caribbean continue to be on the forefront of climate mitigation. We are seeing some very encouraging developments, especially in energy efficiency and renewable energy. The UN climate negotiations in Cancun put the spotlight on the climate challenges facing the region, but also highlighted the considerable efforts that are being undertaken. Under the skillful stewardship of Mexico, important commitments were made that laid the foundation for a successful conference in South Africa in 2011.”

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

Currently, the World Bank has 34 carbon finance projects in 14 countries across the Latin America and Caribbean region. This work has focused on improving the efficiency of industries, such as iron and steel, energy generation, waste management, and reforestation.

In 2010, the World Bank signed an ERPA with Uruguay to reduce emissions through wind electricity generation. The project involves the installation of a 10 megawatt (MW) wind farm, which will provide a revenue stream of ensuing carbon credits. The project will also assist Uruguay in gaining experience with grid-connected renewable energy.

Through the Partnership for Market Readiness, launched in December 2010, the region engaged in national mitigation activities in five countries in the region: Chile, Costa Rica, Brazil, Mexico, and Colombia. The PMR will provide a platform for technical discussions on new market instruments, such as new, international scaled-up mechanisms, for example, sectoral or Nationally Appropriate Mitigation Action (NAMA) crediting, and domestic emissions trading schemes. Furthermore, it will provide technical assistance to these countries to build their capacity for market readiness and pilot market instruments for scaling up their mitigation efforts.



Putting Least Developed Countries First



Building Capacity with Carbon Finance Assist

Carbon Finance Assist (CF-Assist) is the World Bank's flagship capacity-building program for carbon finance, operated through the World Bank Institute (WBI). Its primary objective is to ensure that developing countries are able to fully participate in the mechanisms defined under the Kyoto Protocol.

Through structured and customized initiatives, CF-Assist supports client countries and cities in their efforts to strengthen their institutional capacity. The goal is to enable clients to:

- identify carbon finance opportunities;
- undertake strategic assessments of low-carbon development;
- integrate carbon finance into climate finance strategies;
- design policies and measures for emissions reduction plans in crucial sectors; and
- access innovative financing for climate mitigation action programs.

CF-Assist has supported more than 60 countries during the first 5 years of the program (2005-10), and it has adjusted its strategic directions to best meet clients' needs. In 2010, CF-Assist worked on three new 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 development. In combination with the four WBI business lines (Structured Learning; Knowledge Exchange; Networks and Innovative Platforms; and Leadership and Coalition Building), these priorities form the conceptual and operational framework for CF-Assist activities.

Key accomplishments of CF-Assist in 2010 include delivering the CDM/JI e-learning course and co-organizing numerous dissemination events, such as the annual CARBON EXPO in Cologne, Programme of Activities (PoA) workshops in Tunis, Bogotá, and Montevideo, and Regional Carbon Forums in Africa, Latin America, and Asia. In 2010, CF-Assist gave more than 5,000 stakeholders around the world exposure to carbon finance capacity-building programs.

Looking forward, CF-Assist has initiated the development of more e-learning courses on CDM PoAs, Cities and Climate Change, and Low-Carbon Development (to be launched in 2011). A future goal is for courses and knowledge products to be offered by *regional* partners. This will support the CF-Assist mandate by building networks of practitioners, promoting the development of innovative platforms, and fostering identification and implementation of projects in the field. CF-Assist is also working on new initiatives, such as the *Carbon Finance Capacity Building Program for Emerging Mega-Cities of the South*. Initial reports for the four focus cities (Dar es Salaam, Jakarta, Quezon City, and Sao Paulo) are expected mid-2011.

Soil carbon projects represent a “triple win”: development, enhanced climate change resilience, and climate change mitigation.

Improving Rural Livelihoods with Soil Carbon

In 2010, a groundbreaking project in Kenya brought the potential for carbon sequestration in soils to the forefront of carbon finance. The Kenya Sustainable Agricultural Project is the first project in Africa that sells soil carbon credits, improving the livelihood of rural communities while at the same time tackling climate change. New farming techniques capture carbon in the soil while increasing crop yields and improving resilience to droughts.

With nearly two times as much carbon in the soil than in the atmosphere, small changes in the level of soil carbon can drive large changes in atmospheric carbon concentrations. The recent droughts in Kenya have scathed the landscape and severely hindered agricultural production. Now, Kenyan farmers are regenerating the land and promoting carbon sequestration.

The World Bank’s BioCarbon Fund is leading the way, working with NGOs and national governments to support

farming communities in developing these projects, including methodology development, and giving them compensation in the form of carbon credits for providing important environmental services. The opportunity for soil carbon projects is vast, as 70 percent of the climate mitigation potential in agriculture is found in developing countries.

Soil carbon projects represent a “triple win”: development, enhanced climate change resilience, and climate change mitigation. Healthy and fertile croplands increase the productivity of farms and the incomes of farming communities. In addition, cropland management techniques promote resilience to variations in climate, thereby raising stability and food security. Finally, the sequestration of carbon in soils is a viable and quantifiable way to reduce atmospheric carbon. For a sector that is so often deemed a climate change problem, soil carbon has made the agricultural sector part of the climate change solution.

Kenya: Sustainable Agricultural Land Management Project

Implemented by the Swedish NGO Vi Agroforestry, the **Kenya Sustainable Agricultural Project** is located on over 40,000 hectares in the Nyanza Province and Western Province of Kenya. Small-holder farmers and small-scale business entrepreneurs are trained in diverse cropland management techniques, including crop covering, crop rotation, compost management, and agro-forestry. These farming practices both increase the yield of the land and sequester carbon in the soil. The farmers are able to generate additional sources of income by selling carbon credits, purchased by the World Bank’s BioCarbon Fund. The direct benefit to local communities is over \$350,000. The development potential is generating excitement, as Melzedek Arimba from Vi Agroforestry explains: “These payments can assist [the community] to build facilities, like healthcare facilities, water, and other amenities within the region...the standard of living is going to be improved...”



Report on Business



Summary of Operations



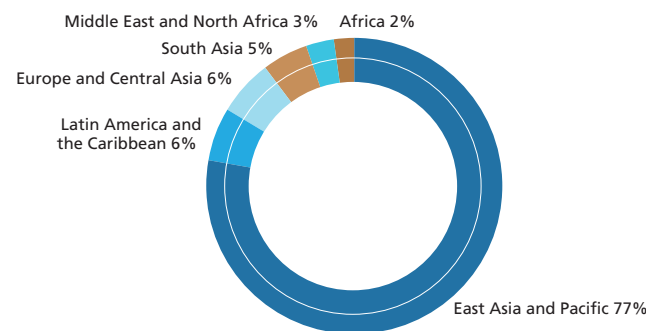
In 2010, the Carbon Finance Unit's carbon funds and facilities signed about 20 new Emission Reductions Purchase Agreements (ERPAs). There were many important firsts. In Africa, the region's first geothermal energy project, first Programme of Activities (PoA), and first soil carbon project were signed. Groundbreaking ERPAs for a Green Investment Scheme (GIS) in the Czech Republic were signed, and the first Joint Implementation (JI) project in Russia was approved. In addition, the Seller Agreement for the first city-wide PoA in the world was signed for Amman, Jordan.

	Projects	Value	Volume (tCO ₂ e)
ERPAs Signed and Active	128	\$1.7 billion	208 million
Pipeline Projects	27	—	32 million

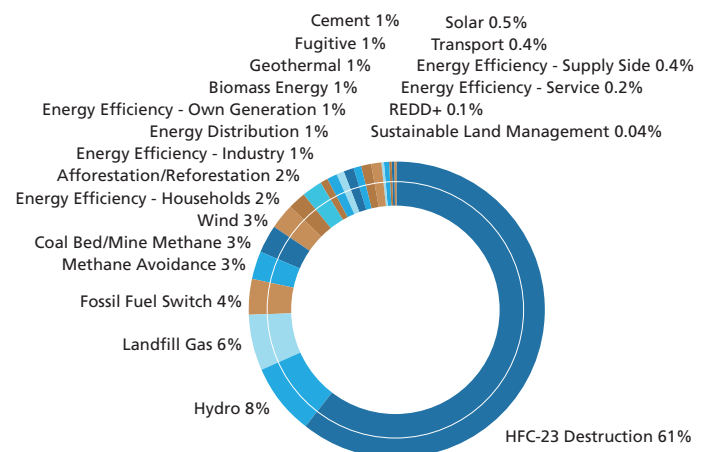
Distribution by Region and Sector

The East Asia and Pacific region held the largest percentage of the carbon finance portfolio in 2010 by value (77 percent). Due to the variety of challenges to implementing projects in Africa, particularly in low-income countries, the percentage of the carbon finance portfolio in the Africa region was a mere 2 percent by value; however, when measured by the number of Project Design Documents (PDDs), 12 percent of projects are in the Africa region. As in past years, HFC-23 Destruction represented the largest share of the carbon finance portfolio by value (61 percent), though accounted for by only two projects. The value additions in 2010 were largest in the household energy efficiency and energy distribution sectors, and in the Europe and Central Asia and the East Asia and Pacific regions.

Regional Distribution



Sectoral Distribution







Martin Lawless
Chair, Prototype Carbon Fund
Global Head, Environmental Financial Products
Deutsche Bank

The Prototype Carbon Fund

Another year has passed and, more than ever, the PCF continues to reflect the successes and frustrations of the wider carbon market.

The PCF experienced a number of important successes in 2010. The first transfers of JI assets were completed, delivering emission reductions (ERs) from projects in the Czech Republic, Hungary, and Bulgaria. The Brazil Plantar Forestry project was finally registered in July 2010. The latter project and the Moldova Soil Conservation project are the first Land Use, Land-use Change, and Forestry (LULUCF) projects in the PCF portfolio to undergo an official Clean Development Mechanism (CDM) verification. In addition, several projects, including the China Xiaogushan Hydropower project and the Colombia Jepirachi Wind Power project, are now regularly issuing good volumes of Certified Emission Reductions (CERs).

Diverging interests among PCF Participants surrounding the extension of the PCF Instrument beyond 2014 were overcome to reach a mutually beneficial solution. In December 2010, the PCF Instrument was extended to the end of the last signed ERPA (to 2023, at the latest). The controversy surrounding HFC-23 projects also posed a challenge for the Fund this year, causing issuance delays that have since been resolved.

While the international negotiations and reforms within the CDM and JI procedures are progressing far slower than we would all hope, the carbon markets continue to consolidate and expand. As always, we should look forward to the success of this market and the PCF, while preparing ourselves to meet the challenges we will face in the future.





The Prototype Carbon Fund

www.prototypecarbonfund.org

Operational since 2000, the Prototype Carbon Fund (PCF) is a public-private partnership involving six governments and 16 companies. The PCF is uniquely designed to be a “learning-by-doing” instrument. Over the past 11 years, it has demonstrated the potential of carbon finance to act as a powerful tool for financing sustainable development projects. The PCF’s work in low- and middle-income countries has entailed development benefits while reducing (or sequestering) greenhouse gas (GHG) emissions.

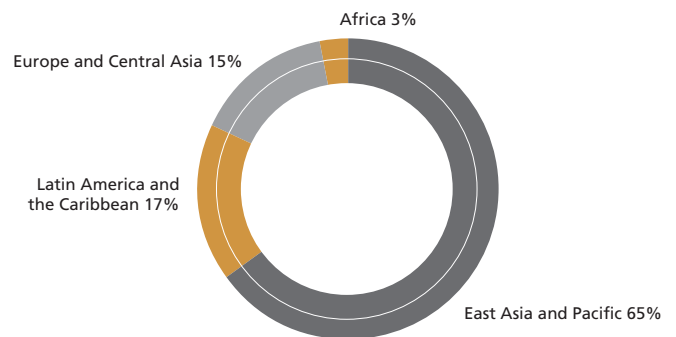
In 2007, the PCF reached an important milestone: it fulfilled the allocation of all initial capital and closed its portfolio to new projects. This allowed the PCF to move from an initial phase of committing resources to a mature phase focused on the implementation of projects.

PCF Portfolio Status

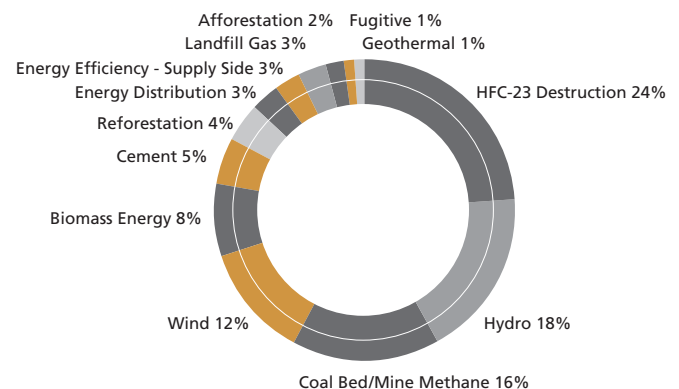
The PCF portfolio consists of 24 projects with a total value of \$172 million and a total volume of 28.2 million tCO₂e. Most of the portfolio’s value is linked to projects in the East Asia and Pacific region (65 percent), followed in turn by Latin American and the Caribbean, Europe and Central Asia, and lastly Africa. While the sectoral distribution is highly diversified, it is most heavily concentrated in projects promoting mitigation of industrial GHG emissions, renewable energy technology, afforestation/reforestation, and energy efficiency.

	Projects	Value	Volume (tCO ₂ e)
ERPAs Signed and Active	24	\$172,068,262	28,249,889

Regional Distribution



Sectoral Distribution



2010 Participants' Committee

Public Sector: Erik Bjornebye, Government of Norway
Ulrika Raab, Government of Sweden
Ruri Hidano, Japan International Cooperation Agency

Private Sector: Martin Lawless (Chair), Deutsche Bank
Christine Fedigan, GDF Suez
Kenta Ozaki, Mitsui & Co., Ltd.
Liv Rathe, Norsk Hydro

Prototype Carbon Fund Participants

Public Sector



GOVERNMENT OF CANADA
www.cdm-ji.ca



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



GOVERNMENT OF NORWAY
www.carbonneutralnorway.no



GOVERNMENT OF FINLAND
formin.finland.fi



GOVERNMENT OF THE NETHERLANDS



GOVERNMENT OF SWEDEN
www.swedishenergyagency.se

Private Sector



BP ALTERNATIVE ENERGY INTL., LTD.
www.bpalternativenenergy.com



FORTUM CORPORATION
www.fortum.com



RWE
www.rwe.com/en



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



GDF SUEZ
www.gdfsuez.com



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



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



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



Statoil
STATOIL ASA
www.statoil.com



DEUTSCHE BANK
www.db.com



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



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



ELECTRABEL
www.electrabel.com



NORSK HYDRO
www.hydro.com/en



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

Emission Reductions Purchase Agreements Signed

	Project	Description	tCO ₂ e
Brazil	Alta Mogiana Bagasse Cogeneration	Increase efficiency in manufacturing processes and install new facilities to generate surplus electricity to be commercialized	110,000
	Lages Cogen Facility	Installed capacity of 28 MW electricity plus 25 tons per hour of steam, fueled by wood waste from the sawmill industries in the region	750,000
	Plantar Sequestration and Biomass Use	Charcoal production from sustainably harvested plantation, replacing coke for pig iron manufacture	1,514,286
Bulgaria	Pernik District Heating	District heating system upgrades for the city of Pernik	157,000
	Sofia District Heating	District heating system upgrades for the city of Sofia	1,084,000
	Svilosa Biomass	11 MW biomass-based boiler to utilize wood waste produced at the Svilosa pulp and cellulose plant, to replace coal	450,000
Chile	Chacabuquito Hydro	26 MW run-of-river hydro to replace coal or gas in the grid	610,000
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	5,000,000
	Huitengxile Wind Farm	Construct and operate a 100 MW wind farm in Inner Mongolia in China. The project consists of around 50 to 100 wind turbines of 1 to 2 MW capacity with a net annual generation of 245 gigawatt-hours per year	1,600,000
	Jincheng CMM	Capture of coal mine methane (CMM) associated with coal mining operation and utilization of the gas to generate power through a 120 MW combined cycle power plant	3,341,507
	Xiaogushan Hydropower	98 MW run-of-river hydroelectric plant located on the Heihe River in the Sunan Yugur province to replace coal in the grid	3,000,000
Colombia	Jepirachi Wind Farm	19.5 MW wind farm in the northern part of Colombia to displace a mix of coal- and gas-based power generation	433,694
Costa Rica	Cote Hydro	6.8 MW hydro to be supplied to the national grid	74,974
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
Guatemala	El Canada Hydro	43 MW run-of-river hydroelectric plant on the west coast of Guatemala to displace energy produced from thermal power plants	1,724,400
Hungary	Pannonpower Pécs Fuel Conversion	Conversion of Pécs Power plant's existing coal-fired boilers to biomass	1,193,000
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
Latvia	Liepaja Solid Waste Management	Methane capture and utilization from waste management providing electricity to the national grid	387,933
Moldova	Soil Conservation	Afforestation of 20,000 ha of degraded and eroded state-owned and communal agricultural lands throughout Moldova	1,300,000
Philippines	NorthWind Bangui Bay Project	Construction and operation of 25 MW capacity wind farm on a strip of land on the foreshore of Bangui Bay in Ilocos Norte	356,000
Poland	Stargard Geothermal	District heating system to utilize geothermal energy to replace coal in the city of Stargard	240,000
Romania	Afforestation of Degraded Agricultural Land	Afforestation of 6,000 ha of public land	854,985
South Africa	Durban Municipal Solid Waste	Collection and generation of electricity at two landfill sites. Initially electricity generation of 1 MW (0.5 MW at each site) with the potential to expand to 2 MWs	700,000
Uganda	West Nile Electrification	Two 1.75 MW hydro to replace a number of diesel generator sets in the West Nile region. The project is also installing a 1.5 MW generator	443,432

Romania: Afforestation of Degraded Agricultural Land

Degraded agricultural lands are a prevalent problem in Romania. Under the **Romania Afforestation of Degraded Agricultural Land Project**, the National Forest Administration of Romania is planting trees on nearly 6,000 ha of state-owned degraded agricultural lowlands in the southwest and southeast of the country. In the southwest, the Project is stabilizing soils by planting semi-naturalized species. In the southeast, 10 islets and the Ramsar wetlands site in the Lower Danube are undergoing ecological reconstruction through the planting of native species.

The Project focuses on degraded lands that have been used intensively for agriculture since the 1960s and have been affected by the extension of drainage works in the Danube floodplain. Initially, these lands produced a range of crops, including cereals, vegetables, fruits, and grapes. However, the lands have since become degraded and subject to erosion, making them uneconomic for crop production. Through afforestation of these lands, the Project is expected to generate ERs and improve the degraded landscape.







Anne C. Bolle

Chair, Community Development Carbon Fund
Managing Director, Statkraft Carbon Invest AS

The Community Development Carbon Fund

In its seventh fiscal year, the Community Development Carbon Fund has continued promoting its co-benefit approach to climate mitigation by linking carbon finance to tangible poverty reduction. A large share of the Fund's resources are allocated to small-scale projects in some of the world's poorest countries, including those officially designated as least developed countries.

Also this year, the Fund has actively worked with adjustments and amendments in the project portfolio in order to maximize expected credit deliveries to participants as well as the benefits to affected communities. During a site visit in Bangladesh, participants have gathered lively and valuable impressions of emission reductions and aligned community benefits from several projects from which the fund is purchasing emission reduction credits.

A special effort has been made to enhance the utilization

of CDCF*plus* resources for risk mitigation in order to improve delivery performance. In-depth assessments of the operations and achievements of the Fund have been presented. Based on the rapidly approaching post-2012 era, in conjunction with continued uncertainty on the future international regulatory regime to combat climate change, the Trustee has thoroughly assessed the impact of various delivery scenarios and alternative mitigation actions for the participants.

On behalf of the participants, I want to thank the World Bank's CDCF team for their hard work and commitment. With that, the Community Development Carbon Fund continues to be a pioneer for small-scale projects, new methodologies and programmes of activities, and is thereby paving the post-2012 road for continuous emission reduction measurements in the poorest countries of the world.





The Community Development Carbon Fund

www.communitycarbonfund.org

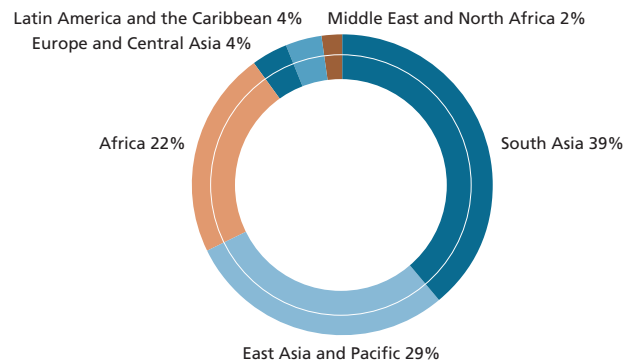
The Community Development Carbon Fund (CDCF) promotes a co-benefits approach to climate change mitigation by linking carbon finance to tangible poverty reduction and sustainable development outcomes. It strives to purchase ERs from small-scale projects that provide direct or indirect community benefits. With this focus, the CDCF has currently committed 55 percent of its capital to buy ERs from projects located in the world's poorest countries, specifically Least Developed Countries as designated by the United Nations and countries that qualify for lending from the World Bank Group's International Development Association (IDA). In addition, the CDCF is helping to expand the reach of the carbon market by developing small-scale CDM methodologies. Most projects target communities that have a low per-capita income and lack essential services, such as electricity or basic health care. Benefits of project activities include upgraded roads, new schools, improved access to fuel for cooking and heating, job creation, and increased access to electricity.

CDCF Portfolio Status

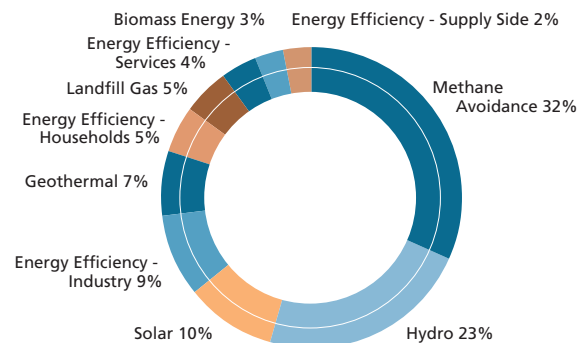
In 2010, two new ERPAs were added to the CDCF portfolio. At the end of 2010, the Fund had 29 projects with a total value of \$82.6 million and a total volume of 7.2 million tCO₂e. Most of the CDCF portfolio value is tied to projects located in the regions of South Asia (39 percent), East Asia and Pacific (29 percent), and Africa (22 percent). The portfolio supports a wide range of technologies, including methane avoidance, renewable energy generation, and energy efficiency.

	Projects	Value	Volume (tCO ₂ e)
ERPAs Signed and Active	29	\$82,552,770	7,158,684

Regional Distribution



Sectoral Distribution



2010 Participants' Committee

Public Sector: Laura Fassio Canuto, Government of Italy
Teresa Solana Méndez de Vigo, Government of Spain

Private Sector: Anne Bolle (Chair), Statkraft Carbon Invest AS
Nobutaka Ohki, FUJIFILM Corporation
Hiroki Terao, Daiwa Securities Capital Markets Co., Ltd.
Climent Sole Xam Mar, Gas Natural SDG, SA

Community Development Carbon Fund Participants

Public Sector



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



REGIONAL GOVERNMENT OF BRUSSELS-CAPITAL REGION (BELGIUM)
www.bruxelles.irisnet.be



GOVERNMENT OF THE WALLOON REGION (BELGIUM)
www.wallonie.be/en/



GOVERNMENT OF CANADA
www.cdm-ji.ca



GOVERNMENT OF DENMARK
www.um.dk/en



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/index_en.htm
Ministry of Economy and Finance: www.meh.es

Private Sector



BASF
www.basf.com



DAIWA SECURITIES CAPITAL MARKETS CO., LTD.
www.jp.daiwacm.com



ELECTRICIDADE DE PORTUGAL (EDP)
www.edp.pt



ENDESA
www.endesa.es/portal/en



FUJIFILM CORPORATION
www.fujifilm.com



GAS NATURAL FENOSA
www.gasnatural.com



GÖTEBORG ENERGI AB
www.goteborgenergi.se/english



HC ENERGIA
www.hcenergia.com/en



IDEMITSU KOSAN CO., LTD.
www.idemitsu.com



KFW BANKENGRUPPE
www.kfw.de/carbonfund



JX NIPPON OIL & ENERGY CORPORATION
<http://www.no.e.jx-group.co.jp/english/>



THE OKINAWA ELECTRIC POWER COMPANY, INC. (OEPC)
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

Emission Reductions Purchase Agreements Signed

	Project	Project Description	Community Benefits	tCO ₂ e
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
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
	IDCOL Solar Home Systems	Same as above	Same as above	192,000
	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 HHK technology will reduce greenhouse gases and air pollution by reducing the amount of coal used per brick through recycling heat in the brick-making process and mixing pulverized coal into the brick clay	The community benefits plan will support the provision of ablution facilities, small multipurpose facilities that provide first aid, regular primary health care, safety gear, and appropriate clothing at each kiln. The Environmental and Social Management Framework 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 year-round employment.	189,000
China	Guangrun Hydropower Development	Construct and operate three hydropower plants with total capacity of 28 MW on the Guangrun River	One-fifth of carbon revenue used for a poverty alleviation fund, at disposal of county government. Other benefits include increased water supply, upgraded flood control, and water for 1,000 ha of farmland	485,000
	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 to reduce indoor pollution and respiratory diseases. Improved manure management to reduce water contamination. Biogas recovery to help diversify energy sources and reduce deforestation	370,000
	Shandong Poultry Manure Biogas	Improve Animal Manure Management System at chicken farms with a total of 5 million chickens. Capture biogas for a cogeneration system, supplying electricity and displacing conventional energy sources	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	465,000
Georgia	Small Hydro Rehabilitation	Install at least 15 MW 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
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 MW of electricity produced by GuySuCo for the national grid; job creation and improved economic activity	165,000
Honduras	La Esperanza Hydroelectric	Install 12.7 MW run-of-river hydropower plant	Improved electricity service in the town of La Esperanza. Employment for 148 people during construction. Planting of 25,000 seedlings for reforestation	54,345

	Project	Project Description	Community Benefits	tCO ₂ e
India	FaL-G Brick Units in Micro Sector	200 brick production units with FaL-G technology saving energy and reducing air pollution compared to traditional kilns	Improved working conditions: provision of safety gear such as shoes, gloves, masks, and helmets; construction of toilet and washing facilities; and provision of filtered drinking water on site. Health benefits include personal accident and health insurance for workers, mosquito nets, and HIV/AIDS sensitization programs	451,590
	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, thus reducing water-borne diseases such as dysentery and trachoma and reducing the time households (typically the women in a household) spend collecting clean water	55,000
	Street Lighting Energy Efficiency Project	Reduce electricity consumption and greenhouse gas emissions by improving the street lighting network in eight municipalities	Training and education of the municipal employees about efficient use of electricity. Reduced energy bills making electricity more affordable for the poor	79,000
Kenya	Olkaira II Geothermal Expansion	Expansion of geothermal plant from 70 MW to 105 MW	Provision of a water line for clean water; excavation of livestock water pan; construction and equipping of classrooms; upgrading of rural roads	650,000
	Optimization of Kiambere Hydro Power Station	Expansion of hydropower station by upgrading turbines to increase output by 20 MW	Potential activities could include the provision of clean water, health benefits and improved access to markets, educational and health facilities	162,720
	Redevelopment of Tana Power Station	Expansion of a hydropower station by constructing two 4.3 MW and two 5.5 MW run-of-river dams	Potential activities could include the provision of clean water, health benefits and improved access to markets, educational and health facilities	170,160
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 and energy efficiency, increased number of days that buildings are heated, and decrease in cost of heat. Reduced use of wood for fuel will reduce forest degradation	348,502
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 connecting 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
	Village Micro-hydro	Installation of micro-hydro power plants (5 to 500 kilowatts) with cumulative capacity of 15 MW	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
Pakistan	Community-Based Renewable Energy Development in Northern areas and Chithral	Install 103 run-of-river mini- and micro-hydro electricity units in northern Pakistan with a combined electricity generation capacity of about 15 MWs	Supply electricity to remote rural community, most of which have no access, helping displace the use of fossil fuels and fuelwood	360,000
Peru	Santa Rosa Hydroelectric	Three run-of-river hydro projects in Lima, Peru, in the Santa Rosa irrigation area (4.1 MW total)	A trash rack cleaner for agricultural wastewater. Creation of 125 direct new jobs during construction 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

Emission Reductions Purchase Agreements Signed *(continued)*

	Project	Project Description	Community Benefits	tCO ₂ e
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
	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 citizens' cooperatives. Vocational skills training for youth; grants for high school students; rehabilitation of existing pre-school/day care center. Support of the Reading Program and the Nutrition Education and Feeding Program. Provision of community medical service and health insurance. Implementation of micro lending program	200,000
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 CFLs.	Providing affordable electricity to the poor	156,000
Senegal	Lighting Energy Efficiency in Rural Electrification Program	Low-energy consumption compact fluorescent bulbs instead of incandescent bulbs for domestic lighting	Use compact fluorescent bulbs instead of kerosene lamps and batteries. Electricity for productive uses, social services, and schools	120,000
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
Uganda	Municipal Waste Compost	Recover the municipal solid waste and use it to enrich soil conditions	Construction of 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 rainwater-harvesting jars	209,185
	Kampala Land Fill Gas Project	Develop and implement a landfill gas extraction and flaring scheme at the Mperewe landfill located in the North of Kampala city	Provision of health care services and improvements to local infrastructure to provide mosquito nets to St. Stevens hospital; set up an on-site clinic; maintain drains along Mperewe Kiteezi Road and repair bore holes	74,144
Yemen	Loss Reduction in Electricity Distribution Systems Project	Reduce energy losses in Yemen's electricity distribution network. Upgrade feeder cables and install new substations to lower the load on other substations throughout 18 regions in Yemen	Reduced amount of energy lost during distribution process. More reliable electricity distribution network. Potential additional activities include: access to drinking water; construction of primary school and health clinic	125,000

Philippines: ROXOL Ethanol Plant Wastewater Treatment and Methane Gas Recovery Project

Most ethanol distilleries in the Philippines allow untreated wastewater to flow into open anaerobic lagoons, giving off a noxious smell and emitting methane, a potent GHG. Furthermore, steam boilers in the distilleries are typically powered with bunker fuel oil, which is readily available but emissions-intensive. The **ROXOL Ethanol Plant Wastewater Treatment and Methane Gas Recovery Project** aims to curtail GHG emissions through the adoption of cleaner and more efficient wastewater treatment technology. Methane is captured and used to power the ethanol plant's boiler, reducing emissions from both methane and conventional bunker fuel. The project is forecasted to generate over 156,000 tCO₂e of CERs per year. The CDCF would purchase 200,000 tCO₂e of the CERs up to December 2013.

The project provides considerable environmental, health, and social benefits to the local community. The closed anaerobic wastewater treatment system, along with an evaporator-drier and recirculation system, will limit bad odor and eliminate all wastewater currently discharged into the nearby river. Displacing bunker fuel with captured methane will also improve local air quality. Together, these environmental

benefits will reduce respiratory illnesses and water-borne diseases in the surrounding communities.

The project also aims to generate social benefits. An additional price premium is attached to each carbon credit sold to the CDCF, used to fund activities in four poor communities near the project site. Furthermore, the project has been successful in leveraging these financial resources to generate interest among other potential investors interested in harnessing corporate social responsibility. As a result, community activities are implemented in partnership with the local government, NGOs, and private foundations. Activities include: a micro-lending program designed to spur new economic activities, such as opening Sari-Sari (small variety) stores; supporting education by rehabilitating a preschool, supplying learning materials to primary school children, and offering educational and vocational training to youths; providing medical and dental services as well as a nutrition program that targets malnourished children; and building capacity in grassroots organizations. This unique public-private partnership is gaining momentum, particularly in the education sector, where activities have resulted in higher retention rates and improved performance of students.



The BioCarbon Fund

www.biocarbonfund.org

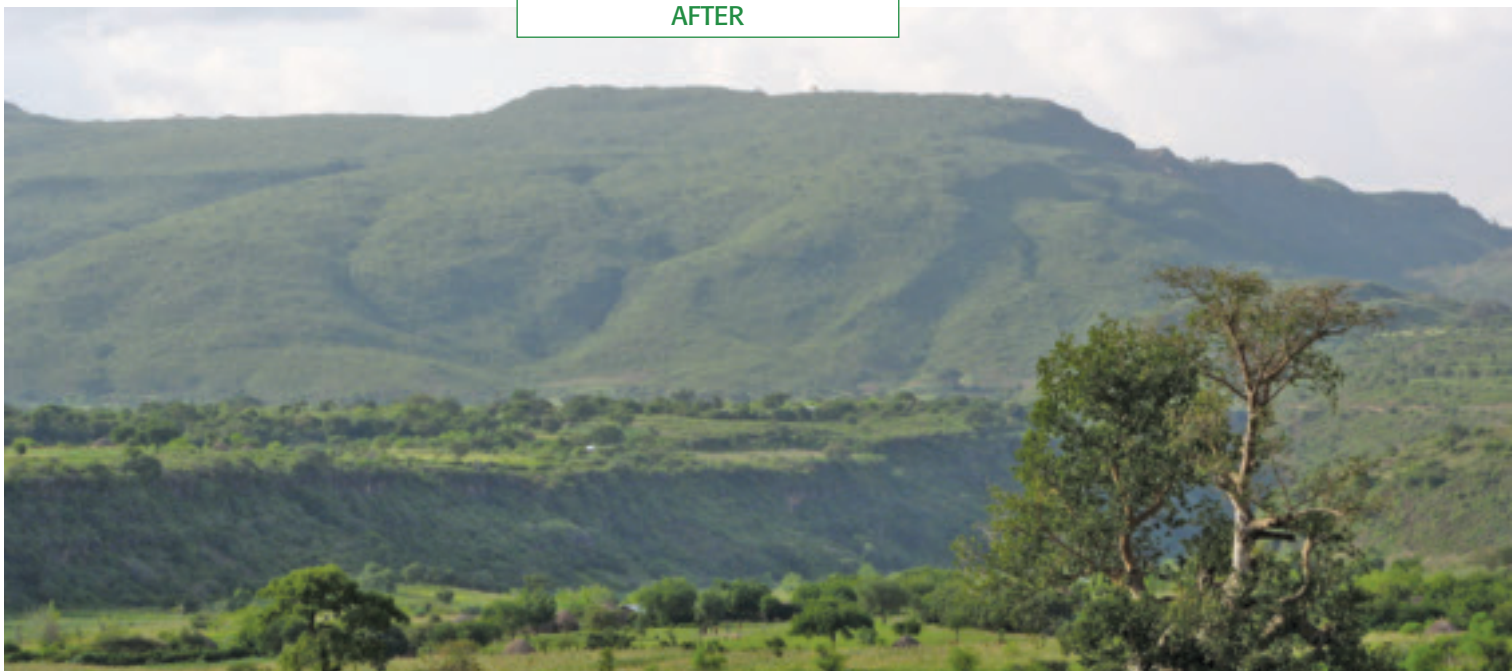
Operational since 2004, the BioCarbon Fund (BioCF) purchases ERs from projects that sequester or conserve GHGs in forests and agro-ecosystems. The Fund is designed to ensure that rural areas in developing countries have the opportunity to benefit from carbon finance.

The BioCF consists of two tranches. A portion of both tranches focuses on the purchase of ERs from afforestation and reforestation activities eligible for crediting under the Kyoto Protocol. A second portion has been designed to test how agriculture, land use, and forestry activities currently excluded by the Kyoto Protocol may be used as climate change mitigation options. This includes REDD+ and carbon sequestration through the adoption of sustainable land management practices—activities that are being pursued through the voluntary carbon market.



BEFORE

AFTER





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

The BioCarbon Fund (BioCF) Tranche 1

The BioCarbon Fund continues to be a key instrument to implement CDM forestry projects under the Kyoto Protocol. In 2010, three additional projects supported by the BioCF were registered. With these new registrations, seven of 18 afforestation and reforestation projects registered with the UNFCCC have come through the BioCF pipeline.

Forest-related activities in developing countries are an important tool for climate change mitigation. Some of the barriers faced by afforestation and reforestation projects developed under the CDM have been overcome. A central contributor to this success is the enormous work conducted by the World Bank, especially the BioCarbon Fund. In addition to its important role in CDM afforestation and reforestation activities, the BioCF's

experimentation with agriculture, forestry, and other land-use activities as climate mitigation options is considered a cornerstone of REDD+. In fact, one of the main achievements in Cancun was the establishment of the REDD+ mechanism.

Nevertheless, important challenges remain. Scaled-up actions under the CDM, as well as new activities and new accounting options, need to be developed. The BioCF continues to be a key partner in this process by providing input to the UNFCCC negotiations. Through its experience and knowledge, the BioCF will help contribute to positive negotiation outcomes that support mitigation actions through sustainable forest and land management.





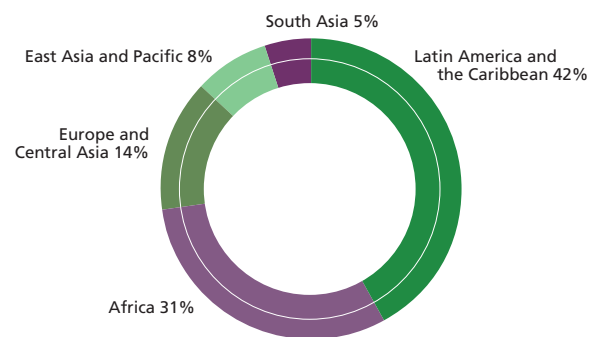
BioCF Portfolio Status

Tranche 1

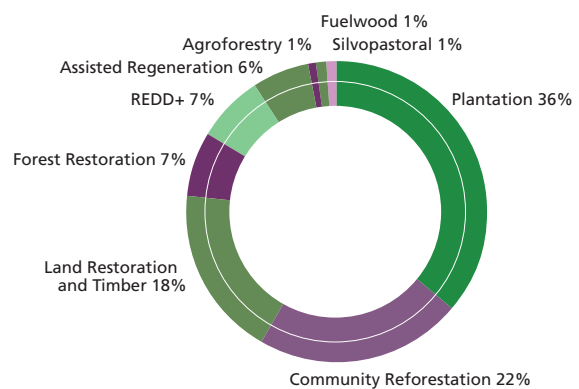
The BioCF Tranche 1 portfolio currently has 16 projects with a total value of \$18.9 million and a total volume of 4.6 million tCO₂e. Tranche 1 commitments are distributed globally. However, 31 percent of the portfolio value is in Sub-Saharan Africa, a region that holds a small percentage of the global carbon market. Project commitments are dedicated to the afforestation/reforestation and REDD+ sectors, representing 93 percent and 7 percent of the portfolio's value, respectively.

	Projects	Value	Volume (tCO ₂ e)
ERPAs Signed and Active	16	\$18,910,267	4,595,087
Pipeline Projects	1	\$6,050,000	1,100,000

Regional Distribution



Sectoral Distribution



2010 Participants' Committee

Public Sector: Teresa Solana Mendez de Vigo,
Government of Spain
Laura Fassio Canuto, Government of Italy

Private Sector: François Falloux, Eco-Carbone
Kiminori Ishikawa, Sumitomo Joint Electric
Power Company
Masakazu Murakami, Sumitomo Chemical Co., Ltd.

BioCarbon Fund Tranche 1 Participants

Public Sector



GOVERNMENT OF CANADA
www.cdm-ji.ca



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



GOVERNMENT OF ITALY
www.minambiente.it



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



AGENCE FRANÇAISE DE DÉVELOPPEMENT
www.afd.fr

Private Sector



ECO-CARBONE
www.eco-carbone.com



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



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



IDEMITSU KOSAN CO., LTD.
www.idemitsu.com



THE OKINAWA ELECTRIC POWER
COMPANY, INC. (OEPC)
www.okiden.co.jp/english



SUNTORY
www.suntory.com



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



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



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

Emission Reductions Purchase Agreements Signed Tranche 1

	Project	Description	Environmental Benefits	Social Benefits	tCO ₂ e
Afforestation and Reforestation					
Albania	Assisted Natural Regeneration	Restoration of 6,300 ha of severely degraded communal forest and pastureland through assisted natural regeneration	Regeneration of native forest, reduced soil erosion, reduced siltation of watercourses	Employment generation, sustainable fuelwood and other non-timber forest products (including fodder for livestock)	230,360
Brazil	AES Tiete Reforestation	Restoration of 13,900 ha of forest on degraded pasture lands using more than 100 native species	Enhanced plant biodiversity, creation of vital animal corridors, establishment of conservation area	Employment generation, stimulation of local tourism industry, environmental education	400,000
China	Pearl River Watershed Management	Land restoration and timber production on 4,000 ha of severely degraded lands directly involving multiple farmers	Reduced soil erosion, biodiversity corridors, improved regulation of hydrological flows	Income generation from timber and non-timber products, sustainable local livelihoods and poverty alleviation (targeting marginalized populations), improved regional economy and welfare	462,014
Colombia	San Nicolás Agroforestry	Establishment of agroforestry systems on 1,100 ha of degraded pasture lands involving multiple farmers	Biodiversity conservation, restoration of degraded pasture lands	Diversified farm productivity, increased local incomes	120,000
	Caribbean Savannah	Establishment of silvopastoral systems and production of rubber and timber on 2,200 ha of degraded pasture lands involving multiple farmers	Increased productivity and soil quality of marginal and degraded lands, reduced pressure on primary forests	Employment generation, diversification of local economy, local food and energy security, targeting marginalized populations	246,992
Costa Rica	Coopeagri Forestry	Extension of national program of payments for environmental services through agroforestry, natural regeneration, and reforestation on 1,300 ha of degraded pasture and agricultural lands	Natural habitat for biodiversity, reduced land erosion, restoration of degraded pasture and agricultural lands	Generation of additional incomes, improved local economy and livelihoods, improved regional economy and welfare	68,228
Ethiopia	Humbo Community Managed Natural Regeneration	Restoration of 2,700 ha of biodiverse natural forest through farmer-managed natural regeneration	Regeneration of native forest, reduced soil erosion and local flooding, protection of fragile water catchment areas, improved regional water supply, enhancement of biodiversity	Poverty alleviation, sustainable fuelwood and other non-timber forest products (including fodder for livestock), income generation, local development projects, improved access to land tenure rights	165,000
India	Improving Rural Livelihoods	Timber production on 1,600 ha of degraded agriculture lands involving small and medium holding farmers	Improved soil productivity, reduced erosion	Access to markets and financial credit, income generation, poverty alleviation	276,000
Kenya	Green Belt Movement	Restoration of 1,600 ha of degraded forest and community lands	Enhanced ecological functions, improved water quality downstream, improved water infiltration	Income generation, employment opportunities, poverty alleviation, improved access to land tenure rights, targeting marginalized populations	375,000

	Project	Description	Environmental Benefits	Social Benefits	tCO ₂ e
Afforestation and Reforestation					
Madagascar	Biodiversity Corridor Restoration	Biodiversity conservation through reforestation with more than 80 native species on degraded lands subject to shifting cultivation	Fostering the establishment of native species, creation of biodiversity corridors, conservation of water sources	Local employment, sources of income from non-timber forest products, ecotourism, improved access to land tenure rights	200,000
Moldova	Soil Conservation	Restoration of 20,300 ha of severely degraded public and communal lands	Reduced erosion, enhanced soil productivity, enhanced plant biodiversity, improved hydrological regime	Local employment, income from sale of timber and non-timber products, improved local institutions	600,000
Nicaragua	Precious Woods	Timber production on 800 ha of degraded pasture lands with teak and valuable native wood species	Soil regeneration of degraded pastures, reduced pressure on native forests	Employment generation, improved regional economy and welfare	183,578
Niger	Acacia Community Plantations	Restoration of 7,900 ha of severely degraded lands involving multiple farmers	Increased vegetative cover, soil regeneration and erosion control, dune fixing, wind and sun protection	Local employment, income from arabic gum sale, access to markets, improved access to land tenure rights, targeting marginalized populations	500,000
Uganda	Nile Basin Reforestation	Timber production on 1,700 ha of degraded lands involving multiple farmers	Reduced pressure on natural forests, reduced land degradation and erosion	Local employment, source of income from private woodlots, targeting marginalized populations, sustainable fuelwood, stimulation of secondary industries	261,221
REDD+					
Colombia	San Nicolás	Avoided deforestation and induced regeneration of 4,500 ha	Conservation of natural habitat and corridors for biodiversity, sustainable watershed management	Income generation, improved local livelihoods	76,694
Madagascar	Biodiversity Corridor Conservation	Establishment of a sustainable use protected area in 425,000 ha, with local conservation and management activities	Establishment of a protected area, biodiversity conservation, controlling illegal logging	Local development projects, promotion of alternatives to slash and burn agriculture, promotion of non-forest revenue-generating activities (including ecotourism)	430,000



Colombia: Caribbean Savannah Carbon Sink Project

Centro Internacional de Agricultura Tropical (CIAT), Corporación Colombiana de Investigación Agropecuaria (CORPOICA) and Corporación Autónoma Regional de los Valles del Sinú y del San Jorge (CVS) have partnered to stop land degradation in the coastal plains of Colombia. Piloting the use of silvopastoral and reforestation systems, the **Caribbean Savannah Carbon Sink Project** restores and increases the productivity of 2,200 ha of degraded land through three interventions. First, the Zenu indigenous community is establishing forage shrubs and trees to recuperate 500 ha of degraded pastures, producing fruit and feeding animals in the area. Second, local small-scale farmers are reforesting 1,500 ha with rubber trees on a degraded area traditionally used for cropping. Third, the project reforests 200 ha with high-value timber species. All

three interventions actively involve and bring benefits to the surrounding communities.

The local population has an important stake in the project and is therefore a strong supporter of its implementation. About 200 families from the Zenu indigenous community, 250 families relying on subsistence agriculture, and 3 medium-size farmers will be the project's direct beneficiaries. Project activities will restore the soil's productive capacity and improve land productivity. Farmers will receive diversified incomes from rubber production and improved dairy productivity, as well as timber and seed sales. The broader local population will benefit from employment generation, and higher incomes will help stimulate sustainable development in the region.





Pat Gernon

Chair, BioCarbon Fund Tranche 2
Department of the Environment, Heritage and Local
Government, Government of Ireland

The BioCarbon Fund (BioCF) Tranche 2

It is hard to believe that four years have passed since our consortium of public and private investors, working in partnership with the World Bank team and using Tranche 2 of the BioCarbon Fund as our vehicle, set out into new and largely uncharted territory of the forestry and land-use sector of the carbon market. Time passes quickly, and 2012 will soon be upon us. This deadline brings increased pressure to deliver credits to our Participants and fully realize the environmental and social benefits in countries where Tranche 2 operates.

As with other funds in this sector, we have faced challenges committing the Fund's capital and completing the portfolio of projects. A plethora of factors have shown to have unexpected influence on the performance of individual projects. The Trustee and Fund Participants have cooperated well to find solutions to these challenges. We have been innovative and open-minded

in our approach, particularly concerning any underperformance identified in the portfolio. We have all learned a lot about this segment of the global carbon market in the past four years, and the experience gained has made us all more sure-footed in our dealings.

I am pleased to report that Tranche 2 progressed well during 2010. Steady progress was made in terms of the number of ERPA's signed, projects registered or submitted for registration, and projects currently in validation. Decisions and arrangements established in 2010 will see the Fund's capital almost fully committed as we go forward into 2011, allowing for greater focus on delivery management. I wish to express my thanks to both the team at the World Bank and to my fellow Participants for all their hard work this year in strengthening Tranche 2.



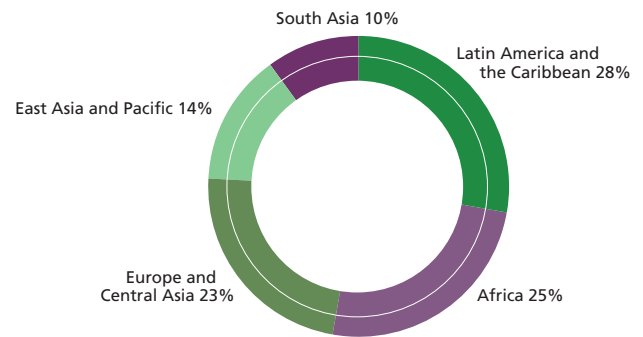


Tranche 2

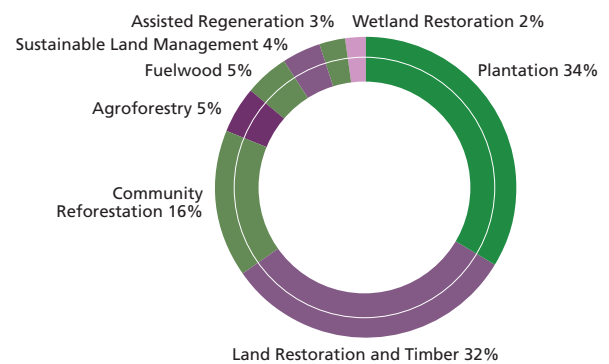
The BioCarbon Fund Tranche 2 portfolio currently has six projects with a total value of \$11.6 million and a volume of 2.6 million tCO₂e. Similar to Tranche 1, the portfolio value is distributed globally, but with 25 percent in Sub-Saharan Africa. The lion's share of the portfolio value currently goes towards afforestation/reforestation activities (96 percent) and a small portion is allocated to the innovative sustainable land management, agricultural soils sector, and REDD+ projects (4 percent).

	Projects	Value	Volume (tCO ₂ e)
ERPAs Signed and Active	6	\$11,604,000	2,624,790
Pipeline Projects	3	\$3,622,500	825,000

Regional Distribution



Sectoral Distribution





BioCarbon Fund Tranche 2 Participants

Public Sector



Comhairle, Oidhreachta agus Rialtas Áitiúil
Environment, Heritage and Local Government

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



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



AGENCE FRANÇAISE DE DÉVELOPPEMENT
www.afd.fr

Private Sector



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



NATSOURCE BIOCF II INVESTMENTS
CORPORATION
www.natsource.com



ZEROEMISSIONS
www.zeroemissions.com/corp/web/en



SYNGENTA FOUNDATION FOR SUSTAINABLE
AGRICULTURE
www.syngentafoundation.org

Emission Reductions Purchase Agreements Signed Tranche 2

	Project	Description	Environmental Benefits	Social Benefits	tCO ₂ e
Afforestation and Reforestation					
Chile	SIF Securitization and Carbon Sinks	Timber production on 2,900 ha of severely degraded lands involving small and medium holding farmers	Restoration of severely degraded lands	Income generation from timber products and land-lease agreements, access to markets	850,000
China	Reforestation on Degraded Lands in Northwest Guangxi	Land restoration and timber production on 8,000 ha of severely degraded lands directly involving multiple farmers	Control soil and water erosion, enhance biodiversity conservation by increasing forest cover and nature habitat connectivity	Generation of local income through timber and non-timber forest products, promotion of stronger community organizations, poverty alleviation targeting marginalized populations, improved regional economy	440,000
Democratic Republic of Congo	Ibi Bateke Carbon Sink Plantation Project	Agroforestry on 4,200 ha of degraded savannah for sustainable charcoal and fuelwood production	Reduced pressure on native forests, enhancement of biodiversity	Creation of local employment, local development projects, improved regional economy and welfare, access to sustainable energy sources	500,000
Moldova	Community Forestry Development Project	Restoration of 10,600 ha of severely degraded public and communal lands	Reduction of erosion and landslides, enhanced soil productivity, improved habitats for wildlife, increased biodiversity	Increased access to timber and non-timber forest products, improved local institutions	550,000
Trinidad and Tobago	Nariva Wetland Restoration Project	Restoration of wetlands through community involvement	Increased vegetative cover in wetlands, enhanced biodiversity, improved water quality, prevention of soil water intrusion	Income generation, employment opportunities, community-based ecotourism	134,790
Sustainable Land Management					
Kenya	Agricultural Carbon Project	Adoption of sustainable agricultural land management practices on 45,000 ha by small-holder farmer groups	Increased crop yields and farm productivity, enhanced soil carbon sequestration, improved water harvesting and retention, improved efficiency of water use	Income generation, improved technology and management practices, improved local institutions	150,000

China: Reforestation on Degraded Lands in Northwest Guangxi

In September 2010 the Guangxi Longlin Forestry Development Company Ltd, in association with the Forestry Department of Guangxi Zhuang Autonomous Region (GZAR), registered the **Reforestation on Degraded Lands in Northwest Guangxi Project**. This became the first project to be registered in the BioCarbon Fund Tranche 2 portfolio. The project draws on GZAR's experience from implementing the first CDM afforestation/reforestation project ever registered (the Facilitating Reforestation for Guangxi Watershed Management in Pearl River Basin Project in 2006, developed through BioCF Tranche 1).

The project aims to reforest about 8,000 ha of degraded lands in Northwest Guangxi with multi-purpose forests. The area along the Pearl River is subjected to severe soil erosion,

largely due to high volumes of precipitation, frequent storms, complex landforms, steep valleys, and poor watershed management. Reforestation will control soil erosion and restore degraded land in the project area. It will also enhance biodiversity conservation by increasing forest cover and natural habitat connectivity. Most tree species selected for the project are native to the region (including a mix of birch, China-fir, Chinese red pine and sweetgum), with eucalyptus designated for some areas. The project involves local farmers directly in reforestation activities, which generates income and promotes local community development. The project is also under the umbrella of the World Bank-financed Guangxi Integrated Forestry Development and Conservation Project.





Lex de Jonge
Chair, Netherlands CDM Facility
Head of CDM Unit, Ministry of Infrastructure and the
Environment, Government of the Netherlands



The Netherlands Clean Development Mechanism Facility

The Netherlands was an early mover in the Clean Development Mechanism market. The CDM instrument has strongly developed over time, and it is now serving a mature market. We are proud to have contributed to the developments by participating in climate change negotiations, establishing carbon funds at several banks, and deepening implementation-related policies and rules through involvement with the CDM Executive Board.

Though we are approaching the end of the first Kyoto commitment period, there is much to be learned and further improved. Examples are CDM Programmes of Activities, standardized baselines, streamlined methodologies, and benchmarking. It is good to see the World Bank continue to take

responsibility in this regard by actively contributing to the process of CDM improvements (see "Realizing the Potential of the Clean Development Mechanism in Least Developed Countries", page 86).

Through the Netherlands CDM Facility, our government has contracted a considerable portion of our requirements to comply with the Kyoto Protocol. That work is almost completed, and the focus has now shifted towards timely delivery. We are confident that our Kyoto targets will be met.

Together, we are preparing for the post-2012 period and the challenges ahead. The World Bank is showing leadership in this area by launching the Partnership for Market Readiness, an initiative that is welcomed by the Netherlands.



The Netherlands Clean Development Mechanism Facility

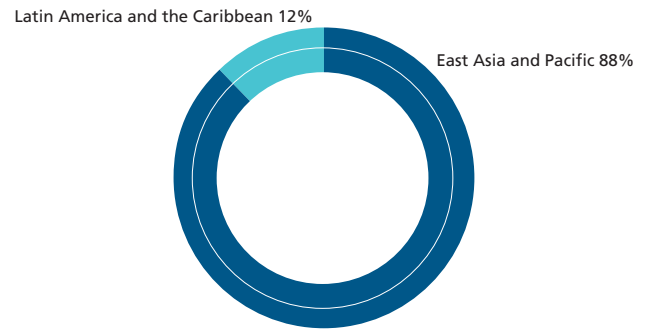
www.wbcarbonfund.org/ncdmf

Operational since 2002, the Netherlands Clean Development Mechanism Facility (NCDMF) purchases ERs on behalf of its one Participant, the Ministry of Infrastructure and the Environment of the Government of the Netherlands. The diversity in the portfolio promotes the full potential of the CDM, while primarily ensuring delivery of emissions reductions through 2012.

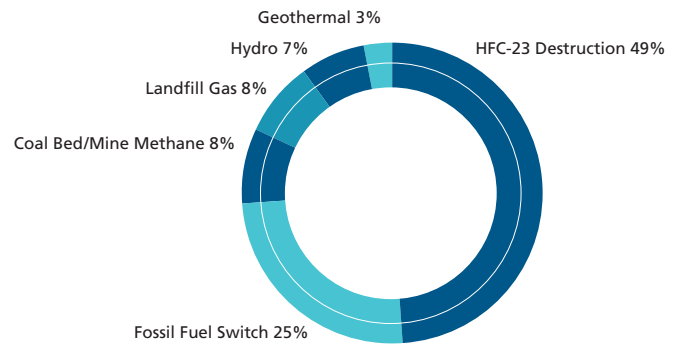
NCDMF Portfolio Status

The value of ERs in the current Netherlands CDM Facility portfolio is mostly concentrated in the East Asia and Pacific region (88 percent), with the remaining value deriving from projects implemented in Latin America and the Caribbean (12 percent).

Regional Distribution



Sectoral Distribution



Peru: Huaycoloro Landfill Gas Recovery Project

In Huaycoloro Valley in Peru, the Huaycoloro landfill currently receives about 2,200 tons of waste each day, adding to the nearly 5.5 million tons of waste that has accumulated since it opened in 1994. The decomposing waste releases landfill gas, which consists primarily of methane, a potent GHG. Anticipated to remain open until 2040, the landfill would fill its capacity of approximately 40 million tons of waste, making it a potentially significant source of GHG emissions.

In response to this threat, the Peru: **Huaycoloro Landfill Gas Recovery Project** captures the landfill gas and will use it to generate electricity. Up to 5.7 MW of renewable electricity will be supplied to the local power grid, reducing emissions caused by other forms of power generation. In addition, the project contributes to the local community by creating jobs and boosting economic development, helping the area around the project site become a better and safer place to live and do business.



Bert de Vries

Chair, Netherlands European Carbon Facility
Deputy Director-General, Energy, Telecom and Markets,
Ministry of Economic Affairs, Agriculture and Innovation,
Government of the Netherlands



Ministry of Economic Affairs,
Agriculture and Innovation

The Netherlands European Carbon Facility

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.

For over ten years, the Ministry of Economic Affairs has been active in implementing Joint Implementation projects in Eastern European countries. In close partnership with the World Bank Group, the Netherlands has been involved in developing procedures and guidelines in this challenging area, as well as institution-building in several Eastern European countries.

In 2004, the Netherlands European Carbon Facility was created to develop JI projects for the Netherlands. The Facility

was implemented with a unique co-management arrangement between the Netherlands, the World Bank, and the International Finance Corporation. The NECF reached an important milestone in 2008 and closed its portfolio of emission reductions purchase agreements.

Now we are harvesting what has been planted in the past years. Efforts and investments in JI are paying off, and verified emission reduction units and pre-2008 emission reductions are being delivered to the Dutch JI account. We are all getting more experienced: sellers, verifiers, and buyers. We have confidence in both the 2011 results and the overall performance of the NECF.



The Netherlands European Carbon Facility

www.wbcarbonfund.org/necf

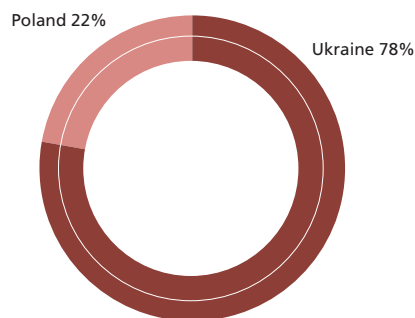
The Netherlands European Carbon Facility (NECF), operational since 2004, is co-managed with the International Finance Corporation.¹ The NECF purchases ERs on behalf of its one Participant, the Ministry of Economic Affairs, Agriculture and Innovation of the Government of the Netherlands. The portfolio consists of JI energy efficiency and renewable energy projects located in Eastern Europe.

NECF Portfolio Status

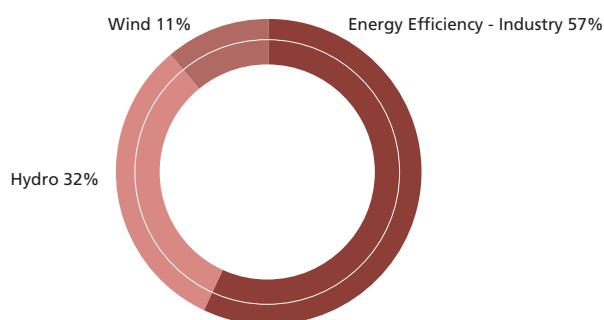
The NECF portfolio is entirely in Eastern Europe, with projects in the Ukraine and Poland (representing 78 percent and 22 percent of the portfolio value, respectively). The portfolio's value comes from projects related to energy efficiency (57 percent) and renewable energy technologies (43 percent).

¹ This report covers only the portion of the NECF managed by the World Bank.

Regional Distribution



Sectoral Distribution



Poland: Puck Wind Power Plant Project

The Polish power sector is the largest in Central Europe, and many of the generation facilities are old and in dire need of refurbishment or replacement. Moreover, over 90 percent of the power-generation capacity in Poland requires combustion of coal or lignite, fuels that are emissions-intensive. As a result, power and district heating contribute about 70 percent of the total carbon emissions in the energy sector, the largest source of emissions in Poland.

On the plains of northwestern Poland, 11 turbines harness the wind to supply approximately 51,000 MW-hours of renewable electricity each year to the local grid. This project, the **Puck Wind Power Plant**, has provided a clean-energy alternative since December 2006, displacing the emissions-intensive electricity currently dominating the power mix in Poland. The project is owned and operated by the private company Polish Energy Partners (PEPSA), and the power plant is expected to have a lifetime of 20 years. The NCDMF is pleased to support the project by purchasing the ERs it will generate through 2012.





Corrado Clini

Chair, Italian Carbon Fund

Director General, Ministry for the Environment, Land and Sea
Government of Italy



GOVERNMENT OF ITALY
**MINISTRY FOR THE ENVIRONMENT,
LAND AND SEA**

The Italian Carbon Fund

The Government of Italy recognizes that combating climate change is becoming increasingly urgent. This global problem requires the engagement of all major emitting economies in both the developed and developing world. There is a clear need to make progress towards a low-carbon economy based on the long-term sustainable management of natural resources and energy inputs.

The Italian Carbon Fund, a public-private partnership, maintains a diversified portfolio with the simultaneous objectives of reducing greenhouse gas emissions and eradicating poverty around the world. The projects are fairly branched out, both in terms of technology and regional

distribution. The ICF works to support developing countries in achieving sustainable development and capacity-building goals by leveraging considerable investments in low-carbon services and technologies. Carbon finance is also playing an important role in helping Italy meet its 2012 targets under the Kyoto Protocol.

The Government of Italy would like to express its gratitude to the World Bank and the ICF members for their diligent work in developing carbon markets. We strongly believe that similar successful collaborative partnerships will contribute to global efforts to resolve the climate change crisis in the coming decades.



The Italian Carbon Fund

www.italiancarbonfund.org

The Italian Carbon Fund (ICF) was created in 2004 to purchase ERs from projects in developing countries recognized under the Kyoto Protocol's CDM and JI mechanisms. Its Participants are the Government of Italy and six Italian private entities.

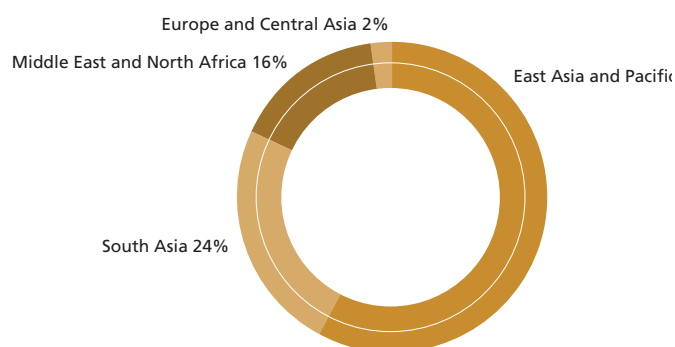
In addition to helping Italy meet its Kyoto commitments, the ICF helps developing countries achieve sustainable development by leveraging substantial investments in modern energy services and technologies. Participants' payments are used for project identification and preparation activities, such as capacity building, outreach, and research. Thus, the Fund goes beyond GHG mitigation to encourage the creation of supportive project approval systems in host countries.

ICF Portfolio Status

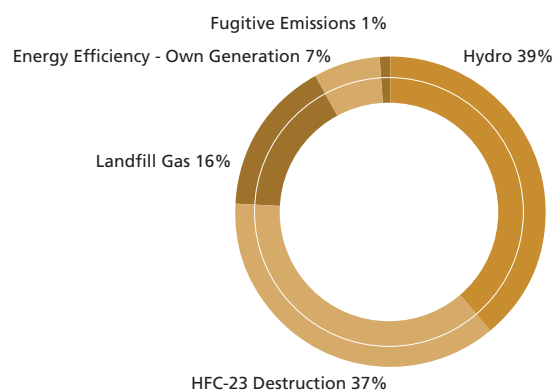
The Italian Carbon Fund holds a portfolio of seven projects. Geographically, most of the portfolio's value is linked to projects in the East Asia and Pacific region (58 percent), but some of it is associated with projects in the regions of South Asia, Middle East and North Africa, and Europe and Central Asia. The portfolio is centered on hydro energy generation and HFC-23 destruction (39 percent and 37 percent of the portfolio's value, respectively).

	Projects	Value	Volume (tCO ₂ e)
ERPAs Signed and Active	7	\$131,571,710	15,509,225

Regional Distribution



Sectoral Distribution



2010 Participants' Committee

Public Sector: Corrado Clini (Chair), Government of Italy
Federica Fricano, Government of Italy
Emanuela Sardellitti, Government of Italy

Private Sector: Stefano Apuzzo, E.ON Italia S.p.A.
Fabio Di Benedetto, ERG S.p.A.

2010 Participants

Public Sector



GOVERNMENT OF ITALY
MINISTRY FOR THE ENVIRONMENT,
LAND AND SEA
www.minambiente.it

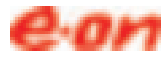
Private Sector



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



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



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



IREN MERCATO S.P.A.
www.irenmercato.it



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



ITALCEMENTI GROUP
www.italcementigroup.com



Emission Reductions Purchase Agreements Signed

	Project	Description	tCO ₂ e
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	6,000,000
	Nanjing Steel Converter Gas Recovery	Recover the converter gas produced by the converters of the Nanjing Iron & Steel Co., Ltd., in the steel production process and utilize the gas for electricity generation, thus partially meeting the company's power needs for daily production, replacing some grid electricity, and reducing carbon dioxide emissions	1,293,495
	Yunnan Whitewaters Hydropower Development	Three run-of-river hydro power stations on the Baishuijiang River with an installed capacity of 78 MW	2,200,000
India	Allain Duhangan Hydro	A 192-MW run-of-river hydro power plant in the lower reaches of the Allain and Duhangan Rivers	2,820,250
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	145,480
Tunisia	Djebel Chekir Landfill Gas Recovery and Flaring	Installation of gas recovery and flaring systems in Cells 1-5 of the Djebel Chekir Landfill, which receives all of the waste from the capital, Tunis	1,930,000
	Gas Recovery and Flaring for Nine Landfills	Installation of gas recovery and flaring systems of nine landfills distributed throughout Tunisia	1,120,000

China: Yunnan Whitewaters Hydropower Development

A major development challenge in China is meeting increasing electricity demand in the China Southern Power Grid (CSPG), which feeds China's fast-growing Pearl River Delta region. This rising demand has stimulated the development of coal-fired power plants, which aggravate the harmful effects of air pollution on human health and raises the emission of GHGs. The **Yunnan Whitewaters Hydropower Development Project** helps satisfy the growing electricity demand in the CSPG by using China's untapped clean and renewable energy resources.

Located on the White Waters River in southwestern China, the development is a set of three cascading hydropower stations, with an installed total capacity of 78 MW. The expected annual average electricity sale to the grid is 369 gigawatt-hours, displacing an average of 274,560 tCO₂e per year. The project also has additional developmental benefits, as it will introduce much-needed investment capital and employment to a poverty-stricken, remote mountainous region of the Yunnan Province.





Gavin Green
Chair, Danish Carbon Fund
Carbon Credit Portfolio Manager, Dong Energy

Danish Carbon Fund

Since 2005, the Danish Carbon Fund has been an important part of the effort to reach Denmark's emission reduction targets. The Fund has worked successfully as a public-private partnership, with Participants from both the Danish industrial sector and the Danish Energy Agency. As we move towards the end of the Kyoto period, the emphasis of our work is shifting towards the successful delivery of carbon credits from the Fund's projects.

In 2010, there were successes and challenges for the Danish Carbon Fund. Three new ERPAs were signed for DCF projects, including the Bangladesh Energy Efficient Lighting Program, the Egypt Vehicle Scrapping and Recycling Program,

and the India Punjab High Voltage Distribution System Project. As with other players in the carbon market, the DCF was affected by the regulatory changes and delays in the CDM process, but it swiftly adapted to these realities. The DCF continues to demonstrate its commitment to sustainable development.

On behalf of the Participants, I wish to thank the World Bank's Danish Carbon Fund team for their hard work this year. We are confident that the World Bank will continue to be successful in meeting the challenges ahead, and together we are preparing for opportunities in the post-2012 carbon market.



The Danish Carbon Fund

www.danishcarbonfund.org

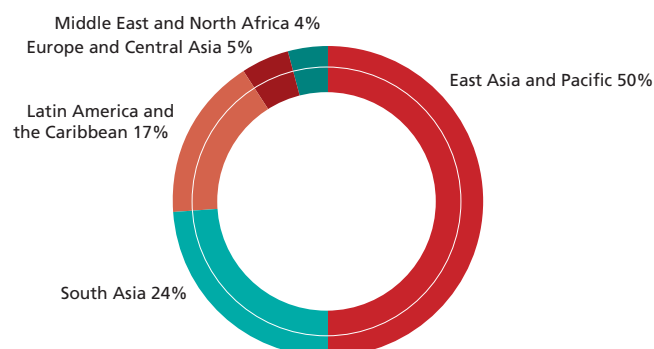
The Danish Carbon Fund (DCF) became officially operational in January 2005, and it plays a pivotal role in Denmark's emission reduction goals. The Fund is a partnership consisting of representatives from the Danish industrial sector and the Danish Energy Agency. In 2008, the original capitalization of the DCF was increased by €32 million to reach its current level of €90 million. The additional capitalization acted partly as a means of hedging against the risk of under delivery of ERs, but it also provides the DCF with added possibilities. As of December 2010, the DCF was closed to new projects.

DCF Portfolio Status

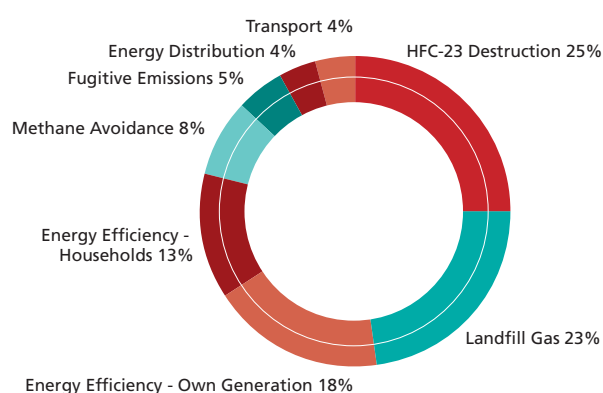
In 2010, the DCF added three ERPAs to its portfolio, bringing the number of projects to nine with a total value of €48.9 million and a total volume of 6.1 million tCO₂e. Geographically, half of the portfolio's value is concentrated in the East Asia and Pacific region. The portfolio supports a variety of sectors, including HFC-23 destruction (25 percent by value), landfill gas (23 percent by value), and energy efficiency (31 percent by value).

	Projects	Value	Volume (tCO ₂ e)
ERPAs Signed and Active	9	48,882,931	6,078,715
Pipeline Projects	3	4,496,524	532,655

Regional Distribution



Sectoral Distribution



2010 Participants

Public Sector



GOVERNMENT OF DENMARK
www.ens.dk/en-us

Private Sector



AALBORG PORTLAND A/S
www.aalborgportland.com



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



DONG ENERGY
www.dongenergy.com



NORDJYSK ELHANDEL A/S
www.neas.eu

Emission Reductions Purchase Agreements Signed

	Project	Description	tCO ₂ e
Bangladesh	Energy Efficient Lighting Program	Approximately 30 million household incandescent lamps will be replaced by energy efficient compact fluorescent lamps. Benefits include reduced energy bills, improved quality of lighting, and significant energy savings, which is projected to reduce load shedding	725,000
China	Baotou Energy Efficiency	Two components: the first 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
	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	2,000,000
Egypt	Vehicle Scrapping and Recycling Program	Implementation of a mechanism through which owners of taxis, minibuses, trailer trucks, and buses may voluntarily surrender their vehicles for managed scrapping and recycling in exchange for incentives used to purchase vehicles that are more efficient	232,274
India	Punjab High Voltage Distribution System	Reduce technical losses in the electricity distribution system by converting the agricultural feeders in the state of Punjab from a low-voltage distribution system (400 volts) to a high-voltage distribution system (11 kilovolts).	251,963
Mexico	Monterrey II Landfill Gas	Captured landfill gas to be flared and used in power generation, thereby reducing methane emissions	1,022,598
Pakistan	Lahore Composting	The construction and operation of a waste processing and composting plant in Lahore, Pakistan	310,000
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 flared	261,880
Thailand	Sapthip Wastewater Management Project	Reduce emissions by recovering and using as fuel the methane produced by the wastewater from the Sapthip Company's bioethanol plant	375,000

Bangladesh: Energy Efficient Lighting Program

Household lighting, often a luxury taken for granted in developed countries, can vastly improve the quality of life in a number of ways, from increasing safety to allowing students to study in the evening. However, electricity can be expensive and carbon-intensive if produced from fossil fuels. The **Bangladesh Energy Efficient Lighting Program** will address this issue by replacing approximately 30 million traditional incandescent bulbs with an equal number of energy-efficient compact fluorescent lamps (CFLs) in Bangladeshi households. By increasing the efficiency of lighting, Phase 1 of the program will reduce GHG emissions by about 725,000 tCO₂e. It will be implemented across urban and rural areas in Bangladesh by various utilities, supervised by the Rural Electrification Board's Program Management Unit.

The program will provide households with up to six free CFLs to replace their incandescent light bulbs. So far, 9 million out of approximately 10.5 million CFLs have been distributed in Phase 1. Phase II is currently under design, and it will likely result in door-to-door distribution or installation of 17 million CFLs. Benefits to households include reduced energy bills and improved quality of lighting. On a national scale, the significant energy savings will reduce load shedding in Bangladesh.





Alicia Montalvo Santamaría
Chair, Spanish Carbon Fund
Director General, Climate Change
Ministry of Environment, and Rural &
Marine Affairs, Government of Spain



Gonzalo García Andrés
Director General, International
Finance, Ministry of Economy and
Finance, Government of Spain

Spanish Carbon Fund

Since the establishment of the Spanish Carbon Fund, the Spanish Government has promoted public-private partnerships between the Administration and Spanish companies to foster low-carbon development through carbon finance. This year, the SCF achieved its founding goals by developing a diversified portfolio that includes projects covering a variety of sectors and technologies, such as renewable energy, waste management, energy efficiency, and transport.

Quantifiable achievements and the verification of emission reductions have now become of utmost importance. Significant progress has already been made in this regard, as a relevant number of carbon credits from projects in the portfolio are being issued. We are confident that this new phase will be carried out successfully by the World Bank, as has been the case with previous phases of the SCF.

The Government of Spain remains convinced that sustainable development in the future will have foundations in carbon finance and clean technologies. The agreements reached in Cancun in December of 2010 set the stage for new opportunities. Carbon markets are an efficient tool that must be further explored to create new possibilities for developing and developed countries. The Spanish experience with the SCF has helped to strengthen the sharing of knowledge in this field. It successfully demonstrates the viability of carbon finance and performance-based incentives, allowing developing countries' participation in the carbon market while promoting sustainable development.



The Spanish Carbon Fund

www.spanishcarbonfund.org

The Spanish Carbon Fund (SCF) is a private-public partnership that aims to mobilize resources to address climate change and promote sustainable development. The first tranche of the SCF opened in 2005 with an investment from the Spanish Government. In 2006, the Spanish private sector, including representatives from companies with obligations under the Spanish National Allocation Plan, committed to participate. The second tranche of the SCF, with the Spanish government as its sole Participant, was launched in April 2008.

The SCF has three main goals: (1) to purchase project-based ERs on behalf of its Participants; (2) to stimulate the flow of Spanish capital into sustainable development; and (3) to leverage the experiences of the World Bank to build Spanish private and public sector capacity to meet Spain's Kyoto Protocol obligations efficiently.

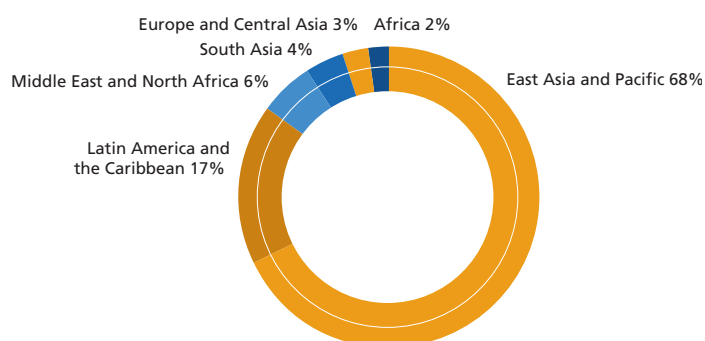
SCF Portfolio Status

Tranche 1

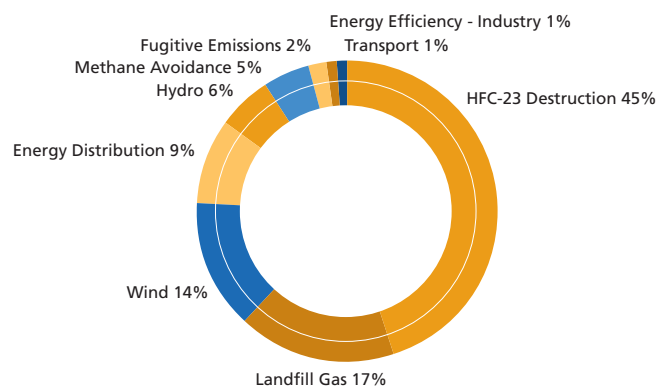
In 2010, the Spanish Carbon Fund Tranche 1 signed seven new ERPAs, bringing the total number of projects to 19, with a total value of € 111 million and a total volume of 15.9 million tCO₂e, after cancelations and amendments. While most of the portfolio's value is concentrated in the East Asia and Pacific region (68 percent), some of it is linked to projects in all other regions where the World Bank operates. The sectoral distribution is diverse, ranging from HFC-23 destruction (45 percent by value) to transport (1 percent by value).

	Projects	Value	Volume (tCO ₂ e)
ERPAs Signed and Active	19	110,981,865	15,909,120
Pipeline Projects	1	-	6,000,000

Regional Distribution



Sectoral Distribution

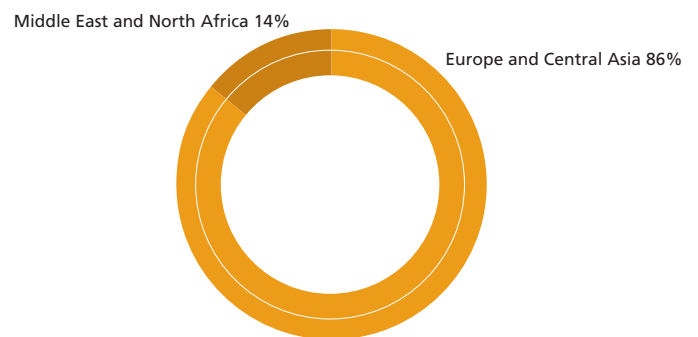


Tranche 2

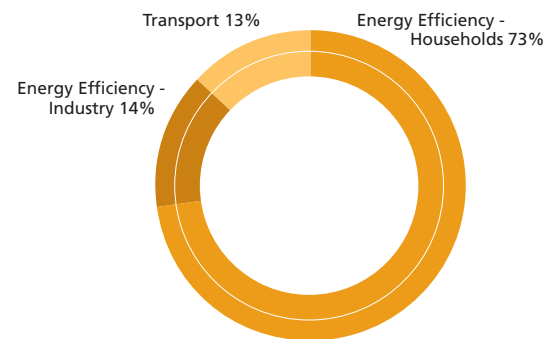
Tranche 2, which consists of only one participant, the Spanish government, signed two contracts with a total value of € 13.7 million for a volume of 1.5 million tCO₂e in a combination of CERs and AAUs in 2010. The portfolio is concentrated in the Europe and Central Asia as well as the Middle East and North Africa regions (86 percent and 14 percent of the portfolio's value, respectively). Currently, the portfolio's value is centered in the energy efficiency (87 percent) and transport (13 percent) sectors.

	Projects	Value	Volume (tCO ₂ e)
ERPAs Signed and Active	3	13,748,224	1,468,528
Pipeline Projects	3	-	4,267,216

Regional Distribution



Sectoral Distribution



2010 Tranche 1 Participants' Committee

Public Sector: Alicia Montalvo Santamaría (Chair),
Government of Spain
Gonzalo García Andrés, Government of Spain
Ana de Vicente Lancho, Government of Spain
Ismael Aznar Cano, Government of Spain
Teresa Solana Méndez de Vigo, Government
of Spain

Private Sector: David Corregidor, Endesa
Daniel Casado García, EON Generación
Jaime Martín Juez, Repsol

2010 Tranche 1 Participants

Public Sector



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

Private Sector



AZULIBER 1, S.L.
www.azuliber.com/en



E.ON Generación
www.eon-espana.com



IBERDROLA
www.iberdrola.es



CEMENTOS PORTLAND VALDERRIVAS
www.valderrivas.es



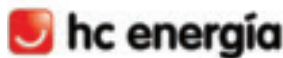
GAS NATURAL FENOSA, SA
www.gasnatural.com



OFICEMEN
www.oficemen.com



CEPSA
www.cepsa.com



HC ENERGIA
www.hcenergia.com/en



REPSOL YPF
www.repsol.com



ENDESA
www.endesa.es/portal/en



ZEROEMISSIONS
www.zeroemissions.com/corp/web/en

Emission Reductions Purchase Agreements Signed Tranche 1

	Project	Description	tCO ₂ e
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, which could potentially be used for electricity generation.	480,000
China	DASHIQIAO District Heating Project	The objective of the Dashiqiao Central Heating Project is to improve the energy efficiency and cleanness of building heating in the city by introducing a new primary district heating system and replacing a large number of inefficient small-sized boilers with a central station that has large "heat only boilers" with higher efficiencies.	194,232
	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.	8,333,333
	Jiangxi Shihutang Hydro Project	The Jiangxi Shihutang Hydropower Project is a grid-connected hydropower project with total installed capacity of 120 MW. It is equipped with 6 sets of bulb tubular turbines with a unit capacity of 20 MW.	200,000
	Tianjin Landfill Gas Recovery and Utilization	Construction of a landfill gas utilization system to generate electricity for landfill operations and to feed to Tianjin City's power grid. 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
	YINGKOU EDZ District Heating Project	The project aims to improve the energy efficiency and cleanness of current heating services for buildings in the city of Yingkou EDZ by establishing a new primary district heating system and receiving heating from a much cleaner source. Heat will be extracted from the turbines of two supercritical units of the Huaneng Yíngkou Power Plant (320 MW each) located near the city.	860,021
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 currently Onyx does not have an obligation to treat.	1,100,000
India	BBMB Hydro Rehabilitation Project	The project involves capacity enhancement of Bhakra-Left Bank Power House, an existing hydro electric project that will increase the power availability from cleaner sources in the Northern Region Grid.	240,000
	Karnataka Wind Power Project	Construction and operation of wind power projects at two sites in the Indian state of Karnataka.	178,917
Mali/Mauritania/Senegal	OMVS Félou Hydroelectric	Construction and operation of a run-of-the-river hydroelectric installation on the Senegal River. The project will deliver electricity to national power utilities in the sub-region (Mali, Mauritania, and Senegal) through the creation of 59 to 62 MW of installed hydropower generation capacity.	280,000
Mexico	La Venta II	An 85 MW wind project in the southern region of the Isthmus of Tehuantepec, in the Mexican state of Oaxaca.	1,560,000
	Mexico City Transport	Activities will promote a shift toward low-polluting modes of transportation (primarily articulated buses) through the development of surface mass transport corridors and traffic management measures that work with the existing metro infrastructure. High-polluting "colectivo" buses will be scrapped.	354,607
Philippines	LFGTE and Program of Activities in Piggeries by LandBank	Two components: Activity A aims to mitigate the release of methane from pig waste effluents produced by different piggeries. Activity B will mitigate the release of methane generated from dumpsites and landfills through an initiative developed by LandBank.	250,000
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 flared.	226,320
Thailand	Bionergy Sugar Ethanol Wastewater Management	Construction of an anaerobic cover lagoon to treat wastewater from the Thai Sugar Ethanol facility in Kanchanaburi	500,000

Table continued on next page

Emission Reductions Purchase Agreements Signed *(continued)*

Tranche 1

	Project	Description	tCO ₂ e
Tunisia	Sidi Daoud Wind Farm Project	The project comprises 26 wind turbines of 1,320 kilowatts each, with a total installed capacity of 34.32 MW. The project also includes a transformation substation aimed at upgrading the power generated by the turbines to 90 kilovolts, and the construction of a 22.5 km high-voltage transmission line linking the wind farm to the nearest central transformation station of Menzel Temime 1 and connecting it to the Tunisian interconnected electricity grid.	130,000
Ukraine	Alchevsk Steel Mill Revamping and Modernization	Improving efficiency of steel production by replacing old Open Hearth Furnaces with modern basic oxygen furnaces	100,000
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. Such a facility will allow the capture and destruction of methane generated through the anaerobic decomposition of organic matter disposed of in the landfill.	247,491
	Wind Farm	Implementation of a 10 MW wind farm at Caracoles Hill in Maldonado, Uruguay. The wind farm is connected to the national electric system through a 30 kilovolt line, approximately 20 km long.	39,200

Tranche 2

	Project	Description	tCO ₂ e
Czech Republic	Green Investment Scheme	The Czech Republic set up the "Program of Savings of Energy and Renewable Energy Sources on the Revenues from Sale of Emission Credits – Green Investment Scheme" on April 1, 2009. The overall objective of the GIS program is to support selected measures implemented in residential buildings by resident persons and entities owning residential buildings that will lead both to immediate reductions in carbon dioxide emissions and to the initiation of a long-term trend of sustainable housing.	1,000,000
Egypt	Vehicle Scrapping and Recycling Program	Implementation of a mechanism through which owners of taxis, minibuses, trailer trucks, and buses may voluntarily surrender their vehicles for managed scrapping and recycling in exchange for incentives used to purchase vehicles that are more efficient.	
Ukraine	Alchevsk Steel Mill Revamping and Modernization	Improving efficiency of steel production by replacing old Open Hearth Furnaces with modern basic oxygen furnaces	236,254



India: Karnataka Wind Farm

Approximately 250 km from Bangalore, in the villages of Anabaru and Arasinagundi, the **India Karnataka Wind Farm** supplies renewable electricity to the Karnataka State electricity grid. The project activities include development, design, engineering, procurement, construction, operation, and maintenance of wind-based electricity-generating stations. The wind farm consists of 18 wind turbines of 1.65 MW each, totaling a capacity of 29.7 MW.

By supplying renewable power, the project displaces conventional electricity and reduces GHG emissions. The electricity generated through the project is supplied to a common

local sub-station at Hiremallaholle using underground internal electrical lines and local transmission lines. Traditionally, internal wind farm connections use overhead transmission lines with open transformers. However, for the first time in India, the wind farm relies on installed *underground* cabling within the wind farm. The project benefits are multi-dimensional: it promotes renewable power generation, innovative technology, and sustainable economic and environmental development.





A handwritten signature in black ink that reads "Anne C. Bolle".

Anne C. Bolle
Chair, Carbon Fund for Europe
Managing Director, Statkraft Carbon Invest AS

The Carbon Fund for Europe

The five Fund Participants—four governments and one company—are committed to participating in the carbon market to meet our Kyoto and EU ETS targets up to 2012 and beyond. By managing parts of our purchasing targets through the Carbon Fund for Europe, we are contributing to low-carbon development through clean technology projects. The CFE project portfolio now consists of seven signed agreements, including six Emission Reductions Purchase Agreements and one Assigned Amount Unit Purchase Agreement.

Operating in a dynamic carbon market, 2010 proved to be yet another challenging year for the Fund. Issues of volume shortfalls and delays are by no means unique to this Fund, and the Trustee has put in considerable effort to address these

issues and assert Participants' interests. In 2010, one ERPA and one AAU PA were signed, and two ERPAs were amended. The Trustee has succeeded in adjusting commitments to be realistic in regards to volumes, deliveries, and capital needs. Thorough reporting and analysis, close follow-up of projects, and discussions and negotiations with project owners have been paramount to this success.

The carbon market is impacted by an absence of strong signals towards enduring flexible mechanisms and future commitment periods. We hope that 2011 will bring these signals, enhancing the success of our investments in sustainable development.



The Carbon Fund for Europe

www.wbcarbonfinance.org/cfe

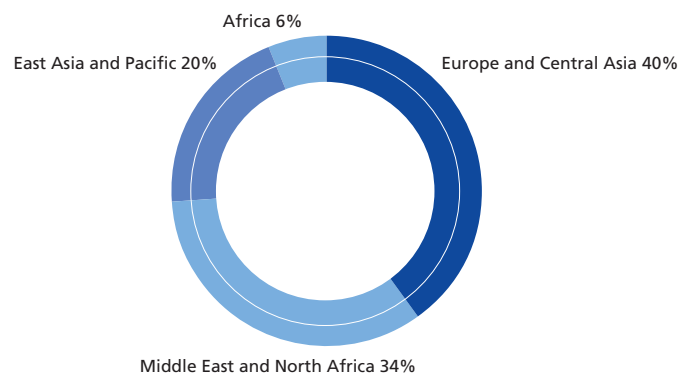
Operational since March 2007, the Carbon Fund for Europe (CFE) is a trust fund co-managed by the World Bank and the European Investment Bank. Both contribute unique expertise: the European Investment Bank provides an in-depth understanding of the European economy and project pipelines in developing countries, while the World Bank offers expertise and experience in carbon markets. The Fund purchases credits compatible with the EU ETS from projects compliant with CDM and JI mechanisms of the Kyoto Protocol. Moving forward, the Fund expects to continue building its dynamic project portfolio and maintain a diverse set of technologies that support the advancement of developing countries, in a sustainable way.

CFE Portfolio Status

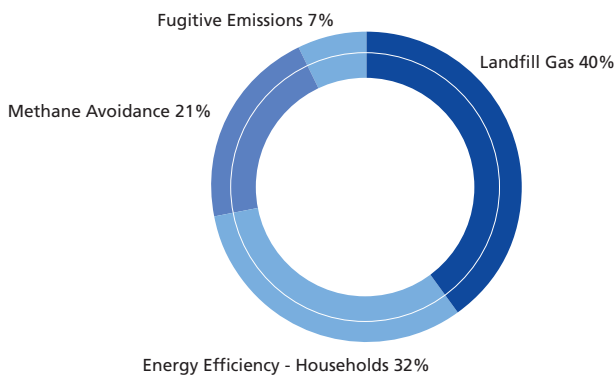
In 2010, two new ERPAs were signed by the CFE, enlarging the portfolio to seven projects, with a total value of €31 million and a total volume of 3.1 million tCO₂e. Most CFE commitments support projects located in the Europe and Central Asia region (40 percent by value), and the portfolio also includes projects in the regions of Middle East and North Africa (34 percent by value), East Asia and the Pacific (20 percent by value), and Africa (6 percent by value). CFE ERPA-signed projects currently focus on four sectors: landfill gas (40 percent by value), energy efficiency in households (32 percent by value), methane avoidance (21 percent by value), and fugitive emissions (7 percent by value). The pipeline comprises a hydro rehabilitation and a transport project.

	Projects	Value	Volume (tCO ₂ e)
ERPAs Signed and Active	7	30,987,191	3,087,966
Pipeline Projects	2	2,600,000	288,000

Regional Distribution



Sectoral Distribution



The Carbon Fund for Europe Participants

Public Sector



DEPARTMENT OF THE ENVIRONMENT,
HERITAGE AND LOCAL GOVERNMENT,
IRELAND

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



FLEMISH GOVERNMENT
www.flanders.be

**FONDO PORTUGUES
DE CARBONO**

FONDO PORTUGUES DE CARBONO,
PORTUGAL



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

Private Sector



STATKRAFT CARBON INVEST AS
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Nigeria: Earthcare Solid Waste Composting Project

In Nigeria, the common waste management practice is to dispose of waste in landfills, where it decays in anaerobic conditions and emits methane, a potent GHG. The **Earthcare Solid Waste Composting Project** improves municipal solid waste management practices in the state of Lagos while curtailing methane emissions from landfills. The composting facility processes biodegradable waste from households, saw mills, abattoirs, and fruit and vegetable markets into compost, diverting a portion of the municipal solid waste away from landfills. Composting helps reduce waste disposal problems in Lagos City, which in turn reduces methane emissions and improves air quality. The composted material also provides a competitive natural fertilizer to the local agricultural sector.

The project was registered as a CDM activity in December 2010, with an estimated 280,000 tCO₂e to be generated per year. The project is already commissioned and producing compost. Under the ERPA signed in June 2010, the CFE will purchase a total of 236,646 CERs over 3 years and 275,000 option CERs.



Emission Reductions Purchase Agreements Signed

	Project	Description	tCO ₂ e
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 ERs, 6 percent will be used to implement social services projects. The compost will be sold to farmers at current market prices.	100,000
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 will be delivered to the grid and replace 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
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.	125,000
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 flared	226,320
Thailand	Small Scale Livestock Waste Management Program (ERDI)	Improvement of livestock waste management practices in Thailand to reduce 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 capture the biogas, and use it to generate electricity for on-farm consumption or sale to the national grid.	500,000
Czech Republic	Green Investment Scheme (GIS) Transaction	Implementation of energy-efficiency measures in households and in small renewable energy projects in the Czech Republic	1,000,000
Nigeria	EarthCare Municipal Solid Waste (MSW) Composting Project	Implementation of a bioremediation system to process municipal solid waste generated in Ikorodu City, Lagos State, Nigeria. The compost facility will process and convert biodegradable waste into useful compost as an alternative to chemical fertilizer.	236,646





Inger Andersen
Vice President, Sustainable Development
The World Bank

Forest Carbon Partnership Facility

Since we started designing the Forest Carbon Partnership Facility in 2006, all parties involved—forest countries, donor countries, indigenous peoples, civil society, the private sector, and international organizations—have benefited from a fruitful exchange of knowledge. The FCPF has provided a forum for discussions both at the international and country levels, where governments, traditional rights holders and various stakeholders come together to discuss new approaches to tackle the drivers of deforestation and forest degradation.

In 2010, the FCPF accelerated the assessment of Readiness Preparation Proposals (R-PPs: descriptions submitted by forest countries on how they will prepare for REDD+) and allocated about \$40 million in grant funding for their implementation. Many more countries will formulate and present their proposals in the months ahead. We recognize that disbursements from the FCPF have been slower than expected, but the World Bank team is working with government counterparts to address the underlying issues and clear the way for fund disbursement.

We are keen to invite other delivery partners, including multilateral development banks and UN agencies, to offer

readiness services to countries under the FCPF. REDD+ provides forested countries with a tremendous opportunity to generate revenue streams while protecting forests and combating poverty, but also poses serious development challenges and requires that the capacity of all partners be harnessed using common fiduciary and safeguards approaches.

Important developments lie ahead, including the start of operations of the Carbon Fund. The Fund will demonstrate how performance-based payments can incentivize fundamental changes in the way countries manage their forest heritage. We also look forward to the growing collaboration between the FCPF and its partners, the UN-REDD Programme, the Global Environment Facility and the Forest Investment Program. The partners' complementary roles are continuing to crystallize, particularly at the country level. We encourage forest nations to tap into the support offered by these various initiatives in ways that will maximize their benefit — not in isolation, but in combination with each other. The forum and processes set up by the FCPF help make this possible.



The Forest Carbon Partnership Facility

www.forestcarbonpartnership.org

Operational since June 2008, the Forest Carbon Partnership Facility (FCPF) is a global partnership focused on reducing emissions from deforestation and forest degradation, as well as forest carbon stock conservation, sustainable management of forests, and enhancement of forest carbon stocks (a collection of activities known as REDD+). The FCPF has two objectives: (1) to assist tropical and subtropical forest countries with the development of systems and policies for REDD+, captured in the Readiness Mechanism and supported by the Readiness Fund, and (2) to provide them with performance-based payments for ERs through the Carbon Finance Mechanism and the Carbon Fund. The FCPF cooperates closely with other initiatives, including the UN-REDD Programme and the Forest Investment Program.

The Partnership is composed of 37 REDD Country Participants (14 in Africa, 15 in Latin America and the Caribbean, and 8 in Asia and the Pacific) and 15 financial contributors. The Facility is governed by a 28-member Participants' Committee and six Observers, all elected or nominated by stakeholders, including REDD Country Participants, financial contributors, forest-dependent indigenous peoples and other forest dwellers, NGOs, international organizations, the UN-REDD Programme, the UNFCCC Secretariat, and the private sector. The World Bank acts as Trustee for both the Readiness Fund and the Carbon Fund and provides secretariat services. The World Bank also acts as delivery partner for the FCPF, providing technical support to the REDD Country Participants and conducting due diligence on matters such as fiduciary policies and environmental and social safeguards.

FCPF Portfolio Status

Sixteen financial contributors had pledged about \$345 million to the FCPF by the end of 2010: \$200 million to the Readiness Fund and \$145 million to the Carbon Fund. In 2010, the FCPF continued to strengthen its partnership of countries and stakeholders. More than ever before, the important role of forests in mitigating GHG emissions and maintaining resilience to climate change was a focal point of international dialogue. Progress on REDD+ was made at the Conference of Parties in Cancun (see "REDD+: Exploring the Role of Forests," page 83). The unique FCPF partnership not only allowed participants to discuss opportunities and challenges to implementing REDD+ in their individual countries, but it also gave them a neutral and innovative space to propose different solutions with the rich input of counterparts from other countries and independent experts outside of the climate negotiations.

The Readiness Mechanism

In 2010, significant progress was made in moving from the planning stage to REDD Readiness preparation in forested developing countries. Ten REDD Countries submitted formal Readiness Preparation Proposals, providing a wealth of experience and information from which the international community is learning about REDD+. This past year, the 10 countries that submitted R-PPs were allocated funding for their proposals, and they are looking ahead towards their implementation.

The Fund was also able to offer \$200,000 grants to all REDD Participant Countries to support the preparation of their R-PPs. A number of these grants were signed and disbursing,

with some fully disbursed. The first independent evaluation of the FCPF was initiated in December 2010, and the FCPF published some valuable lessons learned since 2008 (see Early Lessons from the Forest Carbon Partnership Facility, page 85).

The Carbon Finance Mechanism

Though the focus to date has been on Readiness, important planning was accomplished in 2010 towards making the FCPF Carbon Fund operational in 2011. It will be a public-private partnership that will provide payments for Verified ERs from REDD+ programs in countries that have made, or made considerable progress towards, REDD+ Readiness.

2010 Participants

- AGENCE FRANÇAISE DE DEVELOPPEMENT
- GOVERNMENT OF AUSTRALIA
- GOVERNMENT OF CANADA
- GOVERNMENT OF DENMARK
- THE EUROPEAN COMMISSION
- GOVERNMENT OF FINLAND
- GOVERNMENT OF GERMANY
- GOVERNMENT OF JAPAN
- THE NATURE CONSERVANCY
- GOVERNMENT OF THE NETHERLANDS
- GOVERNMENT OF NORWAY
- GOVERNMENT OF SPAIN
- GOVERNMENT OF SWITZERLAND
- GOVERNMENT OF THE UNITED KINGDOM
- GOVERNMENT OF THE UNITED STATES



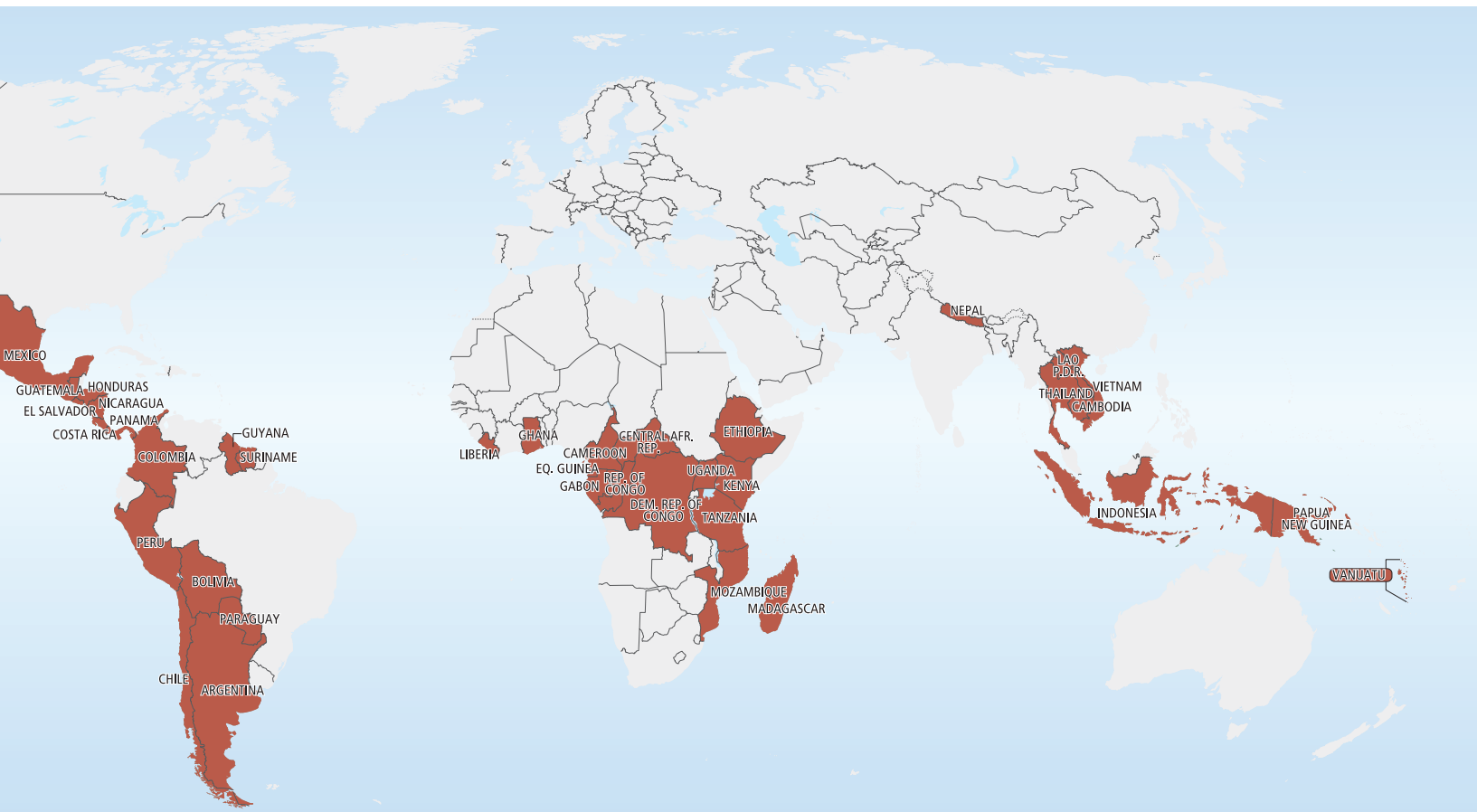
REDD COUNTRY PARTICIPANTS

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

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MAY 2011
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* Countries with Readiness Preparation Proposals formally accessed as of December 31, 2010.







Joëlle Chassard

Chair, Carbon Partnership Facility
Manager, Carbon Finance Unit, The World Bank

The Carbon Partnership Facility

Strengthened by the rich experience garnered over the past decade, we have embarked on our next 10 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 all 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 our partner countries.

The Carbon Partnership Facility is a centerpiece of our efforts to continue to innovate in the use of market mechanisms and to scale up their impact on global emission reductions. The fundamental goal of the CPF is to help our partner countries utilize carbon finance to implement systematic approaches to low-carbon growth. To do this, our focus has to be on finding ways to support their policies and initiatives to catalyze public and private investment in clean technologies.

Inherently, this will give the CPF a different character. Instead of working on a project- by-project basis with individual developers, we will be working on a larger, more programmatic basis with governments and agencies to develop large-scale carbon finance programs. These programs will be linked to World Bank operations and other sources of funding to provide more comprehensive approaches to financing clean technologies.

This is uncharted territory, and requires a new way of doing business. That is why we have established the CPF as a *partnership*, where both Buyer and Seller Participants, together with Donors and Host Country Partners, can sit together at the table, learn from each other's experiences, and work together to design solutions that will work on the ground and be mutually beneficial. This, we believe, is the most effective way to drive innovation and to scale up carbon finance.



The Carbon Partnership Facility

www.wbcarbonfinance.org/cpf

Made operational in 2010, the Carbon Partnership Facility (CPF) is designed to develop and market ERs by providing carbon finance to investments focused on delivering post-2012 ER assets. It consists of the **Carbon Asset Development Fund**, which supports the preparation of the ER programs, and the **CPF Carbon Fund**, which will purchase ERs generated by CPF programs. The CPF collaborates 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.

In the current Kyoto period, existing carbon finance mechanisms (e.g., CDM) have operated largely on a project-by-project basis. The CPF utilizes scaled-up, programmatic approaches, such as the CDM Programme of Activities, to enable carbon finance to support partner country initiatives in support of low-carbon investments. It also targets areas that have not been reached effectively by mechanisms in the past, such as energy efficiency, and proposes to pilot city-wide carbon finance programs.

The Facility draws on the World Bank's financial and knowledge resources to integrate carbon finance with sustainable development plans by aligning carbon finance with World Bank country assistance programs, and often linking with

lending operations. It facilitates the implementation of low-carbon programs across an array of sectors and technologies—energy generation and distribution, energy efficiency, and waste management—in situations where governments need policy measures or investments.

CPF Portfolio Status

The first Tranche of the Carbon Partnership Facility became operational on May 15, 2010. By the end of 2010, it had €140 million in commitments and an additional €11 million in contributions to the Carbon Asset Development Facility.

The key objective of Tranche 1 is to test the CPF model. The goal is to demonstrate the efficacy of using the CDM Programme of Activities approach on a large scale, linked to World Bank operations that support partner country initiatives. New approaches, such as city-wide programs, will be tested. New CDM methodologies in areas of great potential for ERs, such as energy efficiency in buildings, will be developed.

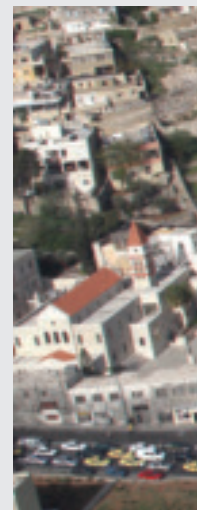
While Tranche 1 will take into account current carbon market conditions, the longer term vision is to use the CPF to innovate and scale up CDM modalities at the frontier. The lessons learned from initial efforts on Tranche 1 programs will set the stage for the World Bank to make further constructive contributions to the design and implementation of future carbon market mechanisms.

Jordan: Amman Green Growth Program

Cities are the fastest growing source of global GHG emissions, and urban areas represent a rising challenge for global climate change mitigation. In an effort to promote access to carbon finance at the city level, the World Bank published *A City-wide Approach to Carbon Finance* in 2010. This document presents a series of steps to create city-wide Programmes of Activities, which are coordinated by the city authority and ensure carbon impact consideration in every decision.

In May 2010, the Carbon Partnership Facility and the Greater Amman Municipality signed a Seller Participation Agreement for the **Amman Green Growth Program**, representing the first city-wide PoA in the world. The PoA includes ER opportunities in municipal waste, urban transport, sustainable energy, and urban forestry. Based on initial estimates, the Amman Green Growth Program has the potential to reduce GHG emissions by up to 560,000 tCO₂e per year.

The particularly strong commitment to the Amman Green Growth Program prompted the World Bank to use it as a case to support the submission of the *City-Wide Approach to Carbon Finance* to the CDM Executive Board. At the UNFCCC climate conference in Cancun, the Parties requested that the Executive Board reassess regulations related to PoAs, paving the way for future city-wide programs around the world.



2010 Participants

Buyer Participants



GOVERNMENT OF SPAIN



ENDESA



MINISTRY OF FINANCE

GOVERNMENT OF NORWAY²



SWEDISH ENERGY AGENCY²

²As of December 31, 2010, the participation of Norway and Sweden was pending the completion of an amendment to the CPF Instrument.

Seller Participants

FONDS D'EQUIPEMENT COMMUNAL OF MOROCCO

CAIXA ECONÔMICA FEDERAL OF BRAZIL

MINISTRY OF INDUSTRY AND TRADE OF VIETNAM

GREATER AMMAN MUNICIPALITY

PROVINCIAL ELECTRICITY AUTHORITY OF THAILAND

Donors to the Carbon Asset Development Fund

GOVERNMENT OF SPAIN

GOVERNMENT OF NORWAY

GOVERNMENT OF ITALY

EUROPEAN COMMISSION



The Way Forward





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

The World Bank is already positioning itself for the post-2012 carbon market by putting forward innovative approaches, such as the Partnership for Market Readiness.



The Cancun Agreements were a major milestone and re-established confidence in multilateralism. They set a path towards raising a collective ambition to prevent climate change, laying the foundation for enhanced adaptation actions and substantial scaling-up of climate finance. However, the future of the Kyoto Protocol, and therefore the continuation of its mechanisms, remains uncertain. For the two negotiation tracks, clarification of the desired outcomes and definition of the timeline for work completion will be required in Durban, South Africa. The World Bank is already positioning itself for the post-2012 carbon market by putting forward innovative approaches, such as the Partnership for Market Readiness.

In Africa, REDD+ activities and programs hold substantial and transformational potential for some tropical forest countries. REDD+

will support their sustainable development goals by rewarding them for managing their natural resources in a sustainable fashion. In this regard, the important role of the World Bank in ongoing and new initiatives, such as the Forest Carbon Partnership Facility, the BioCarbon Fund, and the Forest Investment Program, should be recognized. Nevertheless, there is still a need for reform of the Clean Development Mechanism, especially with regard to Least Developed Countries that have not yet benefitted from the CDM and still experience restricted access to carbon markets. We are looking forward to the climate talks in Durban, where we will have the opportunity to move key issues forward to keep Africa safe from the adverse effects of climate change and advance its sustainable development agenda.

The Partnership for Market Readiness



The future of carbon finance beyond 2012 may be uncertain, but the World Bank is taking steps now to ensure new financial instruments continue to drive climate change mitigation. The Partnership for Market Readiness (PMR) was launched at the end of 2010 to provide governments, international organizations, and relevant stakeholders with a platform to share, innovate, and support market instruments necessary to meet national mitigation targets. The Partnership's multi-million dollar fund, combined with specialized technical support, will provide support to countries in their efforts to use market instruments to scale up mitigation.

Carbon Finance Beyond 2012

The PMR focuses on supporting the pursuit of sustainable development through access to carbon markets. Launched at an event on the sidelines of the UNFCCC conference in Cancun in December 2010, the PMR has financial pledges of \$70 million from the European Commission and 9 donor countries, including Australia, Germany, Norway, Japan, the Netherlands, Spain, Switzerland, the United Kingdom and the United States. The goal is to raise \$100 million to provide financial and technical support to countries that need it most.

The PMR is an example of how the World Bank continues to address the needs of the countries responding to a growing demand for capacity building in preparing for post-2012 carbon market options. Many countries, including China, Chile, Indonesia, India, and Mexico, have shown interest in using carbon market instruments and emissions trading mechanisms to encourage investment in carbon-alternative technologies. For example, China is exploring the establishment of a domestic emissions trading scheme, and India is putting in place a trading scheme for renewable energy and energy efficiency certificates.

Building Capacity for Market Instruments

Market instruments, including the Clean Development Mechanism (CDM), Joint Implementation (JI), and domestic emissions trading schemes, have successfully encouraged investment towards lower-carbon alternatives. In a cost-effective manner, they drive the financial flows needed to divert a business-as-usual trajectory and reduce emissions. The challenge moving forward is how to best scale up carbon market mechanisms, allowing them to expand in scope and operate more efficiently.

The PMR will address this challenge by creating opportunities for carbon markets. It will provide a technical forum to discuss and develop new market instruments, as well as enabling capacity building to help countries prepare for them. The PMR will support pilot programs and provide the channels to exchange experiences and lessons learned. The process will be led by the participating countries within the context of their mitigation priorities and level of market development.

“We can build support for addressing greenhouse gases by more countries—developing and developed—**by putting concepts into practice.**”

*World Bank President, Robert Zoellick
in the January 23, 2011 edition of Newsweek*

An aim of the PMR is to encompass a range of market instruments. It will cover domestic schemes, including emissions trading for carbon or its proxies (e.g., renewable energy and energy efficiency certificates). It will also include international market instruments, such as new scaled-up crediting schemes. Capacity building will be an important part of the PMR’s work: certain “readiness components” are essential to any form of market instruments. The PMR will support a range of technical, policy, and institutional readiness initiatives, such as setting up domestic systems for monitoring, reporting and verification, enhancing institutional capacity, and establishing policy and regulatory frameworks.

Putting Concepts into Practice

One of the greatest ways the World Bank can enable climate change action in countries throughout the world is by putting innovative concepts into practice. The PMR will give its Participants an important platform to explore new ideas, as well as the support to bring those ideas to fruition. By mobilizing resources, encouraging the sharing of experiences, and working to invent new and innovative market instruments, the PMR will propel carbon finance through 2012 and beyond.





REDD+: Exploring the Role of Forests



From Argentina to Zambia, developing countries with a natural capital of land and forests have an intricate mosaic of land types. However, expanding agricultural areas and development have resulted in lost forest area and declining biodiversity. The concept of REDD+ was proposed in 2005 in the UNFCCC climate change negotiations as a policy instrument to slow, stabilize, and reverse this history of loss. It began as a proposal for reducing emissions from deforestation and forest degradation (REDD), and then expanded to include conservation, sustainable management of forest, and enhancement of forest carbon stocks in developing countries (REDD+). There are tremendous opportunities for climate change mitigation and adaptation from REDD+ activities. As countries experiment with this new mechanism, the fundamental challenges are building capacity while integrating REDD+ into national development plans, altering land-use incentives and behavior, and safeguarding local participation and implementation.

REDD+ at UNFCCC COP16 in Cancun

In December 2010, the UNFCCC COP16 in Cancun, Mexico reached a decision about REDD+, encouraging developing countries to act in accordance with national circumstances and capabilities to develop: (1) a REDD+ strategy or action plan; (2) a reference level of forest emissions (a baseline of forest cover and its change over time); (3) a forest monitoring system for robust and transparent monitoring and reporting of activities; and (4) a system for collecting information on strategies for addressing and respecting safeguards throughout the implementation of REDD+ activities.

While no quantified global deforestation target was agreed upon, the decision represents a historical development, particularly with respect to the scale of actions. Broad support was won for slowing the loss of tropical forests while mitigating

climate change at a *national* scale. Currently, the Kyoto Protocol's CDM only allows afforestation and reforestation activities at the *project* scale. The up-scaling of mitigation activities to a national level, while allowing voluntary carbon offset projects and sub-national piloting in the interim, was the striking accomplishment of Cancun.

The COP16 decision confirmed a phased approach to REDD+: a first phase of national strategies and capacity building in each country; a second phase of implementation of the carefully developed REDD+ strategies; and a third phase of results-based activities that are fully measured, reported, and verified. Bilateral and multilateral funding is anticipated to assist with the first two phases while further discussions on funding of the third phase are called for at COP17 in Durban, South Africa.

Building in the REDD Space

The policy space pioneered by the development of REDD+ has widened and deepened in the past year. An important transition occurred: the creative international policy concept and exploratory project-scale emissions reduction (ER) agreements have developed into the early stages of a country-driven institutional architecture and stakeholder participation.

The governing bodies of the Forest Carbon Partnership Facility (FCPF), the Forest Investment Program (FIP), and the UN-REDD Programme (UN-REDD) have mandated their secretariats to enhance cooperation and coherence among REDD+ institutions to support country-level REDD+ efforts and financing. FCPF and UN-REDD have jointly developed both guidelines for stakeholder engagement and a common draft template for Readiness Preparation Proposals. Work is also underway to create a common approach to delivery of FCPF REDD+ grants as well as social and environmental safeguards among various partner entities.

Other multilateral donor trust funds have created new modalities to channel additional resources to countries in support of REDD+ efforts. For one, as part of its program for Sustainable Forest Management/REDD+, the Global Environment Facility has created an incentive-based mechanism with a funding envelope of \$250 million that may be combined with country-level REDD+ allocations. For another, Brazil's Amazon Fund has begun to implement its nearly \$1 billion program of setting reference levels for forest cover change, reviewing and funding proposals to slow deforestation, and delivering payments to eligible forest users and communities.

At the Oslo Climate and Forest Conference in May 2010, the REDD+ Partnership—a consortium of 72 countries and relevant stakeholders, including indigenous peoples' organizations, civil society, and the private sector—announced its goals to increase efficiency, effectiveness, transparency, and coordination across bilateral, national, and international programs supporting REDD+. A central focus for the year ahead emerged as the need to match identified national REDD+ initiatives with available financial and technical

resources from national and international REDD+ institutions. Key tasks of the Partnership include designing and maintaining the voluntary REDD+ database, analyzing financing gaps, sharing of lessons on REDD+ initiatives, and developing and launching a website for the REDD+ Partnership.

The Year Ahead: the World Bank, REDD+, and Low-Carbon Development

Initiatives for REDD+ have matured, allowing it to fit into the context of the UNFCCC negotiations for advancing low-carbon development strategies. In the coming year, individual countries and REDD+ programs will be experimenting with developing methodologies, best practices for stakeholder participation, reference levels for forest emissions, and measurement, reporting and verification of REDD+ within the low-carbon development context. At the World Bank, carbon finance pilots by the BioCarbon Fund that expand beyond afforestation and reforestation into soil carbon management and landscape-scale programs will broaden the scope of land-use emissions management projects. In addition, the FCPF Carbon Fund will begin assessing potential large-scale ER programs, methods, and price setting in a public-private context.

This may be the year that the global community asserts its understanding of what is required to significantly mitigate global emissions: expansion from small but ingenious pilots to visionary infrastructure and delivery mechanisms at the country level. The 2011 work program for REDD+ features some daunting challenges. National institutions are needed to assert influence over lands, organizations, and economic incentives. Technical methodologies are required to measure and monitor REDD+ activities relative to an established reference level. Governance must be advanced at local and national levels. To prepare for the third phase of REDD+, the international community must consider financial options and make decisions that promote the possibility of a potentially massive private sector investment. This needs to be the year that incentives begin to reach the ground.

Early Lessons from the Forest Carbon Partnership Facility

In November 2010, the World Bank released a working paper compiling lessons learned from the early stages of the Forest Carbon Partnership Facility that can be applied moving forward. The overall message emphasized financial incentives and governance, the need to start building with awareness of timing and sequencing, the growing attention to issues of poverty, and the increasing relevance of project implementation at the sub-national level. These messages were highlighted in 10 specific lessons:

Partnership

A partnership among often-contentious stakeholders involved in tropical land use can find ways to communicate and explore highly policy-sensitive topics, if it first builds trust and willingness to share new ideas.

Coordinating Sectors

The cross-cutting nature of REDD+ presents new challenges in sectoral coordination that may be solved by embedding the REDD+ strategy in overarching policy frameworks (e.g., a nation's low-carbon development strategy) and by mobilizing decisive political will.

Stakeholder Participation

Countries are now grappling with how to operationalize the inclusion of stakeholders in REDD+ policy and implementation, raising new issues of control over resource management and the respective decision-making processes.

Country Readiness Preparation Proposals

Political will is required to create highly qualified teams capable of resolving competing interests into a coherent national plan for REDD+.

New Techniques and Tools

Promising results are emerging where countries are combining traditional evaluation of potential REDD+ strategy options with newer analytical tools that facilitate making choices among competing options.

On-the-Ground Implementation

A REDD+ bridge has yet to be built between the wealth of experiences at the local level in managing forest resources and land-use change, and ideas on REDD+ policy frameworks and incentive programs at the national level.

Governance

Early cooperative development of a first set of rules for REDD+ transactions and benefit sharing is an essential prerequisite for the broad legitimacy and support of REDD+ programs.

Methodological Issues

Addressing methodological issues such as reference level and measurement, and reporting and verification is a key entry requirement for REDD+ programs. In the absence of clear policy guidance from the international level and price signals for REDD+, countries could embark on a no-regrets stepwise approach to begin building capacity.

Financing

Early initiatives to finance REDD+ have illuminated a paradox: in spite of the high level of international commitments to REDD+ funding, the mechanics of multilateral programs to move resources to REDD+ partner countries require due diligence and safeguards that have slowed the flow of funds to countries.

A Realistic Role for REDD

If REDD+ is to evolve and achieve its promise to mitigate global climate change, these lessons suggest it needs some time, some space, and some flexibility to be fairly experimented with over the next few years.

These 10 lessons illustrate an important point about REDD+ and the FCPF: this is a process. REDD Countries and the Partnership are only beginning this journey, and there is quite a road ahead. In particular, we all must be realistic about what the R-PP provides: not the solution, but an important step towards it. REDD+ goals are ambitious and it will take patience and dedication to reach them.

CDM in the Poorest Countries



Realizing the Potential of the Clean Development Mechanism in Least Developed Countries

The CDM is intended to lower the cost of abating GHG emissions while facilitating a wide range of socioeconomic benefits. By the end of 2010, the CDM had been successful in registering more than 2,800 projects, and an additional 2,500 projects are currently in the validation or registration process. This success is further exemplified by the over 500 million Certified Emission Reductions (CERs) that have been issued from registered CDM projects. However, the greatest impacts of CDM have been restricted to a few large developing countries. The reach to Least Developed Countries (LDCs) has been limited. LDCs host only about 0.7 percent of all registered CDM projects, producing less than 0.4 percent of the expected average ERs.

The reasons for the low uptake of CDM projects in LDCs are diverse. To begin with, the magnitude of emissions in the countries is relatively small. A significant portion of the emissions are concentrated in land-use activities, not all of which are currently eligible under the CDM. The current CDM regulations are complex and costly to navigate. Combined with a difficult investment climate, insufficient institutional capacity, and lack of policy support, exploring CDM is often difficult for many low-income countries.

Initiatives that acknowledge the need to support CDM projects and programs in LDCs are on the rise. Very small projects are now allowed to use simplified procedures on additionality and the CDM registration fee is waived in LDCs. In addition, it appears that the third phase of the EU ETS will

restrict the use of CERs for compliance (for projects registered after December 31, 2012) to those located in LDCs. Also, the UNFCCC is developing a loan scheme to support project developers in under-represented countries.

However, further actions are needed to remove the barriers to mitigation actions under the CDM in LDCs. In particular, progress is needed on two parallel fronts. First, from a policy perspective, the CDM Executive Board should reform CDM regulation. Second, on the ground in host countries, partnerships should be fostered among governments, bilateral and multilateral institutions, and the private sector in order to build the local capacity to implement mitigation actions.



Reform of CDM Regulation

CDM procedures and methodologies can be particularly cumbersome and costly to use in the poorest countries and there is an overwhelming need for streamlining and simplification. Data availability is often constrained in LDCs. Therefore, standardization of emissions baselines must be promoted. This could be based on benchmarks, default values, simplified barrier tests, or a positive list. It would also reduce transaction costs and processing time while maintaining the environmental integrity of the CDM.

The unique circumstances of LDCs must be considered in CDM reform, particularly the potential for land-use mitigation and conditions of extreme poverty. The rules on temporary credits issued for land-use project types (e.g., afforestation/ reforestation) must be reconsidered. Land-use projects are the mainstay of mitigation action in low-income countries, and these projects must not be penalized due to the rules on crediting. Given the poverty that exists in LDCs, the unmet demand for energy required for minimum standards of living must be recognized.

Looking forward, innovations in carbon finance must be developed with LDCs in mind. Programmes of Activities (PoAs) still represent a relatively new generation of carbon finance activities. To ensure these are accessible to LDCs, the regulations on PoAs need to be improved to allow dispersed and small mitigation activities (e.g., cook stoves) to be implemented cost-effectively.

Building Local Capacity

The long-term sustainability of mitigation actions requires capacity building in host countries, both in terms of financial and institutional capabilities. There is a strong need to promote up-front financing and cost-effective financial intermediation for CDM projects. The contribution of carbon revenue streams must be recognized to bridge financing gaps for projects. The private sector must participate as well, particularly with regards to implementing mitigation actions through incentives, technology transfer, and training. The capacity of Designated National Authorities and other national institutions also needs continuing support to ensure their effective role in catalyzing the development of CDM projects.

Future Directions in Carbon Finance



Carbon finance has been a remarkable success over the last 10 years. An impressive \$27 billion of carbon finance has flowed to ER projects, in turn leveraging an additional \$100 billion in related financing. However, some key areas for climate change mitigation in low-income countries, especially in Africa, are bypassed by market mechanisms. The World Bank is responding to this by tackling key implementation hurdles.

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

Land-use change is responsible for about 20 percent of annual global GHG emissions. The sale of carbon assets represents a rare opportunity for rural populations to compete in the global market by improving the way they manage their natural resource base. However, only a small subset of mitigation activities in this sector are eligible under the CDM and the offsets generated are penalized by regulations that make them much less attractive than those generated by other types of projects.

Current trends in the negotiations for post-2012 LULUCF rules are paving the way for innovation in this sector, including

REDD+ and agricultural sequestration. The socioeconomic benefits are vast. The sector promotes community resilience to food shortages and extreme weather, biodiversity protection, and inclusive access to international trade in agricultural commodities. The World Bank intends to continue to support and expand this pioneering work, building on its strong emphasis on poverty reduction and improvements to rural livelihoods.

Reconsidering Regulatory Frameworks

LDCs can benefit from carbon markets to help meet their energy access, transport, and waste management needs. However, the regulatory framework must evolve to better reflect the context of these countries. In particular, procedures for project approval and issuance of CERs require simplification. This will reduce transaction costs and delays, which is vital for the viability of small-scale projects.

The World Bank will work with partners to help simplify the monitoring procedures and requirements to be better adapted to small projects with limited capacity and limited data. The development of standardized baselines, CDM methodologies that recognize current energy demand, and rules for PoAs need to be further clarified and simplified. Improvements in regulatory frameworks will help channel carbon market resources to LDCs, and pave the way for a progressive transition to new market mechanisms.

New ideas for financing low-carbon projects

Limited access to finance can be a significant hurdle for low-carbon projects. The impact of carbon finance could be significantly enhanced by developing ways to “frontload” carbon finance resources to the early stages of project development. Many projects, in sectors varying from renewable energy to forest management, often struggle to reach financial closure. This is particularly true in LDCs, where access to finance is more difficult. Local financial institutions are often reluctant to lend against an Emission Reduction Purchase Agreement (ERPA) because of unfamiliarity with carbon finance or perceived regulatory risks. In some sectors, such as renewable energy, this is compounded by lack of familiarity with new technology and inexperienced project sponsors, increasing requirements on the level of equity.

This hurdle can be overcome using various approaches and instruments. Some ideas under development include:

- up-front grants to project sponsors offered against a share of the future CERs generated by the project. Combined with solid project due diligence and appropriate sizing of the grant, up-front grants have the potential to provide key financial support at a most crucial time.
- using the expected carbon revenues as an extra incentive for an equity investment. Not only would this improve the risk profile, it would allow leveraging of more private sector resources to the riskiest countries. Guarantees for the future generation of CERs may also revise the credit quality of ERPAs in local financial institutions.
- bonds issued with the capital guaranteed and paid using income generated from expected carbon revenues. This would work well when scaling up successful projects.

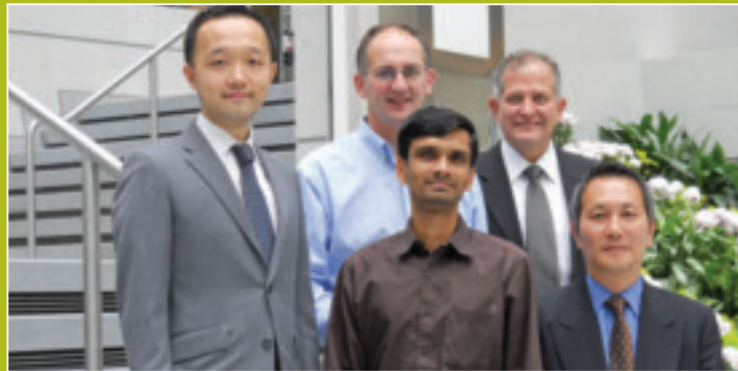
Given the high risk inherent to testing innovative mechanisms in LDCs, initial grant support from developed countries would be required. However, such grants may be reduced over time as there is great potential that these mechanisms would become self-sustaining. The World Bank recognizes these issues and is prepared to be a leader, exploring solutions, considering a number of different innovative approaches, and testing new ideas in pilot projects through the years to come.



Carbon Finance
AT THE WORLD BANK

Who We Are





Carbon Finance 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 environmental policy tool that institutes a mandatory cap on emissions while providing emitters with flexibility on how they may comply. Successful cap-and-trade programs

reward innovation, efficiency, and early action and provide strict environmental accountability without inhibiting economic growth.

Carbon Asset

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

Carbon Credits

A permit that allows the holder to emit the equivalent of one metric tonne of CO₂. Credits are awarded to countries or groups that have reduced their emissions below an assigned quota. Credits can be exchanged between businesses or bought and sold in international carbon 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 Market

A market created to buy and sell carbon credits. Under a regulated limit on carbon emissions (a "cap" on emissions), permits or allowances are given or auctioned to carbon emitters. Entities emitting below their cap may trade their extra allowances (carbon credits) to those who need additional capacity, creating a market for buying and selling carbon credits.

Carbon Sequestration

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

CDM Executive Board

A 10-member panel that supervises the Kyoto Protocol's CDM under the authority and guidance of the Conference of the Parties. The CDM Executive Board is the ultimate point of contact for CDM Project Participants for the registration of projects and the issuance of CERs.

Certified Emission Reduction (CER)

A unit equal to one metric tonne 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 (GIS)

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

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.

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 (PoA)

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.

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.

Tonne 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, the BioCarbon Fund, and the Umbrella Carbon 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.

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 Carbon Market

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

mission statement

Our mission is to support the global carbon market through catalytic initiatives that unlock private capital to mitigate climate change while supporting sustainable development and assisting the poorest communities in developing nations.

This report covers the carbon funds and facilities managed by the World Bank during the period from January 1, 2010 through December 31, 2010. An online version of this report is available at www.carbonfinance.org/publications.

Notes: All dollar amounts are U.S. dollars (\$) unless otherwise indicated. The U.S. dollar/euro exchange rate used in this report is 1.34. All greenhouse gas emission reductions are reported in metric tonnes (equivalent to 1,000 kilograms) of carbon dioxide equivalent (tCO₂e).

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