

The role of the greenhouse gas market in making forestry pay

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Incentives, innovative marketing and redistribution of costs and benefits are examined for their potential to make forest management more profitable.

Forests and their soils store an enormous quantity of carbon; this carbon, together with other greenhouse gases such as methane, contributes to global climate change when released through deforestation or forest degradation. Inversely, various land-use, land-use change and forestry (LULUCF) measures can move carbon dioxide from the atmosphere into biomass and soils (carbon sequestration), thus contributing to climate change mitigation.

Market mechanisms such as emissions trading are uniquely suitable to climate change mitigation objectives. A molecule of carbon dioxide, regardless of where it is emitted, can be anywhere on the planet in little more than a week. Conversely, a reduction of greenhouse gas emissions has the same effect on the atmosphere no matter where the reduction occurs. Thus, through an emissions trading market, companies in industrialized countries with emissions reduction mandates, for example, can purchase greenhouse gas credits from "carbon offset" projects in developing and other industrialized countries.

In 1989, years before the Kyoto Protocol or even the United Nations Framework Convention on Climate Change (UNFCCC), AES Corporation, an independent United States power producer, initiated the first carbon offset project. The project, which focused on social forestry and agroforestry interventions in Guatemala, set the stage for the development of mechanisms for monetizing the carbon sequestration services provided by the world's forests. Almost 15 years have passed since that first carbon offset project. Dozens of forestry projects on millions of hectares around the world claim "carbon offset" status. Yet forestry's technical potential as a climate change mitigation strategy remains largely untapped. If the Kyoto Protocol enters into force, will forestry-

based mitigation projects explode in number, and how will they work?

These are difficult questions to answer. Forestry-based carbon offsets have proved contentious. Many observers feared that LULUCF projects would flood the greenhouse gas market and displace other sources of greenhouse gas credits, including improvements in energy efficiency. Partially as a result, forest conservation projects (which initially formed a large fraction of LULUCF carbon offset projects being pursued) were excluded from crediting for at least the Kyoto Protocol's first commitment period. The future is murky even for afforestation and reforestation projects, the two categories of developing-country LULUCF projects approved in the Clean Development Mechanism (CDM) of the Kyoto Protocol.

Some of the confusion surrounding LULUCF projects affects climate change mitigation projects in general; the CDM is in its infancy and many rules and procedures remain to be worked out. A main area of contention, however, has to do with the potential lack of "permanence" of LULUCF projects. Greenhouse gas benefits from LULUCF projects, unlike those from other mitigation measures, are subject to potential reversal. A forest planted or protected today as a carbon offset project could be cut down in the future or could fail as a result of fire, disease or other causes, which would largely reverse the benefits of today's endeavours. Rules and modalities intended to create a level "permanence" playing field for LULUCF and other mitigation sectors are being drafted and should be released at the ninth Conference of the Parties to the UNFCCC in November 2003.

As a result of these and other uncertainties, investment in LULUCF climate mitigation projects has declined significantly in recent years. Nevertheless,

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many observers hope that LULUCF investments will expand rapidly after the entry into force of the Kyoto Protocol “jump starts” the global greenhouse gas market. How to pursue LULUCF projects therefore remains a point of interest for many individuals and organizations.

How does a project qualify for the CDM?

LULUCF projects must meet a number of qualifying criteria:

- it is probable that projects will only be able to count land not under forest cover after 1989, and the host country must be a Party to the Kyoto Protocol;
- the project must show that it will result in measurable and long-term carbon sequestration;
- the project must demonstrate that its carbon sequestration benefits are “additional” to a “business as usual” baseline (although approved methodologies for this purpose are not yet in place);
- the project must demonstrate that it will advance the host country’s sustainable development objectives and contribute to biodiversity conservation;
- the project’s performance must be validated and quantified on an ongoing basis by a third party audit.

How will the benefits be quantified?

Quantifying the carbon sequestration benefits of LULUCF projects includes several elements:

- choosing a crediting period (currently either a single ten-year sequestration period or three renewable seven-year periods, but under discussion);
- developing a “business as usual” baseline, against which the project’s net carbon sequestration will be

measured; it is important to note that credits will only be assigned for sequestration that has occurred, and this must be accounted for in assessing project carbon economics;

- quantifying and accounting for any “leakage” of the project’s benefits outside the project boundary, which might happen, for example, if reforestation of one area resulted in the conversion of another area from forest to an alternative land use;
- implementing any rules and modalities for permanence adopted for LULUCF projects.

Where is the money?

Realizing a project’s potential financial gains will involve a number of steps:

- finding a potential project investor, or simply a willing buyer of project credits; this can occur at an early or late stage in the project process;
- negotiating project terms and credit agreements, including possible credit delivery guarantees, the timing of project funding, the allocation of CDM costs and risks, and other variables;

- developing the project and preparing a Project Design Document conforming to CDM rules; although there is no required project structure, preferred structures will likely evolve in response to CDM rules and market conditions;
- getting the project approved by the host country, an “operating entity” (i.e. an auditor) and eventually the CDM Executive Board, a process that also involves posting of the project documents for public review and comment on the Internet;
- implementing the project successfully and meeting the agreed milestones to which funding is linked.

The project area of the Guaraqueçaba Climate Action Project in Brazil, which purchases buffalo ranches in selected areas for the purpose of restoring degraded pastures to forest cover



A number of offset projects are moving through this process by various paths. Some of the more interesting projects involve forest restoration projects rather than industrial plantations. In Brazil, for example, the Guaraqueçaba Climate Action Project being pursued by The Nature Conservancy in partnership with the Society for Wildlife Research and Environmental Education (Sociedade de Pesquisa em Vida Selvagem e Educação Ambiental, SPVS) and American Electric Power purchases buffalo ranches in selected areas for the purpose of restoring degraded pastures to forest cover. To address what otherwise would be potential leakage associated with simply transferring buffalo herds from one area to another, the project works with local communities to develop more intensified buffalo management practices and to adapt and improve crop production models that are more sustainable and provide alternative economic returns. In Costa Rica, a different approach has been used. Rather than purchasing lands for reforestation, the government has provided financial incentives for landowners to engage in qualifying forestry activities.

CONCLUSIONS

Information is improving about the steps that LULUCF projects will need to take for CDM approval, although key uncertainties remain. LULUCF projects were initially thought of as a very low-cost mitigation option, but that situation has already changed. Today, projects must be much more rigorously designed, quantified and verified, and the pending rules governing permanence will almost certainly increase the cost of greenhouse gas credits from LULUCF projects. Instead of costing pennies per tonne of carbon or CO₂ sequestered (as the earliest projects were said to do), many high-quality LULUCF projects may cost

US\$3 to \$10 or more per tonne of CO₂ equivalent (US\$10 to \$35 per tonne of carbon).¹

A key wildcard in predicting the impact of the greenhouse gas market on forestry is the market value of greenhouse gas credits in general. Even here there are huge uncertainties. Will the Kyoto Protocol enter into force? Will the United States rejoin global climate change mitigation efforts? Will post-2012 emissions reduction targets for industrialized countries be significantly more stringent (creating a greater demand for credits)? Today, greenhouse gas credit prices are still very low (US\$1 to \$5 per tonne of CO₂ equivalent). Most observers have assumed that greenhouse gas credit prices will rise with the entry into force of the Kyoto Protocol, but some analysts now estimate that prices will remain very low, at least as long as the United States remains outside the protocol. Far from flooding the market, as many observers initially feared, LULUCF projects may have difficulty competing in a market characterized by such low prices.

The challenges of looking to the greenhouse gas market to promote forestry-sector projects in the near term are evident. The up-front costs of positioning a project for the CDM will often be significant, and the financial returns modest. The promise of the greenhouse gas market as a source of billions of dollars of new forestry-sector funding will almost certainly remain unfulfilled for the foreseeable future. Nevertheless, some well-positioned forestry projects will be able to take advantage of the developing greenhouse gas market in the near term. ♦

¹ Although foresters think in terms of carbon, the unit of currency in the market is CO₂ or, given that there are six potential gases involved, CO₂ equivalent. To convert from US\$ per tonne of CO₂ to US\$ per tonne of carbon, multiply by 3.67.