Great expectations

Why there are so few forestry projects under the Clean Development Mechanism

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Pot of gold?: Cenepa river, Tambopata, Peru. *Photographer: C. Chavez*

There were high hopes and expectations for financing sustainable plantation practices in tropical forests when the Kyoto Protocol was adopted in December 1997 within the United Nations Framework Convention on Climate Change (UNFCCC), since the Protocol's Clean Development Mechanism (CDM) allowed for afforestation and reforestation (A/R) activities in developing countries (so-called non-Annex-I countries to the UNFCCC). It was estimated that a maximum of 121 million tonnes of carbon dioxide equivalents (Mt CO_2e) per year could be traded based on the upper limit of 1% of participating Annex-I Parties' base-year emissions times five (Haite 2004). This meant that even at the low prices of US$ 3 to 5 per tonne of CO_2e A/R CDM activities had the potential to raise US$360–600 million per year during the first commitment period, although net benefits were expected to be somewhat lower once the transaction costs of Certified Emission Reductions (CERs) were taken into account.

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These hopes have not been fulfilled to date. Afforestation and reforestation project activities have been the least successful among all the sectors covered by the CDM in spite of efforts by several national and international bodies including ITTO. This article provides a brief overview of ITTO experience related to A/R CDM projects and reviews technical challenges of accounting for carbon stock changes in A/R CDM and in more recent schemes for reducing emissions from deforestation and forest degradation in developing countries (REDD). It then discusses governance concerns regarding forestry mitigation options and changes that may be considered for A/R CDM projects under the Kyoto Protocol's second commitment period.

ITTO experience

ITTO has always recognized the valuable ecosystem services rendered by tropical forests. Such ecosystems include habitat for millions of species, produce a large proportion of the world's supply of fresh water, and are crucial in the global carbon cycle.

An early attempt by ITTO to promote the valorization of environmental services was the Colombian pilot project "Alternative Financing Model for Sustainable Forest Management in San Nicolas" (PD 54/99 Rev. 1 (F)) which is currently finalizing its second phase (PD 240/03 Rev. 1 (F)). CORNARE (Regional Autonomous Corporation of Rio Negro – Nare), the co-executing Swiss agency EMPA (Swiss Federal Institute for Materials and Technology Research and Testing), the municipalities and the community in Valles de San Nicolas jointly developed these projects in the north-east region of Antioquia. The objective of the projects has been to test an innovative financing method that combines sustainable management of tropical forests with the potential that the CDM of the Kyoto Protocol offers the forest sector. The project has produced a master management plan that includes conservation, plantations, agroforestry and restoration activities. Based on this master plan, carbon sequestration and greenhouse gas (GHG) emission reductions were calculated. The methodology developed by this project was approved by the CDM Executive Board in 2008 after a delay of several years and the project is now in the process of validating its methodology. The project has signed a purchase contract with the BioCarbon Fund for any CERs produced until 2012 and has also negotiated GHG emission reductions from reduced deforestation and forest degradation in the voluntary market. In order to achieve these results the project has

facilitated the creation of the *Corporación MASBOSQUES*, a public-private partnership responsible for the implementation of the plan as well as for the carbon business, developed capacity building schemes for understanding the carbon potential of forestry and produced several inputs for the negotiations on A/R CDM.

These initial experiences demonstrated the need to support capacity building in ITTO producer members. ITTO consequently joined forces with concerned international organizations and non-governmental organizations to build the capacity to develop and implement A/R CDM project activities. ITTO published a guidebook for the formulation of A/R CDM projects with the assistance of Winrock International. Since 2006, ITTO has also organized six regional workshops[1] to promote the understanding of the rules and procedures of AR-CDM and encourage country level initiatives in promoting A/R CDM project activities in line with the *ITTO Guidelines for the Restoration, Management and Rehabilitation of Degraded and Secondary Tropical Forests*.

The six regional workshops have provided training for more than 300 technicians and policy-makers in ITTO producer member countries. The workshops served to enhance knowledge and understanding of A/R CDM projects (including project design and baseline establishment/ monitoring methodologies), as well as financial and investment issues, among the forestry professionals of ITTO member countries. Support for development of six pilot projects in Africa, Asia and Latin America has been provided with the aim of initiating A/R CDM projects in these continents.

Slow progress

In spite of the many efforts made by international, regional and national organizations, the contribution of afforestation and reforestation to the generation of carbon credits under the CDM has been negligible so far. Only 1% of CDM projects registered as of late 2008 have been in the forestry sector. ITTO's experience has shown that developing A/R CDM projects is very time consuming and expensive due to complicated rules and modalities. The difficulties identified can be categorized as technical and economic. They include the lack of capacity to identify, formulate and implement A/R CDM projects in accordance with the modalities and procedures of the CDM project cycle as well as the underlying inability of project developers to attract financing to allow for the implementation of these projects. This situation is aggravated by the lack of seed capital and technical capacity to kick-start the project development process. The following sections provide detailed descriptions of the causes of the extremely slow progress to date in implementing A/R CDM projects.

Technical causes

Five pools to account for. Carbon in forestry mitigation activities can be found and measured in five so called "pools" or "reservoirs": Below-ground biomass, above-ground biomass, litter, dead wood and soil organic carbon. Ideally, data should be collected for changes in carbon stocks in all five pools, but doing so in an accurate and cost effective manner remains a major challenge. In order to facilitate the calculation of such changes, models and algorithms have been developed, especially for the two first pools. However, basic information on carbon stocks and stock changes in each pool remains scarce and/or inaccurate, particularly in developing countries. Hence, Parties to the Kyoto Protocol have agreed that A/R CDM project proposals may choose not to account for one or more carbon pools, as long as the excluded pool is not a net GHG emitter (Decision 19/CP.9, later adopted by the Parties to the Kyoto Protocol as Decision 5/CMP.1).

Difficulty in selecting eligible land. The first criteria for an A/R CDM project is that the land involved is eligible. If the activity involves reforestation, the land must have been categorized as non-forest as of 31 December 1989 and at the beginning of the project. If the project is involves afforestation, then the land must have been categorized as non-forest for the past 50 years. Evidence of land categorization is to be provided by project proponents. While it is not compulsory, validating land categorization invariably requires satellite images at least for the year 1989. These are almost always very difficult or impossible to obtain. When available, such images are often of poor resolutions that can not conclusively establish the status of land in the reference year and require a high level of capacity and equipment to analyze reliably.

Quantification of carbon potential. Each A/R CDM project has to quantify the potential sinks of carbon (C) during the project duration. This involves comparing the sinks with and without project activities, with three factors to be considered: baseline, additionality and leakage. The baseline is the change in C without the project, while the additionality is the changes in C with the project. The concept of leakage refers to additional emissions due to implementation of the project that happen outside the project border (e.g. GHG emissions due to increases in oil consumption for transportation of timber products). The C sink potential is calculated as:

C (potential) = C (in the additionality) – C (in the baseline) – leakages

The Executive Board of the CDM has approved methodologies and tools for making these calculations. These are highly complex, require a high level of expertise and require significant amounts of data that are often not available.

Permanence. Non-permanence in A/R CDM projects is dealt with using short-term credits (CERs). There are two options a) temporary credits or b) long term credits[2]. These credits have a lower price than credits from the energy sector, where the question of permanence is not considered, making A/R CDM projects less attractive.

Data deficiency. The carbon potential of an A/R CDM activity can only be established with accurate data on growth, root-shoot ratio, wood density and biomass volume tables of all the existing species in the area. Growth data of the species to be planted is also required. Estimates of non-CO_2 greenhouse gas emissions during the project activities (e.g. arising from use of fertilizer and irrigation) are also required. Such data are rarely available and the default data provided by IPCC is very sketchy, not covering many tropical forestry species. This makes the ex-ante and ex-post estimation of carbon sequestration required in A/R CDM projects a very time consuming, costly and difficult exercise.

Economic causes

Development costs. The costs of developing an A/R CDM project, validating it under the CDM rules and getting it registered are beyond the reach of most developing nations. There have been few concerted efforts by developed

[1] *ASEAN-ITTO Regional Workshop on Perspectives of CDM Forestry Projects in Asia and The Pacific (Phnom Penh, Cambodia, 22-24 March 2006); ITTO Workshop on AR CDM for Sub-Saharan Africa (Accra, Ghana, 2-6 October 2006); Latin American Regional Workshop on Afforestation and Reforestation Projects Development (Lima, Peru, 19-23 March 2007); African Regional Workshop on Afforestation and Reforestation Projects Development under the CDM (Abidjan, Côte d'Ivoire, 23-27 June 2008); Asia-Pacific Regional Workshop on Afforestation and Reforestation Projects Development under the CDM (Seoul, Korea, 8 – 12 Sep 2008); and Latin American Regional Workshop on Afforestation and Reforestation Projects Development under the CDM (Puerto Vallarta, Jalisco, Mexico, 29 September – 3 October 2008).*

[2] *Temporary CERs expire at the end of commitment period subsequent to the commitment period for which they are issued; long-term CERs expire at the end of the crediting period of the afforestation or reforestation project activity they were issued for.*

countries and their bilateral aid agencies to provide adequate seed funds for project development. Since there has been only one A/R CDM project approved as of late 2008, there are few examples to guide project proponents and every step in project formulation is therefore a new step in unknown territory. This is a significant deterrent to the formulation of new A/R CDM projects.

Validation costs. The "conservative approach" advocated by the CDM has led to a situation in which every doubt is counted as a proven flaw and every uncertainty results not in adoption of a statistical range for a given variable but its most conservative value. The validation process is often delayed, with more visits and working days of validating agencies required to ascertain any deviation from these conservative values, increasing validation costs.

Costs of monitoring C. Accuracy requirements in measurements of C during the project length are very high, with direct consequences for the number of plots and the frequency of monitoring activities (and therefore costs).

Cost of verification and certification of C. Although there is no verification process in A/R CDM yet, the lack of experience of all parties involved are expected to lead to high costs for validation and certification processes.

Lack of financing. Another difficult challenge for project developers has been the identification of investors or project donors at an early stage of project development. There is a major challenge of developing innovative financing mechanisms (e.g. private-public partnerships) for A/R CDM projects.

Reduced access to markets. The exclusion of carbon credits from tropical forests in the EU Emissions Trading Scheme (ETS) has had a negative impact on A/R CDM project activities for generating funding for tropical forests. In addition to the technical challenges in promoting A/R CDM, integrating carbon credits from tropical forests into the existing carbon markets such as EU ETS will be extremely important to create greater supply of forest-based carbon credits which would represent the value of conserving biodiversity plus carbon sequestration with the engagement of indigenous peoples and local communities. Identification of policy approaches and positive incentives on issues relating to REDD; and the role of conservation, SFM and enhancement of forest carbon stocks in developing countries is emphasized in the UNFCCC's Bali Action Plan. If the UNFCCC is to be successful in reducing emissions while strengthening carbon sequestration as an important mitigation activity, it must address increasing markets for forest-based carbon credits which would allow Annex I Parties to meet a percentage of their total emissions reduction targets through the purchase of more forest carbon credits. In this respect, the 1% ceiling on the use of A/R CDM sink credits by Annex-I countries should be reviewed, taking into account the co-benefits of forest-based carbon credits compared to those provided by any other sector.

Governance concerns regarding mitigation options in forestry

Besides the technical challenges of accounting for changes in carbon stocks in tropical forests, a major concern of many promoting the maximum use of mitigation options in forestry to contribute to sustainable development remains the impact of governance on any mitigation option. Parties to the UNFCCC require a regulatory system that promotes or at least allows the implementation of mitigation options in coordination with other developments in the forest sector.

A key issue in this respect is the need to clarify tenure and use rights not only for land but also for the five carbon pools. The fact that forest owners and users are in many cases not the same has implications for forest management. Even more important is the fact that hundreds of millions of people living in or near forests and making use of forest lands and resources have no or few secure rights nor tenure over these lands and resources. In many cases, the lack of rights and tenure is directly related to their poverty and to the destruction and degradation of those resources.

For the first commitment period, the A/R CDM regulations require that "changes in circumstances within the project boundary that affect legal title to the land or rights of access to the carbon pools" be clarified and be subject to monitoring and verification (Dec. 19/CP.9). In cases where the ownership of the pools is not clear or when different carbon pools have different owners, it is extremely difficult to determine who owns the carbon credits. If there is no clarity of ownership for CERs, any market transaction can be questioned, bringing many difficulties for both credit sellers and buyers. This difficulty can be solved at the level of national legislation or by using specific and clear agreements and contracts between the owners of carbon pools in a given project.

For a post-2012 climate change regime, the concerns related to the CDM will remain and new concerns related to REDD and ownership of forest land will gain importance. The key question remains: who owns the emission reductions and therefore who should be compensated for emission reductions? If there is a payment scheme (market or non-market based) how are these payments to be distributed between owners and users?

Conclusion

Less than one year remains before the UNFCCC's COP 15 in Copenhagen to review the rules and procedures of A/R CDM. Unless there are substantial modifications to the current rules and procedures, A/R CDM projects are unlikely to become any more common in tropical forests in the second commitment period of the Kyoto Protocol.

It is hoped that Kyoto Protocol negotiators will work towards simplification and streamlining of A/R CDM project requirements as well as providing credit opportunities for forest restoration and sustainable forest management activities in the second commitment period. Forging a decision in Copenhagen to simplify A/R CDM project requirements will depend upon how key constraints of A/R CDM are defined, and how common understanding on such issues can be developed. A sounder and more cost-effective framework for carbon sink projects under CDM will help to promote sustainable management of tropical forests through constituting a payment for an important ecosystem service provided by them.

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References

Haite, E. 2004. *Estimating the Market Potential for the Clean Development Mechanism: Review of Models and Lessons Learned*. World Bank, Wasahington DC, USA.

Robledo, C. 2004. *Small change from climate-change negotiations?* ITTO Tropical Forest Update 14:1.

Robledo, C. 2004. *Developments in UNFCCC/IPCC Discussions Regarding Forests and Implications for Tropical Forests and Tropical Timber Producers.* ITTO document E-C36-14.

Robledo, C. and Blaser, J. 2008a. *Developments in UNFCCC/IPCC Discussions Regarding Forests and Implications for Tropical Forests and Tropical Timber Producers.* ITTO report E-C42-CRP1

Robledo, C. and Blaser, J. 2008b. *Key issues on Land Use, Land Use Change and Forestry (LULUCF) with an Emphasis on Developing Country Perspectives.* United Nations Development Programme, Bureau for Development Policy, Environment and Energy Group. New York.