BioCarbon Fund

From the Chair of the BioCF Participants' Committee

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

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

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

Francois Falloux
Eco-Carbone

What is the BioCarbon Fund?

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

A Benchmarking Fund

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

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

Major Opportunities for Carbon Finance

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

Tranche Two

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

BioCF Participants

Canada

GOVERNMENT OF CANADA

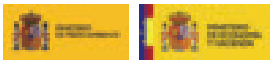
Canada is represented in the BioCarbon Fund by Canada's CDM and JI Office, housed within Foreign Affairs Canada. The mandate of the Office is to facilitate Canadian participation in the CDM and JI, and it benefits from involvement in the World Bank managed carbon funds because of the learning by doing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

GOVERNMENT OF ITALY

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

GOVERNMENT OF LUXEMBOURG

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



GOVERNMENT OF SPAIN

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

AGENCE FRANCAISE DE DEVELOPPEMENT

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

ECO-CARBONE

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

IDEMITSU

IDEMITSU KOSAN CO., LTD.

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

JAPAN IRON & STEEL FEDERATION (JISF)

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

JAPEX

JAPAN PETROLEUM EXPLORATION CO., LTD. (JAPEX)

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

THE OKINAWA ELECTRIC POWER COMPANY, INC. (OEPC)

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

SUMITOMO CHEMICAL

SUMITOMO CHEMICALS CO., LTD.

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

SUMITOMO JOINT ELECTRIC POWER CO., LTD.

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

BioCF Participants *continued*

SUNTORY

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

TOKYO ELECTRIC POWER COMPANY (TEPCO)

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

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

PHOTO BY TODD SHAPERA

BioCF Portfolio Status

	Country/ Project Name	Project Description	Main Environmental Benefits	Main Social Benefits	BioCF Contract ERs (million tCO_2e)	
					Window 1	Window 2
Emission Reductions Purchase Agreements Signed						
1	**China: Pearl River Watershed Management**	Reforest around 4,000 hectares of shrub/grassland in the Guangxi Zhuang Region; watershed management	Creation of biodiversity corridors; reduced soil erosion; improved regulation of hydrological flows	Provision of employment to local farmers and communities; creation of a source of timber and non-timber products; increased sustainability of the sources of livelihood	0.46	
2	**Costa Rica: Coopeagri Forestry**	Extend the Program of Payments for Environmental Services; establish commercial forest plantations including agroforestry and reforestation on a total of around 4,000 hectares of degraded land	Creation of natural habitat for biodiversity protection; increased water retention and regulation of hydrological flows; reduced land erosion	Creation of direct employment for local communities; directly increased incomes from payment for environmental services; creation of additional sources of income from forest production activities and agroforestry; training of farmers in sustainable practices and agroforestry management	0.56	
3	**Honduras: Pico Bonito Forestry**	Implement agroforestry systems for small-scale producers; reforestation for conservation; commercial plantations; community-based sustainable forest management on around 3,000 hectares in the Pico Bonito National Park buffer zone	Improved biodiversity conservation; protection of vulnerable water catchments; stabilized vulnerable landscapes; rebuilt topsoils; enhanced water supply and hydrological flow	Creation of employment for project implementation and in particular for the sustainable commercial plantation; creation of additional sustainable sources of income; training of communities in sustainable agroforestry and forestry management; provision of on-farm technical assistance	0.45	0.4
4	**Moldova: Soil Conservation**	Afforest/reforest around 20,000 hectares of degraded land in all territories of the country, except the eastern portion	Restoration of habitats to increase native biodiversity; reduction of water and wind erosion; improved hydrological regime	Creation of local employment for the project implementation; creation of additional sources of income from sale of timber and non-timber products; prevention of future land degredation	0.6	
5	**Nicaragua: Precious Woods**	Afforest/reforest around 600 hectares of degraded pastures by establishing a plantation and conserve around 400 heactares of forest remnants	Increased habitat for native biodiversity; increased landscape diversity; groundwater protection; soil regeneration; improved water balance	Creation of employment for the project implementation and for local wood processing; training of employees on job specific subjects and social subjects; possibility for farmers to grow crops between the plantation rows	0.17	
6	**Philippines: Watershed Rehabilitation**	Implement small-scale, community-based rehabilitation subprojects including streambank rehabilitation, reforestation of upland areas and agroforestry development	Increased natural habitat for native species; reduced erosion and landslides; increased groundwater recharge	Creation of employment for the project implementation; creation of an additional sustainable source of income from agroforestry; training of communities in sustainable forestry and agroforestry	0.03	
7	**Uganda: Nile Basin Reforestation**	Establish around 2,000 hectares of pine and mixed native species plantation in a block design to expand national wood resources and support communities for additional tree planting	Creation of natural habitat; reduced pressure on natural forests; reduced frequency of fires; reduced land degradation and erosion	Creation of employment for forest plantation and associated training; creation of an additional source of income with the establishment of private woodlots; provision of fuelwood; improved local public infrastructures; stimulation of the local economy through secondary industries	0.26	

BioCF Portfolio Status *continued*

	Country/ Project Name	Project Description	Main Environmental Benefits	Main Social Benefits	BioCF Contract ERs (million tCO_2e) Window 1	Window 2
Projects Under Negotiation (indicative contract volumes)						
8	**Albania: Assisted Natural Regeneration**	Afforest/reforest about 5,700 hectares of degraded communal forest and pastureland by setting aside and protecting land to make natural re-growth possible	Creation of habitat for native flora and fauna; enrichment of species diversity; reduced soil erosion; reduced siltation of watercourses	Provision of short- and mid-term employment; stimulation of the local industry; reduced maintenance costs of irrigation and drainage infrastructure; creation of a sustainable source of timber and non-timber products	0.23	
9	**Brazil: Reforestation Around Hydro Reservoirs**	Reforest around 5,500 hectares around four reservoirs of hydroelectric plants in the state of Sao Paulo using native species and establish them as a recreation area	Creation of a biodiversity corridor between existing forested conservation areas; improved sustainability of the hydraulic resources	Provision of short- and mid-term employment; increased tourism revenues from the improved recreational area and landscape	0.3	
10	**Colombia: San Nicolás Agroforestry**	Establish agroforestry, silvopastoral and forest plantations on around 8,600 hectares of abandoned pastures in the department of Antioquia	Creation of natural habitat and corridors for the conservation of biodiversity; sustainable watershed management	Creation of direct employment for the local communities; increased food supply and safety; training of the communities in sustainable agroforestry/silvopastoral systems management	0.27	0.2
11	**Colombia: Silvopastoral Rehabilitation**	Establish silvopastoral systems using forage shrubs and high-value timber species to enhance the productivity and natural resource base of degraded lands on about 400 farms	Increased habitat for biodiversity; rehabilitated local ecosystems; reduced soil erosion; improved moisture retention	Provision of direct employment to local populations; creation of additional sustainable sources of income from wood harvesting; improved productivity of cattle raising activities; training of farmers in sustainable silvopastoral systems management	0.3	
12	**Congo DRC: Bateke Fuelwood and Timber Plantation**	Establish around 8,000 hectares of timber plantation for fuelwood and charcoal production on the Bateke Plateau, in the vicinity of Kinshasa	Creation of a refuge for wild, small size fauna; reduced occurrence of fires; reduced pressure on natural forests around Kinshasa	Provision of direct and indirect employment to local populations; training of employees in plantation management and of local farmers in sustainable agriculture techniques	1	
13	**Dominican Republic: Rio Blanco Watershed**	Implement natural and intensive reforestation, native forest protection, and agroforestry activities on around 6,000 hectares to help rehabilitate the watersheds of the Valle Nuevo National Park	Enhanced protection of biodiversity through the creation of habitat; reduced soil erosion; restored hydrological flows; improved water quality	Creation of direct employment for local communities; creation of additional sustainable sources of income from agroforestry; training of farmers in sustainable agroforestry systems management	0.26	0.21
14	**Ethiopia: Humbo Assisted Regeneration**	Afforest/reforest 4,700 hectares of biodiverse natural forest in cooperation with local farmers in the vicinity of the town of Humbo in Southwestern Ethiopia	Enriched local biodiversity; reduction of soil erosion and local flooding; protection of the fragile ecosystem of Lake Abaya downstream	Creation of self employment for forest management; increased livelihood sustainability; provision of training in land use improvement and reforestation	0.35	
15	**India: Improving Rural Livelihoods**	Afforest/reforest 3,500 hectares as tree plantations using resource poor farmers, especially women, on their private lands in the states of Orissa and Andhra Pradesh	Reduced erosion; protection of local biodiversity; protection of water sources; reduced dependence of the industrial partner in the paper industry on natural forests	Increase in income and income sustainability for participating farmers; creation of local employment for plantation management; creation of additional sources of income from intercropping and sustainable fuelwood production	0.52	
16	**Kenya: Greenbelt Movement**	Pay community members, organized into community forest associations, to reforest 4,000 hectares of degraded public and private land near Mount Kenya	Reduced erosion; protection of water catchments; regulation of hydrological flows	Direct income increase through sale of forest products; creation of additional sustainable livelihood sources through fodder and non-timber products harvesting	0.79	

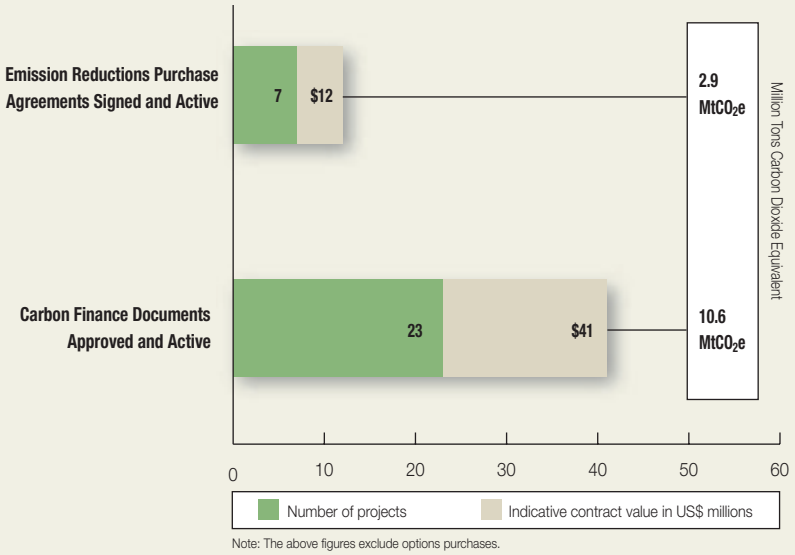
BioCF Portfolio Status *continued*

	Country/ Project Name	Project Description	Main Environmental Benefits	Main Social Benefits	BioCF Contract ERs (million tCO_2e) Window 1	Window 2
Projects Under Negotiation (indicative contract volumes)						
17	**Madagascar: Andasibe-Mantadia Biodiversity Corridor**	Reforestation and avoided deforestation of about 5,000 hectares in corridors between protected reserves and establishment of sustainable forest and fruit gardens	Creation of biodiversity corridors; increased viability of native species; restoration of degraded soils and lands; stabilized hydrological flows	Creation of employment for agroforestry management and other project activities; creation of additional sources of income from sale of timber and non-timber products; increased ecotourism from landscape rehabilitation	0.2	0.6
18	**Mali: Acacia Plantation**	Develop 15,000 hectares of degraded natural dry forest into Acacia plantations, intercropped with cultivated species, for agro-forestry	Increased natural habitat; restored ecosystems; soil regeneration and fertilization; raised water table; reduced erosion; wind and sun protection	Creation of employment for the project implementation; training of employees on job-specific subjects and social subjects; sustainable food source through intercropping	0.37	
19	**Mexico: Seawater Agroforestry**	Transform 10,000 hectares of barren coastal desert in the state of Sonora into a managed seawater forest	Relieved pollution from shrimp farms; creation of natural habitat for biodiversity; coastline protection; increased freshwater supply	Creation of employment for the project implementation; provision of basic education; creation of a source of animal fodder, firewood, and non-timber products independent from droughts; increased local fishing stocks	0.72	
20	**Niger: Acacia Community Plantations**	Develop 8,800 hectares of acacia plantations on degraded land, mostly managed by local communities, to promote sustainable agroforestry	Soil regeneration and erosion control; increased natural habitat for native species; water table raised; dune fixing; wind and sun protection	Creation of employment for the establishment of plantations and Arabic gum production; increased income from Arabic gum sale; production of fuelwood and animal forage; training of communities in sustainable intercropping and plantation management	1	
21	**Trinidad & Tobago: Nariva Wetland Restoration**	Afforest/Reforest around 1,800 hectares and protect more than 5,000 hectares of wetland ecosystems in the Nariva Protected Area	Enhanced habitat for wildlife; improved conservation of the reserve; restored natural drainage regime; decreased soil erosion; increased buffer zone for inland areas	Creation of employment for restoration activities and reserve protection; enhanced sustainability of fish stocks and water sources; training in sustainable farming for communities	0.22	
22	**Uganda: Small Group and Tree Planting**	Empower and pay small groups of subsistence farmers to restore local deforested areas and adopt sustainable agricultural practices	Creation of additional natural habitat; reduced erosion and increased soil fertility; improved rainfall; reduced pressure on existing forests	Direct income increase through payments; enhanced sustainability of livelihood sources; training in sustainable practices; increased social organization and cohesion	0.1	
23	**Ukraine: Chernobyl Reforestation**	Reforest around 15,000 hectares of abandoned low radioactive contaminated agriculture land	Accelerated land regeneration and purification; reduced dispersal of radioactive elements; creation of suitable native habitats; reduced frequency of fires	Creation of local employment; increased wood production; increased local government resources for social needs; provision of fuelwood	0.04	

BioCF Portfolio Development

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

Status of Project Development in the BioCF
(cumulative)



Note: The above figures exclude options purchases.

UGANDA

Nile Basin Reforestation Project

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

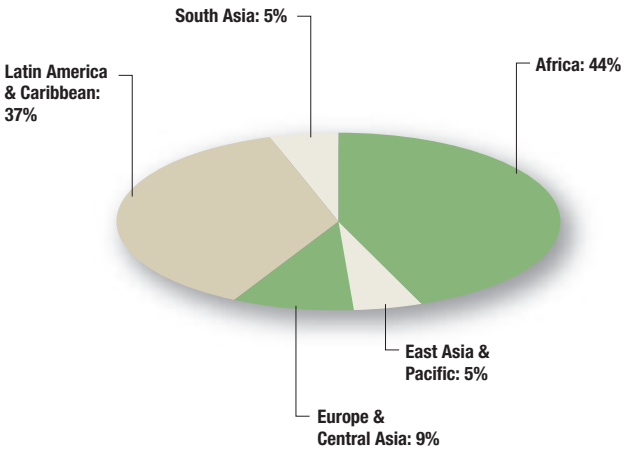
The Uganda Nile Basin Reforestation Project will help expand the country's wood resources, which are crucial to meet the country's growing demand for wood and to reduce the pressure on the remaining natural forests in the region. The project will establish a plantation of pine and mixed native species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

BioCF Portfolio Development *continued*

Active BioCF Portfolio—$41 Million

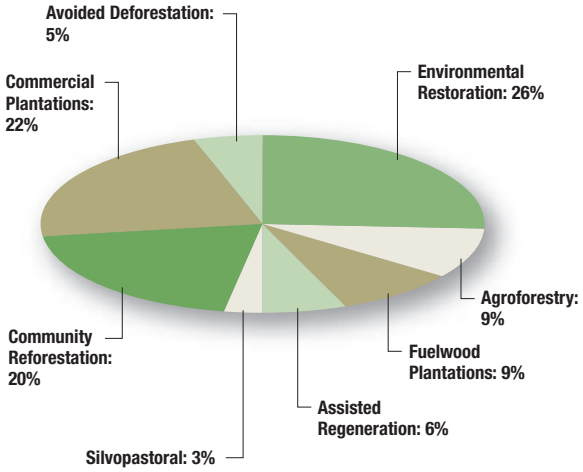
Geographic Distribution

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



Technological Distribution

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



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

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

BioCF Issues

Permanence

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

Replacement

The ninth session of the Conference of the Parties to the UNFCCC (CoP9) introduced the system of temporary crediting for CDM land use, land-use change and forestry projects. Carbon credits from such projects are temporary and necessitate verification of the continued storage of carbon at five year intervals. If a project does not retain enough stored carbon, steps can be taken to replace the existing credits with emission reductions from elsewhere. At the latest, this replacement must occur 60 years after the original issuance of the credit. In the case of the BioCF, fund participants can decide to replace temporary credits earlier by purchasing credits from energy and infrastructure projects included in other carbon funds administered by the World Bank.

Leakage

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