

Developping the forestry sector with carbon markets

Mariana Deheza Research Fellow - CDC CLIMAT
Valentin Bellassen Research Unit Manager - CDC CLIMAT

July 2 2012



Forests are vital carbon sinks. Although forestry projects dominate the voluntary carbon markets, they still occupy a marginal position on the larger, compliance markets. This is mainly due to their ineligibility for the European Union Emissions Trading Scheme. New opportunities are emerging, however their impact may appear limited compared with the scale of the climate challenge.

The most recent scientific estimates put the forestry sector in fifth place for greenhouse gas (GHG) emissions: it produces 11% of global emissions, or 5.7 billion tonnes of CO₂ equivalent (van der Werf et al., 2009).

However, at a global level, the tremendous capacity of existing forests to absorb greenhouse gases makes this sector a real carbon sink. Biospheric carbon sequestration stores 19% of annual anthropogenic GHG emissions, or around 10 billion tonnes of CO₂ equivalent (Canadell et al., 2007). Most of it is stored in forests, which account for 80% of above-ground biomass and 50% of terrestrial photosynthesis (Dixon, 1994; Beer et al., 2010).

Thanks to this potential, there are a number of ways in which the forestry and wood sector can participate in the fight against global warming. Young and growing forests store large quantities of CO₂ in their above-ground and under-ground biomass, in the soil and in the litter layer. This carbon sink function can be improved through afforestation projects. Mature forests contain a significant stock of carbon. Improved Forest Management (IFM) projects, which involve a change to forestry management practices, make it possible to increase carbon stocks or to reduce the emissions linked to forest exploitation (conversion of an over-exploited forest into a protected forest, more productive species, etc.). Cleared forests emit greenhouse gases through combustion and decomposition of the initial carbon stock. These emissions can be reduced by implementing projects under Reducing Emissions from Deforestation and Forest Degradation scheme (REDD).¹

Finally, the use of wood - in place of fossil fuels to produce energy or in place of other materials for construction and furniture - also has a positive impact on the atmosphere, provided the wood comes from sustainably managed forests. These projects can be part-financed through the carbon markets. Emission allowances and credits are the currency of this carbon finance. Each one represents one tonne of greenhouse gas, expressed as CO₂ equivalent. Carbon assets can be traded in order to achieve compliance (within a government regulatory system) or for voluntary purposes. Emissions registers that record all carbon asset transactions ensure that the carbon markets function smoothly. Because of their natural capacities, forests can play a major role on these carbon markets. However, although forestry projects dominate the modest voluntary carbon market, they are almost non-existent on the compliance markets.

Marginal presence on compliance carbon markets

On the compliance markets, the supply of carbon credits is regulated by the Kyoto Protocol. The agreement imposes an obligation on the 38 most industrialised countries until the end of 2012 to

reduce GHG emissions.² These countries can make use of two mechanisms to generate carbon credits: the Clean Development Mechanism (CDM) and Joint Implementation (JI). The CDM provides a means of supporting projects in developing countries while the JI mechanism supports projects in developed countries. For the first commitment period (2008–2012), the only forestry projects eligible under the CDM scheme are reforestation projects. These account for just under 1% of registered projects, and 1% of projects undergoing validation.³ They are likely to represent only 0.2% of the credits expected for all CDM projects in 2013, according to the CDC Climat Research model (Cormier and Bellassen, 2012).

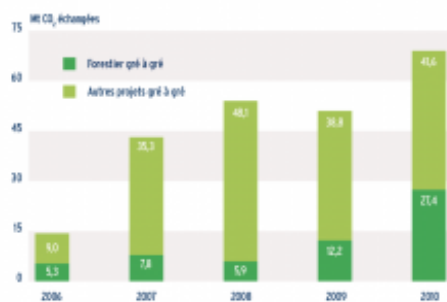
Demand for CDM and JI credits comes largely from the European Union, in particular from its Emissions Trading System (EU ETS), which covers the EU’s high-emission industries. Manufacturers can in fact make use of carbon credits from Kyoto Protocol mechanisms to meet some of their compliance obligations. The EU ETS is, however, currently closed to all domestic and international forestry carbon credits because of the difficulty, for a regulator, of managing the temporary credits generated by CDM forestry projects. Moreover, the monitoring system in this sector is regarded as less robust.

The exclusion of forestry projects from the EU ETS explains in part their marginal presence on compliance carbon markets. It means that in order to be eligible for the CDM framework, projects have to find buyers outside the EU ETS. The Ibi-Bateké afforestation project is an example of this type of project. It involves planting 4 226 hectares of forest in the Democratic Republic of Congo. The main purchasers of the “temporary” credits from this project are the World Bank’s BioCarbon Fund and Orbeo. Validation of the project by the CDM was one of the conditions of the contract with the BioCarbon Fund. However, in order to facilitate the sale of its carbon credits, the project is pursuing a second validation with the Verified Carbon Standard (VCS).⁴ According to the project leader, the synergy between agroforestry revenues and the integration of carbon credits, which is a feature of this project, presents an exceptional benefit: the ability to participate in a global market that generates foreign currency, which is reinvested directly in concrete local projects (Chenost et al., 2010).

Agroforestry on its own is not profitable enough and the return on investment time is long, which means it is not attractive to traditional investors.

A privileged place on the voluntary markets

FIGURE 1 : VOLUMES DE CRÉDITS CO₂ ÉCHANGÉS SUR LES MARCHÉS VOLONTAIRES



Source : Ecosystem Marketplace, Bloomberg New Energy Finance, 2010.

The voluntary markets sprang up in response to a demand from businesses, public bodies and individuals for carbon offsets. These entities are not subject to emissions reduction regulations, but offset their greenhouse gas emissions voluntarily. With a value of only €270 million and with 69 million tonnes of CO₂ equivalent traded in 2010, the voluntary market is dozens of times smaller than the market for regulatory projects (€14 billion and 1,120 million tonnes of CO₂ equivalent for the primary and secondary CDM and JI markets). Yet 40% (Figure 1) of the CO₂ credit transaction volumes on the voluntary market in 2010 came from forestry projects (Peters-Stanley et al., 2011).

This voluntary market is doubly attractive to investors in the forestry sector. Firstly, forestry projects

that are eligible for voluntary certification are more diversified than those accepted by the CDM mechanism (which are effectively restricted to afforestation projects). Secondly, the positive impacts of a forestry project on the climate, on the environment and on the socio-economic situation of the populations that depend on the forest are easier to communicate to a broad public (the target audience for organisations engaged in voluntary offsetting activities).

Because the voluntary framework generally offers fewer incentives than the regulatory sector, the voluntary market is not as liquid or as deep. Nevertheless, it is growing rapidly. In fact, these projects generate considerable co-benefits: environmental (conservation of biodiversity, soil protection, etc.) and social (job creation, etc.). Higher demand is enabling the voluntary markets to attain high prices – close to the average prices observed on the compliance markets in 2010.⁵ In some cases the voluntary market can even act as a “testing ground” for projects that may enter the compliance framework at a later date (Guigon, 2010). This applies in particular to REDD projects, which currently dominate the voluntary market. Kasigau Corridor is a REDD project that has been implemented in the semi-arid tropical forest in south-eastern Kenya. Validated by the VCS, it was the first REDD project to supply VCS credits. Carbon finance has enabled the project to expand its conservation areas. In addition, it has generated an alternative source of income for the rural Taita and Kamba communities, which have managed to set up an eco factory making organic cotton clothing and are involved in ecotourism activities. This project brings together a company called Wildlife Works with local communities and landowners. It is financed by Nedbank, a South African bank, PUMA and the Althelia fund of BNP Paribas.

Prospects for the forestry sector

Demand on the voluntary markets will almost certainly not be sufficient, however, to meet supply: a large influx of credits from voluntary projects is expected in the next few years, particularly from recently validated REDD projects. In the medium term, therefore, it is vital that we generate a compliance demand for these voluntary credits

There are a number of processes that aim to create this demand. International post-Kyoto Protocol negotiations now give priority to combating deforestation and forest degradation in global climate matters. Even if 2020, the year announced for a new international carbon market, is a long way off, the methodological agreements reached on monitoring, notification and verification of the REDD+ programme⁶ could serve as a common metric for the various regional markets that will determine the price of carbon between now and 2020. As far as the CDM is concerned, the negotiators are currently assessing the possibility of including other forestry activities in the mechanism alongside afforestation projects. We also need to develop alternative approaches for temporary credits that make it possible to manage the risk of non-permanence associated with forestry projects.

Since the EU ETS market (the main outlet for compliance credits) will not include forestry credits in the short term, other markets are emerging that offer opportunities for the forestry sector. California has validated its mandatory emissions trading system, which will impose an emissions cap on certain industrial players from 1st January 2013. Offset credits are authorised up to 8% of the allowance, *i.e.* 232 million for the 2012–2020 period. The system applies to sectorial REDD projects arising from regional initiatives in developing countries, and to credits from agricultural and industrial projects implemented in the United States, Mexico and Canada.

In Australia, a law passed on 8th November 2011 (Clean Energy Bill, 2011) sets a price on carbon which will be imposed as a tax from 2012 to 2015, with an emissions trading system coming into force thereafter. Those liable to pay the tax can cover 5% of their obligations with domestic agricultural and forestry credits certified by the Carbon Farming Initiative (CFI)⁷. This limit will be lifted in the future and extended to include international credits for up to 50% of emissions.

These new opportunities will no doubt enable the economic instruments used to combat global warming to take greater account of forests. More and more of the world's emerging compliance

markets are integrating forest-related projects. International negotiations within the United Nations Framework Convention on Climate Change (UNFCCC) could also lead to regulations on monitoring, notification and verification of REDD+, the benchmark for new compliance markets. In particular, these rules could specify the type of instrument to be used (satellite image of a certain resolution, forestry inventories with a specified sampling density, etc.), the review process for the benchmark scenarios (for example, conducted by a team of experts accredited by the UNFCCC), etc. It remains to be seen how soon these opportunities will materialise. Greater integration of the forestry sector into compliance carbon markets will make it possible to increase visibility and incentives for investors. New private capital flows could, therefore, be directed towards forests, provided the prices of credits on the compliance markets recover.

Footnotes

1 Built into these projects are conservation initiatives and activities such as reforestation for energy supply purposes, intensified agriculture, improving the energy efficiency of homes etc.

2 The 27 countries of the European Union (except Cyprus and Malta), Canada, Croatia, the United States, Russia, Iceland, Japan, Liechtenstein, Monaco, Norway, New Zealand, the UK and Northern Ireland, Switzerland and the Ukraine.

3 Of the 77 projects registered and undergoing validation, 22 are based in Latin America (mainly in Costa Rica, Chile, Brazil and Argentina), 20 are in Africa (mainly in Kenya and Uganda, but also in the DRC, Ethiopia, Niger, Senegal, and Tanzania), 18 are in Asia and the Pacific (mainly in India, China and Indonesia) and only two are in Europe (Albania and Moldavia).

4 The result of negotiations between manufacturers, NGOs and market experts, the Verified Carbon Standard (VCS) is a certification standard for voluntary offsets of greenhouse gas emissions. It was launched at the London Stock Exchange in 2007.

5 The sharp fall in prices on the compliance markets at the end of 2011 - which has not yet been documented - appears to have pulled down the price of voluntary offset credits as well.

6 REDD+ is a programme that takes account of conservation of forests and sustainable forest management - in addition to the fight against deforestation and forest degradation - while attempting to increase forest carbon stocks.

7 The Carbon Farming Initiative (CFI) is a carbon offsets scheme set up by the Australian government to provide new economic opportunities for farmers and foresters.

The carbon markets

Carbon markets are one of the three main economic instruments, alongside taxes and regulations, used to reduce emissions. They can be split into two types: emissions allowance trading systems ("cap and trade") and carbon offset mechanisms that generate credits. The emissions trading system covers entire sectors of the economy. Each installation must surrender sufficient allowances to account for its GHG emissions. To achieve this, installations that have surplus allowances may sell them to installations with an allowance shortfall.

Offsetting involves defining on an ad hoc basis the boundaries of a project aiming to reduce emissions. Emissions within these boundaries are compared against a benchmark scenario (business as usual or BAU) and the difference can be translated into carbon credits. This arrangement enables stakeholders in a sector not included in an emissions trading system to place a value on their emissions reductions if they wish. The label used to certify emissions reductions - and therefore carbon credits - determines the market on which the reductions can be traded. CDM and JI are the two labels that have historically been used on the compliance markets, the primary market here being the European Emissions Trading System (EU ETS). These markets are larger, more liquid and in general credits reach higher prices than those in the voluntary markets. All the other labels are recognised only by the voluntary markets, where businesses, public bodies, individuals, etc. can purchase credits to achieve a voluntary emissions reduction target. This diverse range of labels makes the voluntary markets more flexible, responsive and innovative than

the compliance markets.

REFERENCES / Beer, C. et alii 2010. Terrestrial Gross Carbon Dioxide Uptake: Global Distribution and Covariation with Climate. *Science* 329, pp. 834-838. / **Canadell, J. et alii, 2007.** Contributions to accelerating atmospheric CO₂ growth from economic activity, carbon intensity, and efficiency of natural sinks. *PNAS* 104, pp. 18866-18870. / **Chenost, C., Gardette, Y. et alii, 2010.** Bringing forest carbon projects to the market. ONFI. See in particular Olivier Mushiete's evidence regarding afforestation on the Batéké plateau, presented in case study no. 5. / **Cormier, A. et Bellassen, V., 2012.** Working Paper N°2011-12 The risks of CDM projects: how did only 30% of expected credits come through? CDC Climat Recherche. / **Dixon, R. K. et alii, 1994.** Carbon pools and flux of global forest ecosystems, *Science* 263, pp. 185-190 / **Guigon, P., 2010.** Voluntary Carbon Markets: How Can They Serve Climate Change Policies. OECD Environmental Working Paper No. 19 / **Hamilton, K., Peters-Stanley, M., Marcello, T., 2010.** Building Bridges: State of the Voluntary Carbon Markets 2010. A report of Ecosystem Marketplace and Bloomberg New Energy Finance. / **Peters-Stanley, M. et alii, 2011.** Back to the future - State of the Voluntary Carbon Markets 2011. Ecosystem Marketplace and Bloomberg New Energy Finance. / **Van der Werf, G.R. et alii, 2009.** CO₂ emissions from forest loss. *Nature Geoscience* 2, pp. 737-738.

© 2012 - Private Sector & Development