

# **DRAFT**

Document of  
The World Bank

CARBON FINANCE ASSESSMENT MEMORANDUM (CFAM)

ON A

PROPOSED CARBON FINANCE TRANSACTION

ON THE

IBI BATEKE CARBON SINK PLANTATION (IBCSP)

May 11, 2009

# DRAFT

## IBI BATEKE CARBON SINK PLANTATION

### TABLE OF CONTENTS

<b>A. CARBON FINANCE ASSESSMENT MEMORANDUM.....</b>	<b>3</b>
1. Country and Sector Context.....	3
2. Project Description.....	3
3. Technical Aspects .....	4
4. Institutional and Implementation Arrangements .....	4
5. Economic and Financial Aspects .....	5
6. Social and environmental Aspects .....	6
7. Safeguard Issues.....	7
8. Kyoto/Clean Development Mechanism issues .....	9
<b>B. ANNEXES .....</b>	<b>9</b>
1. Project Information Document .....	9
2. Integrated Safeguards Data Sheet .....	9
3. CDM Project Design Document (draft).....	9
4. Emission Reductions Purchase Agreement (draft) .....	9

# CARBON FINANCE ASSESSMENT MEMORANDUM

## 1. Country and Sector Context

The Democratic Republic of Congo (DRC) is emerging from a period of mismanagement, political instability, and conflict. DRC's Human Development Index declined by more than 10 percents in the last ten years. It now ranks 167 out of 177 rated countries, with the great majority of the population without access to the most basic human services. About 70 percent lives below the poverty line, and in some parts of the north and east, poverty levels are above 80 percent.

With a new, democratically elected Government in place, DRC has now a new opportunity to reduce poverty and promote broad-based, sustainable, and pro-poor growth, provided the authorities strengthen the institutional framework and improve governance. The Government has been implementing a program of economic reforms, including new investments, and new labor, mining and forestry codes. Better management of public finance has helped break hyper-inflation and stabilize the exchange rate. As a result, economic growth returned in 2003, after a decade of decline, and is estimated to have been about 6 percent.

With 86 million hectares, DRC harbors half of all African rainforests. Forests of all types make a critical contribution to the livelihoods of about 40 million people who are among the world's poorest, by providing food, medicine, domestic energy, building materials, and cash income. Deforestation has remained relatively low (*0.27% per year*) in recent years but can escalate rapidly as political stability and improved transport will open the door to markets, investments and migration. Deforestation occurs primarily in heavier populated areas in the dry forest and mountain forest zone, and is driven primarily by population pressure and expansion of slash and burn subsistence agriculture. Therefore, alternatives and solutions to deforestation must be sought outside the boundaries of the forest sector, by helping the country's large rural population to increase its productivity and find alternative sources of income.

## 2. Project Description

The project will promote the reforestation of 4,220 hectares on the Bateke Plateau, contributing to the supply of fuelwood to Kinshasa, while creating a carbon sink capable of sequestering around 2.4 million of tons of CO<sub>2</sub> over 30 years. The project will be implemented in the Ibi estate, village of Mbankana, Maluku municipality. The project has been designed and will be implemented by NOVACEL (*Nouvelle Société d'Agriculture, Culture et Élevage*), a local private company founded and headed by the Mushiete family, natives of the Bateke region.

The Bateke plateau is covered by 90% herbaceous or shrubby savanna, burnt many times per year, and 10% of forest gallery degraded for subsistence farming (maize, cassava) charcoal making. The Ibi estate, with an area of 20,410 hectares within which the reforestation activities will take place, was constituted in 1966. The land rights to the estate were granted to the Mushiete family by the traditional chief of the area, following customary rules.

Out of the 4,220 hectares to be planted, 3,570 hectares will consist of *Acacia* and *Eucalyptus spp*, 420 ha of local species and 230 hectares will be reforested with assisted natural regeneration. In addition, agroforestry techniques are also being experimented in the planting area by intercropping

trees with manioc plantations. The carbon sequestration potential of the project is around 1 million tons of CO<sub>2</sub> until 2017, and around 2.5 million over 30 years.

A part of the wood production will be turned into charcoal to contribute to the supply of Kinshasa, which has almost 10 million inhabitants. Harvested wood will also be commercialized locally as timber and lumber.

The project is organized in two main components:

1. Establishment and maintenance of 4,220 hectares of fast-growing tree species on grass savannas of the Bateke plateau.
2. Community development activities to benefit local population (including agriculture, health and education services).

### **3. Technical Aspects of the Project**

NOVACEL will use simple methods and technologies for plantation, allowing them to mobilize local manpower and to reduce investment costs.

Tree species have been selected according to the following criteria:

1. high yield;
2. successful establishment in tropical plantations ; non-risk of invasion beyond the plantation area;
3. easy availability of good quality planting material;
4. good performance in DRC and under local conditions.

The plantation will be divided into a timber and charcoal production area (pines, acacias and eucalyptus); an ecological area (local species) and natural regeneration area. It will be protected from fires by reducing the herbaceous cover and by the establishment of firebreaks.

Charcoal production will use improved carbonization techniques, and plantation management will use state of the art technologies (GIS, unit plot database). NOVACEL is committed to complying with internationally recognized forestry standards, such as FSC.

### **4. Institutional and Implementation Arrangements**

NOVACEL is in charge of the overall design, implementation and monitoring of the plantation activities. NOVACEL was founded by natives of the Bateke region and its main areas of intervention are agroforestry, food processing (mostly cassava), the building of infrastructure and ecotourism. NOVACEL is currently employing 30 permanent staff and creating temporary jobs that add up to 200 equivalent permanent positions. They have an office in the Ibi estate and another one in Kinshasa.

The community development component of the project will be managed by the Division of Social and Technical Development, in partnership with the NGO GiAgro (*Groupe d'Initiatives Agroforestières*), a Congolese NGO working in the area for 10 years.

The *Ministère des Affaires Foncières* has granted the use of 6,000 hectares in the Ibi estate (within which the 4,220 planting activities will take place) to Olivier Mushiete, general director of NOVACEL, through a 25-year lease (*bail d'emphyteose*). The grantee is currently applying to state authorities for a permanent concession title to this area. In order to transfer the land use rights from Olivier Mushiete to NOVACEL, a long-term lease has been signed between the parties. As consequence, NOVACEL currently possesses the rights to the land and to the trees. According to the Congolese law, NOVACEL holds the full and unchallenged rights to the emission reductions for the duration of the project.

NOVACEL will implement the IBCSP project with several partners/ financiers:

- Umicore, a private company specialized in materials technology, based in Belgium and whose ambition is to develop, produce and recycle materials.
- SUEZ, an international industrial and service group specialized in the management of public utilities (water, waste, energy).
- The French Development Agency, a pivotal operator of the French official development assistance.
- The United Nation Development Program, through its Division of Technology, Industry, and Economics.
- The « Service Laïque de Coopération au Développement » (SLCD), a Belgian NGO in charge of implementing the community development or social component of the project.
- Orbeo, a joint-venture between Rhodia and *Société Générale*, which is co-purchasing the ERs (emission reductions) from the project with the BioCarbon Fund.
- World Bank, through the BioCarbon Fund, which is co-purchasing ERs from the project.

## 5. Economic and Financial Aspects

The total project cost is 2.765.295 US\$ for the reforestation activities. The investors and donors are:

Umicore:	325,000 US\$ (investment loan)
Suez:	325,000 US\$ (investment loan)
Other private:	130,000US\$
UNEP:	100,000 US\$ (technical assistance to the development of the PDD)
AFD (debt):	620,000 US\$ (to be confirmed)
Biocarbon Fund:	2,000,000 US\$ (expected to buy 500,000 tCO <sub>2</sub> e at 4 US\$)
Orbeo:	2,000,000 US\$ (expected to buy 500,000 tCO <sub>2</sub> e at 4 US\$)

According to the Carbon Finance Document, the quantity and value of carbon expected to be sequestered are:

Until 2012	0.42 million tCO <sub>2</sub> e
Until 2017	1 million tCO <sub>2</sub> e
Until 2037	2.4 million tCO <sub>2</sub> e

The BioCF has negotiated with Orbeo to purchase the ERs from the IBCSP project on a *pari passu* basis, meaning that the ERs generated by the project will be apportioned equally between the BioCF and Orbeo. The two buyers have also agreed on a common price to the ERs. NOVACEL

has been negotiating the ERPA's (Emission Reduction Purchase Agreement) with the two buyers in parallel and in a coordinated fashion.

Assuming charcoal and lumber as products, the expected project financial Internal Rate of Return is 6.2% for a 20 years period, or 9.8% for a 30 years period. With the revenues from ERs, the IRR increased to 15% over 20 years.

As to the community development activities to benefit local population, their total costs are US\$240,000 from 2009 to 2017, to be financed directly from the proceeds of the carbon credit sales in the international carbon market. This would represent around 12% of the total revenues from the carbon sales.

## **6. Environmental and Social Aspects**

On the environmental side, the project will contribute to the reduction of deforestation and degradation of the remaining forest galleries. It will also help control bush fires, thus supporting natural regeneration of local forests. In the long term, plantations managed in a sustainable way will also provide shelter to wildlife.

On the socio-economic side, the project is expected to generate direct benefits in the form of employment opportunities for the establishment and maintenance of the plantation. 30 permanent jobs and around 200 equivalent full-time positions in temporary jobs have already been created. Eventually, permanent jobs should rise to 50 and 500 equivalent full-time positions in temporary jobs.

In addition, NOVACEL will promote community development activities to benefit local communities (those in the Ibi estate and neighboring villages). NOVACEL created a Division of Customary and Family affairs, in charge of maintaining good communication with the community, and a Division of Social and Technical Development, in charge of monitoring the community development component of the project, including improvement of education and healthcare services (higher rate of literacy and of success at school, lower prevalence of infectious diseases), the development of more sustainable agricultural practices (higher yields and income), the improvement of social infrastructure (housing, access to water) and the reduction of bush fires and forest clearing. These activities will be implemented through a partnership with GiAgro.

At present, the financing for these activities are coming in part from NOVACEL itself (one third of overall financing), and in part from the Belgium Development Cooperation (*Directorate-General for Development Cooperation*) through a partnership with the Belgian NGO *Service Laïque de Coopération au Développement*, which is providing resources for two thirds of the financial needs for the project development component in the period 2008-2010.

Proceeds from the carbon credit sales will also directly fund community development activities to benefit local population. From 2009 to 2017, NOVACEL will be investing around 240,000 US\$ in these activities, which represent around 12% of the overall carbon sales. These investments would cover: i) local infrastructure, including potable water facilities, electrification and social service facilities (schools and pharmacies); ii) capacity building, including teachers and educators, agricultural extensionists, medical services, applied research and development. The table below gives a breakdown of the investments in community development.

	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
<b>1. Infrastructures</b>										
<i>Eau potable</i>	\$ 1,500	\$ 1,500	\$ 2,500	\$ 1,000	\$ 2,500	\$ 1,000	\$ 2,500	\$ 1,000	\$ 2,500	\$ 13,000
<i>Electrification</i>	\$ 5,000	\$ 3,500	\$ 3,500	\$ 5,000	\$ 3,500	\$ 3,500	\$ 5,000	\$ 3,500	\$ 3,500	\$ 27,500
<i>Habitat rural</i>	\$ 3,500	\$ 5,000	\$ 3,500	\$ 5,000	\$ 3,500	\$ 5,000	\$ 3,500	\$ 5,000	\$ 3,500	\$ 29,000
<i>Bâtiments sociaux (écoles, dispensaires, etc.)</i>	\$ 5,000	\$ 2,500	\$ 5,000	\$ 2,500	\$ 5,000	\$ 2,500	\$ 5,000	\$ 2,500	\$ 5,000	\$ 27,500
<b>Infrastructures S/total</b>	<b>\$ 15,000</b>	<b>\$ 12,500</b>	<b>\$ 14,500</b>	<b>\$ 13,500</b>	<b>\$ 14,500</b>	<b>\$ 12,000</b>	<b>\$ 16,000</b>	<b>\$ 12,000</b>	<b>\$ 14,500</b>	<b>\$ 97,000</b>
<b>2. Renforcement des capacités</b>										
<i>Enseignants &amp; éducateurs</i>	\$ 8,000	\$ 3,000	\$ 3,000	\$ 8,000	\$ 3,000	\$ 3,000	\$ 8,000	\$ 3,000	\$ 3,000	\$ 31,000
<i>Techniciens agronomes &amp; mécaniques</i>	\$ 2,500	\$ 2,500	\$ 8,000	\$ 2,500	\$ 2,500	\$ 8,000	\$ 2,500	\$ 2,500	\$ 8,000	\$ 34,000
<i>Personnel soignant et para médical</i>	\$ 2,500	\$ 8,000	\$ 2,500	\$ 2,500	\$ 8,000	\$ 2,500	\$ 2,500	\$ 8,000	\$ 2,500	\$ 28,500
<i>Recherche appliquée et développement</i>	\$ 2,500	\$ 2,500	\$ 2,500	\$ 2,500	\$ 2,500	\$ 2,500	\$ 2,500	\$ 2,500	\$ 2,500	\$ 17,500
<b>S/total</b>	<b>\$ 15,500</b>	<b>\$ 16,000</b>	<b>\$ 16,000</b>	<b>\$ 15,500</b>	<b>\$ 16,000</b>	<b>\$ 16,000</b>	<b>\$ 15,500</b>	<b>\$ 16,000</b>	<b>\$ 16,000</b>	<b>\$ 111,000</b>
<i>Sous total investissements nets</i>	\$ 30,500	\$ 28,500	\$ 30,500	\$ 29,000	\$ 30,500	\$ 28,000	\$ 31,500	\$ 28,000	\$ 30,500	\$ 208,000
<i>Administration et suivi (12%)</i>	\$ 3,600	\$ 3,420	\$ 3,600	\$ 3,480	\$ 3,600	\$ 3,300	\$ 3,780	\$ 3,300	\$ 3,600	\$ 32,040
<b>Total investissements sociaux 2009 - 2017</b>	<b>\$ 34,160</b>	<b>\$ 31,920</b>	<b>\$ 34,160</b>	<b>\$ 32,480</b>	<b>\$ 34,160</b>	<b>\$ 31,360</b>	<b>\$ 35,280</b>	<b>\$ 31,360</b>	<b>\$ 34,160</b>	<b>\$ 240,040</b>

Valeur totale de vente des VER (4,0\$/t) \$ 2,000,000  
Proportion des investissements en actions sociales 12,00%

The project will occupy a small area in a degraded scarcely inhabited savannah land. It will not lead to neither physical nor economic displacement, as the Bateke plateau has a very low population density (8 inhabitants per square kilometer) and the project occupies a rather limited area, where neither economic nor physical activities are or have been present. In the process of identification of areas for the reforestation activities, areas with pre-existing claims to land and vegetative cover were not included (the latter are not eligible for reforestation activities under the CDM).

The table below summarizes some of the socio-environmental benefits from the project:

<b>Environmental Benefits</b>	
<b>Natural Forests</b>	Reduction in pressure over native forests for fuelwood production.
<b>Natural regeneration</b>	Protection of savannah from fires, resulting in natural regeneration. Studies indicate that for every hectare of planted forests, 40 to 50 hectares are protected from cutting and fire.
<b>Local fauna</b>	Creation of habitat for local fauna.
<b>Social Benefits</b>	
<b>Employment opportunities</b>	Creation of 30 permanent jobs, and around 200 equivalent full-time. Eventually, permanent jobs should rise to 50 and 500 equivalent full-time positions in temporary jobs.
<b>Agro-forestry</b>	Development of agriculture production through technical services to the population, provision of inputs for the development of agriculture and silviculture.
<b>Health</b>	Lower rate of prevalence of infectious diseases, through the construction of a health dispensary.
<b>Education</b>	Higher rate of literacy and success at school, through the construction and maintenance of a local school.

## 7. Safeguard Issues

The project has been rated category B and safeguard policies have been triggered for Environmental Assessment (OP/BP 4.01) and Natural Habitats (OP/BP 4.04). The conclusions are as follows:

### **Environmental Assessment (OP/BP 4.01)**

A Socio-Environmental Impact Assessment was commissioned by NOVACEL and elaborated by a consulting firm (Forest Resources Management). The final report was delivered in July 2006. As part of the assessment, an extensive consultation was carried out with the local population, local institutions and NGOs, who confirmed their support to the project through an “*Acte de Validation*”, issued by the *Cheferie* de Mbankana (Commune de Maluku, Ville Province de Kinshasa). In June 2008, the World Bank’s lead social development specialist led another public consultation which was attended by the traditional leaders, other key local partners and the promoters of the project. The purpose of these meetings was to clarify rights, obligations and expectations of the involved parties. In February 2009, the project promoter updated the Socio-Environmental Impact Assessment, by clarifying the issues raised during the consultation and the safeguards review process of the World Bank.

The project is not expected to have adverse environmental impacts on human populations or environmentally important areas. The environmental impact is expected to be positive, mainly through (1) the rehabilitation of degraded lands; (2) a reduction in pressure on forests around Kinshasa (these forests are under strong pressure for charcoal, fuel wood and timber supply); (3) the contribution to natural regeneration by controlling bush fires; and (4) the mitigation of climate change through the capture of greenhouse gas.

The social impact is expected to be positive with the creation of local jobs and provision of services by NOVACEL to local communities. The project is expected to generate direct benefits at local level, mostly in the form of employment opportunities for the establishment and maintenance of the plantation (around 50 permanent jobs, and around equivalent full-time positions in temporary job). Social services will also be provided to local population in the area of agriculture development, health and education.

The only adverse social impact raised in the Socio-Environmental Impact Assessment is a potential reduction in the charcoal business by local communities. It is argued that charcoal merchants’ could potentially stop visiting the region, as NOVACEL would trade charcoal and fuelwood directly in Kinshasa. This is a very low risk due to the high unmet demand for fuelwood and charcoal in Kinshasa.

### **Natural Habitats (OP/BP 4.04)**

The project will occupy a rather small area of the large Bateke plateau, a treeless environment not considered a high value natural forest. By creating a sustainable supply of fuelwood and controlling bush fires, the project is expected to reduce pressure on natural forests and promote natural regeneration.

Finally, as a Clean Development Mechanism (CDM) operation, the project has received the Letter of Approval from the Designated National Authority to the CDM (Ministry of Environment,

Nature Conservation, Waters and Forests), whereby the Congolese government confirms that the project contributes to the sustainable development of DRC.

## **8. Kyoto/Clean Development Mechanism issues**

The project will apply an approved Clean Development Mechanism (CDM) baseline and monitoring methodology: the “CDM consolidated methodology for afforestation and reforestation of degraded land (AR-ACM0001)”. The Project Design Document (PDD), applying the CDM methodology to the project, has been prepared by the *Office National des Forêts International* (ONFi). Validation by an independent third party will be undertaken subsequently.

## **ANNEXES**

- 1. Project Information Document**
- 2. Integrated Safeguards Data Sheet**
- 3. CDM Project Design Document (draft)**
- 4. Emission Reductions Purchase Agreement (draft)**