Emerging market for land-use carbon credits

Regulatory momentum and reliable standards support growth

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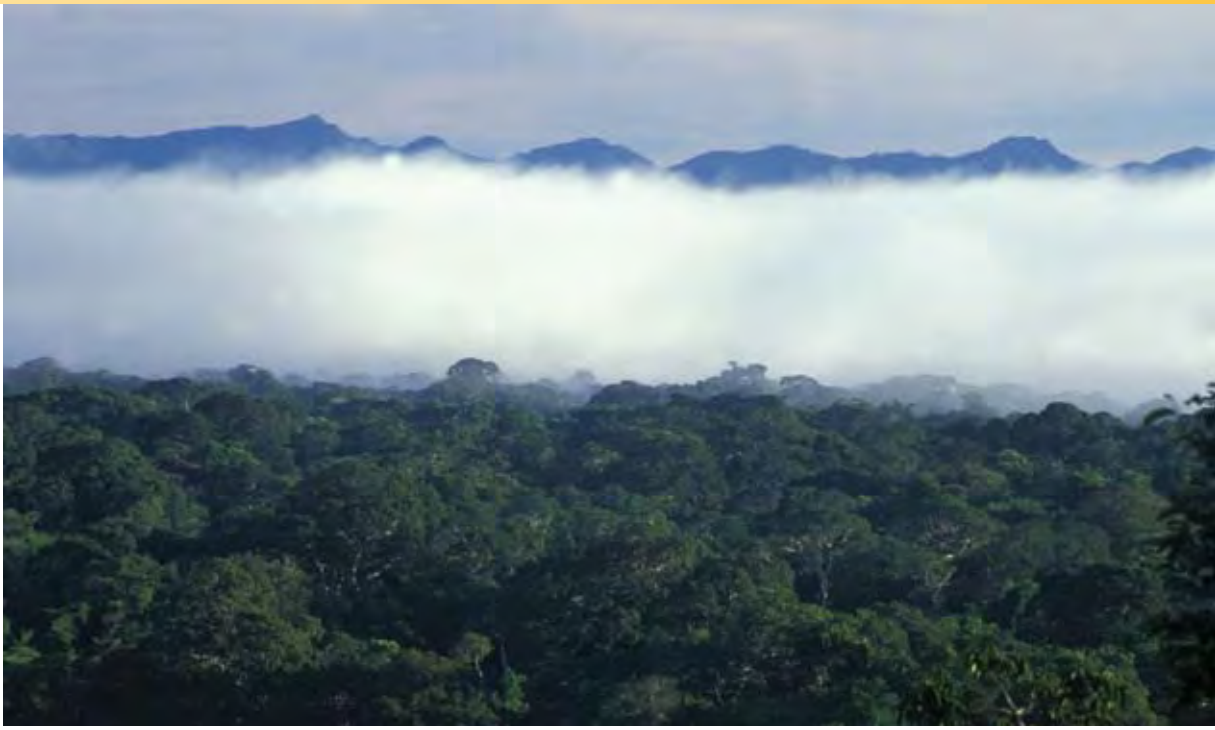

Becoming clearer: Carbon credits can add value to well managed topical forests. *Photo: H. Castro*

It is widely accepted that detrimental land-use actions generate at least 18% of global greenhouse gas (GHG) emissions worldwide, mostly from deforestation.[1] FAO estimates global forest loss at about 13 million hectares per year, roughly the size of Switzerland, releasing around 1650 $MtCO_2$ each year. Despite this significant contribution to global emissions, land-use projects represent less than 1% of the official carbon offset market.[2] The rapidly growing worldwide carbon market was estimated by the World Bank to be worth over US$64 billion in 2007, more than doubling from the previous year's $31 billion. The market is estimated to exceed $100 billion in 2008. Emission reduction projects (offsets) accounted for 21% of the total in 2007, with the remainder accounted for by allowances issued by governments for regulatory schemes under the European Union/Emission Trading Scheme (EU/ETS). Voluntary carbon offset transactions from emission reduction projects were worth $265 million in 2007.[3]

Within the Clean Development Mechanism (CDM), as of October, 2008, only one Afforestation/Reforestation (A/R) project was approved and registered. An additional 32 A/R projects have been submitted for registration under the CDM and are currently being considered. A drawback to A/R projects under the CDM is that they are not accepted under the current EU/ETS scheme and are exclusively traded on the voluntary market.

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In 2007, 18% of traded volume on the voluntary market was accounted for by forestry and agricultural soils projects.[4] Credits from land-use projects often trade at a significant discount to other project types, such as renewable energy, industrial gas, or fuel switching. Still, voluntary buyers and buyers motivated by emerging regulatory schemes are show growing interest in purchasing credits from projects previously designated as Land Use and Land Use Change and Forestry (LULUCF), now referred to as Agriculture, Forestry, and Land Use (AFOLU). This new designation accounts for a broader set of project types including A/R, improved forest management, reduced emissions from deforestation and degradation (REDD), and agricultural land management.

Evolving regulatory environment

Expansion of the market for land-use project generated carbon credits is driven by changes in the regulatory environment. The EU has recently made a commitment to address the global problem of deforestation. In the absence of regulatory acceptance, voluntary interest in AFOLU projects from institutional and retail buyers is growing.

Japan recently announced that it will institute a voluntary emissions reduction plan where companies would voluntarily agree to cut emissions. The pricing and allocation of allowances has yet to be determined and the Japanese government is reluctant to impose mandatory compliance measures. Nevertheless, Japan has been an important player in the worldwide carbon market and has been a strong supporter of forestry projects.

When Australia's new government took office in December 2007, it immediately signed onto the Kyoto Agreement and began to put in place its rules for GHG reductions. Australia has set up a climate exchange to trade emission reduction credits, and it has proposed recognizing credits from agricultural land use and forestry and appears to be on track in meeting its Kyoto emission reduction targets.

Pending federal legislation in the U.S. and regional initiatives devising legislation to limit GHG emissions and establish cap and trade systems include acceptance of domestic and international forestry projects as offsets. Given the size of the U.S. regulatory market the impact on the demand for land-use credits will be significant. The Dingell-Boucher Bill currently being proposed to the U.S. House of Representatives includes two provisions for carbon offset credits to fulfill compliance obligations in the future cap and trade program. One provision of the legislation creates a domestic U.S. offset program, enabling qualifying emission-reduction projects within the U.S. to generate credits for use within the cap and trade system. Besides allowing for credits from methane capture and destruction projects, this provision specifies that A/R, forest management, reduced deforestation and agricultural projects would be included. A second provision creates an international emission offset program that allows the use of credits generated from international projects for compliance as well and specially outlines forest restoration and conservation as allowable project types.

Market standards

In Bali (December 2007), the UNFCCC included REDD on its post-2012 roadmap, with more details expected to emerge from its next COP in December 2009. The World Bank, through its Forest Carbon Partnership Facility, is supporting reduced/avoided deforestation efforts at the country level. In addition, the voluntary market for AFOLU projects is growing and gaining credibility with market participants. To date, six projects, a mix of A/R and REDD, have been approved under the Climate, Community and Biodiversity Standard (CCBS) and ten others are currently being audited. CCBS has limited requirements for carbon accounting for AFOLU projects, but it provides valuable metrics for ensuring social and biodiversity benefits. By contrast, the Voluntary Carbon Standard (VCS) provides guidance for accurate accounting of carbon stocks, leakage, and additionality, though no methodologies have been approved to date. Terra Global Capital proposed the first VCS REDD methodology in September, 2008, which is currently under third party validation. It is anticipated that this methodology will be the first approved under the VCS for REDD.

Market growth is being driven by these standards that provide transparency for buyers and sellers, carbon accounting methods that are robust and credible, and registration processes that are streamlined and cost effective. But the methodological approaches of the various standards do vary, as they seek to quantify baselines, leakage, and additionality across varying AFOLU project types. The two main standards currently accepted for AFOLU projects are VCS and CDM. These differ significantly in the types of projects accepted and the details of land eligibility (Table 1).

Prices

Market prices for carbon credits from REDD projects vary widely and are difficult to compare due to varying terms. Baed on a limited sample size, they have to date been observed to range from $2 to $12 per ton. While the contribution of VCS and CCBS registration ensures a high degree of carbon accounting and social and biodiversity benefits, it is unclear how much of a premium the market will place on credits with both CCBS and VCS registration. Nonetheless, REDD projects as a whole are anticipated to play an important role in the market for worldwide carbon offsets.

Discrepancies in market prices for land use carbon credits are common because they originate from different project types and the motivations of buyer vary widely. Prices vary with respect to the regulatory framework and standards to which they have been submitted, and reflect the relative value and risks they represent to potential buyers. A recent survey of the voluntary market by Ecosystems Marketplace noted the following prices were reported for voluntary market transactions per ton of CO_2:

- A/R plantation/monocrop - $8.20 per ton
- A/R restoration of native species - $ 6.20 per ton
- Avoided deforestation - $4.80 per ton
- Agricultural soil - $3.90 per ton[5]

Demand side drivers

The impending legislation at the national and regional levels in the U.S. and cap and trade systems being implemented in the EU, Australia and Japan, mean that emission caps will continue to tighten and compliance costs will likely increase. Thus, the need for cost effective abatement solutions is high, particularly given the recent economic downturn. Credits from land use projects will continue to provide a low to medium cost abatement solution for compliance with these regulatory schemes[6] and for voluntary buyers. Since the voluntary market is expected to grow to US $50 billion by 2012, the demand for land-use projects with desirable co-benefits to voluntary buyers[7] will impact the market growth for land use credits. For pre-compliance

VCS best

Table 1. Land -use project types and available carbon standards

CATEGORY	EXAMPLES	CDM	VCS
Afforestation/Reforestation	• Tree planting with or w/o harvest, on deforested land • Agro-forestry on deforested land • Assigned natural regeneration, on deforested land	✓ ✓ ✓ deforested prior 1990	✓ ✓ ✓ deforested >10yrs prior project start
Avoided Deforestation (REDD)	• Reduction of degradation and deforestation • Enrichment planting or ANR, on degraded lands		✓ ✓
Improved Forest Management	• Conversion from commercial to sustainable timber harvesting • Extending rotations of harvests • Other treatments to restore forest value		✓ ✓ ✓
Agriculture Land Management	• Conservation tillage • Optimized fertilization (reducing N_2O emissions) • Improved water management rice (reducing CH_4) • Rangeland management		✓ ✓ ✓ ✓

companies and investors, the U.S. market which is predicted to be worth $1 trillion by 2020, provides an opportunity to invest early in anticipation of increased regulation and market appreciation. With offset credits from forestry projects specifically allowed in all versions of the proposed U.S. legislation[8] it is anticipated that the pre-compliance demand for AFOLU projects will increase over the next 2-5 years.

The Kyoto compliance markets are currently limited for forestry (CDM only allows afforestation/reforestation). Companies with Corporate Social Responsibility (CSR) goals have recently been looking more to buy land-use credits, as they have started to understand the issues of permanence and timing of offsets versus their emissions. These companies are actually looking to land-use projects as a cost effective offset source and additionally they value the co-benefits of increased biodiversity, poverty reduction and improved water quality.

Buyers often focus on two issues beyond the importance they place on accurate carbon accounting. One is permanence: the notion that the offsets created and sold from a project will not be reversed by natural or man-made events that release the project's previously sequestered carbon. The second one is additionality: confirming that that the project resulted in lower green house gas emissions than what would have occurred under a 'business as usual' scenario.

Buyers currently in the market have been categorized as follows:

- Regulatory compliance buyers who need to purchase offsets to meet their regulatory caps;
- CSR companies who purchase credits to meet objectives of environmental responsibility;
- Pre-compliance or early action buyers from corporate entities who will eventually have to comply with a standard;
- Speculators or investors who want to take advantage of possible future price increases; and
- Retail buyers who want to take personal action to offset their carbon footprints.

While each of these buyers has different motivations and pricing objectives, they all need to rely on transparent standards for carbon accounting and the ability to understand the risk related to their carbon offsets purchases.

Can AFOLU projects be brought to market in scale?

It is estimated that reforestation of only 1% of eligible tropical land could give rise to $5 billion in carbon credits.[9] Each year US $8 billion worth of carbon (valued at US $5 per ton) is emitted due to deforestation. Thus the ability for both A/R and REDD to contribute to reducing GHG is significant. However, if forests are to be replanted, stabilized, or deforestation avoided, the developers of such projects will need expertise, capital, and technical support to bring credible projects to market and to implement them. It is also possible that other ecosystem credits including water quality, biodiversity and poverty reduction can attract additional buyers and higher value for bundled co-benefits. The supply of credits from AFOLU projects will be linked to the availability of funding, standards and technical expertise to project developers.

Bringing AFOLU projects to market is a complex matter. Projects have multiple stakeholders and require contributions and coordination across countries, technical skill sets that are not readily available in many developing countries, and a high degree of motivation on the part of local participants. In-country technical expertise to manage the implementation and monitoring of the projects requires local level capacity to ensure successful outcomes.

Often projects require up-front funding to support startup costs for project development and carbon measurement. Having such funding in place early allows for a better chance of project success. In addition, it must be established who is the legal owner of the credits, and how the transaction can be structured to ensure that credits are only sold once and that a viable counterparty can sign the emissions reduction purchase agreement with buyers. In many countries, it is unclear as to who owns the carbon credits, whether it is actually the land owner, long term land tenants and/or implementer of the project activities. Thus agreements between potential credit owners need to be put in place to ensure that rights to credits are clear between all parties.

Finally, to ensure that income streams can flow fairly to multiple participants, including local communities, revenue flows need to be accurately predicted and mechanisms put in place to distribute carbon benefits. This means that all financial aspects of the project need to be thoroughly planned and monitored effectively, so all costs and revenues can be accounted for and payments made in a timely and routine fashion.

Conclusion

The AFOLU carbon market is growing at a rapid rate. The demand for land-based offset credits will undoubtedly increase further with changes in the regulatory systems of developed countries, and because there is no other single source that could potentially meet this growing demand. The measurement, permanence, additionality, and risk issues of AFOLU projects will be better understood and managed, and as the market matures numbers of buyers and early investors will increase. Such maturation will occur as quality projects are brought to market, transparent and rigorous standards are applied, ample technical expertise to measure carbon is developed, and adequate financing to initiate projects is efficiently sourced.

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