

## **CDM Projects and Ecosystem Conservation in the Asian Region**

**Ian Noble<sup>1</sup>**

The World Bank  
Washington DC USA

The Clean Development Mechanism (CDM) was a late addition to the historic Protocol agreed to in Kyoto in December 1997. The CDM is a mechanism whereby developing countries, as part of the differentiated responsibilities agreed to in the UN Framework Convention on Climate Change, can derive some benefits from the responsibilities of developed countries to reduce the emissions of greenhouse gases to the atmosphere.

The CDM has two purposes: to assist developing countries in achieving sustainable development and to assist Annex I countries in achieving compliance with their Kyoto greenhouse gas emission reduction targets. The bulk of CDM transactions are likely to be in the energy and fossil fuel areas. In fact, the incorporation of projects based on “sinks”, i.e. the uptake of carbon into terrestrial vegetation and soils and often called LULUCF<sup>2</sup> projects, has been controversial. However, through a process of scientific assessment, the development of scientific good practice guidance and lengthy negotiations, the rules for the use of sinks in the CDM were finally agreed at the 9th Conference of the Parties (COP9) in Milan last December.

The main points of that agreement and previous agreements at COP7 in Marrakech are that only projects based on afforestation or reforestation (A&R) are allowed as sinks projects in the CDM. Nevertheless, this creates a wide range of opportunities throughout developing countries. Examples include converting open grown agricultural systems to agroforestry systems where the planting of trees both protects the crops and provides a wider range of products, or rehabilitating degraded lands by planting trees for erosion control or as shelter belts.

Many expect that commercial plantations will also play a significant role in the CDM. I suspect that, on analysis, most large-scale plantations will not be ‘additional’. Additionality is the term used to describe the necessity that a project makes a true contribution to reducing greenhouse gases in the atmosphere. The logic of a CDM project is that an entity (e.g. a company or a government with an emission target) seeks to promote an activity in a developing country that will lead to reduced greenhouse gas emissions or increased uptake. The entity receives a credit for the emission reductions and that credit allows it to release the equivalent amount of greenhouse gas through its own actions. If the activity in the developing country is truly a new activity triggered by the CDM then the greenhouse gases in the atmosphere remain unchanged, i.e. for every tonne of gases taken up in a sinks project in the developing country, the developed country entity receives a credit that it allows it to release an extra tonne of greenhouse gases while still meeting their target. However, if the activity in the developing country would have occurred without the stimulus of the CDM, then the atmosphere is actually worse off as a result of the CDM trade as there is no extra uptake, but still an extra emission.

---

<sup>1</sup> E-mail: [inoble@worldbank.org](mailto:inoble@worldbank.org)

<sup>2</sup> Land Use, Land-use Change and Forestry

When the additionality test is applied to large-scale plantations it is unlikely that the decision to go ahead with the project depends on the availability of carbon finance through the CDM. In a commercial plantation, carbon finance may add to the overall profitability of the project, but it is unlikely to be the key to whether it goes ahead or not. However, there are situations where carbon finance may make that critical difference. For example, the BioCarbon Fund has received proposals that center on reforesting degraded lands. Without carbon finance the additional costs of planting on steep and eroded slopes and the slow growth of the trees mean that a project is not financially viable. With carbon finance, the project proponents receive a flow of income as the trees grow and this can make the project viable. Another example is small-scale community based forestry. It is often difficult for small communities to organize to establish plantings of trees that can be of great future value to them. Carbon finance can provide training, tools, seedlings and even cash in lieu of income forgone while the trees grow. Thus, the CDM can help overcome a barrier. Yet another example is the establishment of forests for conservation purposes. An example is the planting of corridors connecting conservation areas or buffers around existing forests. These plantings can often be done quite cheaply, but nevertheless there is simply no source of funds. Carbon finance can make these projects viable.

These projects are all examples of the proper and effective use of the CDM. They also have the advantage that they deliver additional environmental and social benefits as an inherent part of the project. This is the reason the Carbon Finance Business at the World Bank has established the BioCarbon Fund that seeks to provide the link between project proponents in developing countries and companies and governments seeking cost competitive carbon credits with high additional social and environmental benefits.

There are other projects that have high conservation benefits and that could contribute to the reduction of greenhouse gases in the atmosphere. An example is the restoration of degraded native forests either through protection from human or natural disturbance or through the active planting of appropriate species. Unfortunately such projects are not eligible for support under the CDM as they do not fall within the strict definition of afforestation or reforestation. Another is the revegetation of degraded lands with shrubs or grasses. Even though the carbon storage in these plants is less than that of trees, they can be established over large areas and they often lead to significant increases of soil carbon. The most immediate contribution to reducing the build up of greenhouse gases in the atmosphere is to reduce deforestation. Deforestation accounts for about 20% of the greenhouse gas emissions each year. A hectare of avoided deforestation can reduce greenhouse gases in the atmosphere by as much as 400 t CO<sub>2</sub>. Ironically, all of these activities are eligible to deliver credit to developed countries when carried out within their own boundaries.

Many of the projects proposed to the BioCarbon Fund are based on a landscape approach. That is, the project will include some agroforestry, some tree plantings for fuel wood or timber, some improved agricultural practice, some protection of remnant patches of forests and some forest rehabilitation. The carbon uptake (and losses) across the entire project will need to be measured but only the A&R components will generate CDM credits. However, there are investors who are either taking on voluntary targets (e.g. to produce “green products”) or who wish to see the potential for sinks projects explored more fully. The BioCarbon Fund will seek to establish a “second window” of these non-Kyoto carbon credits.

Much of the debate about the use of sinks in the CDM has focused on the issue of permanence, i.e. how to guarantee that sequestered carbon used to create a CDM credit (Certified Emission Reduction or CER) remains sequestered in the long-term. At CoP9 agreement was reached to create two special types of credits, temporary and long-term CERs (tCERs and ICERs). The main difference between the two types relates to the period of time over which contracts between buyer and seller may persist and the process of creating certificates of carbon sequestration. Each requires that the carbon storage in sinks projects is re-verified every five years. This is not an onerous task as most projects will continue to sequester carbon and this newly sequestered carbon needs to be measured to create new CERs. The re-verification of previously sequestered carbon is a simple task of confirming that the forests remain and have not been degraded such as to lose carbon.

The negotiators determined that carbon sequestration from a project could create credits for up to 60 years, after which they have to be replaced by carbon from non-sinks projects. There is no biological or atmospheric reason for not continuing the cycle of re-verification beyond 60 years but the decision should have little impact on the viability of carbon sinks in the CDM. If the tCERs and ICERs were to be replaced by other credits after 60 years, then, even with a small discount rate, financial analysis shows that the additional cost of such credits is increased by only a few percent or less. Also, given the many political decisions that will be made, and hopefully the many advances that will be made in alternative energy sources, it is most unlikely that the current rules will still be in place in the 2070s. New agreements will be reached; developing countries will make the transition to the developed category and so on. If the rules determined at COP9 were to be in place 50 years from now, it would become apparent that the 60 year rule could create an incentive to harvest or destroy the forests and vegetation that had remained in place for so long and we might expect a more appropriate decision to be made. Also, some suggest that carbon sequestered for 50 years or more is virtually equivalent to the effect of reducing emissions by the same amount in the first year, and thus permanence is not an issue if the carbon has been stored for so long.

A primary purpose of the CDM is to assist developing countries in achieving sustainable development. The COP9 decision provides that a project must meet environmental standards that are acceptable to both the host party and the project participants. It is important that host countries ensure that a project does meet its environmental and social goals and stakeholder consultation requirements. Clearly, governments of developed countries or other agents engaged in emissions trading, such as the Carbon Finance Business in the World Bank, can make their own decisions whether they wish to accept credits from any particular project.

The opportunities for CDM projects in Asia are, as in other developing countries, mainly in the areas of agroforestry, land rehabilitation through tree planting and community forestry projects. The contribution of larger scale plantations will depend on whether the Executive Board of the CDM can be convinced that they are truly additional. Some have sought to develop projects that reduce the amount of burning that occurs in tropical forests where losses of carbon from both the vegetation and peat layers are enormous. However, it is unlikely that such projects could operate under the current CDM rules as activities to reduce fires would amount to avoided deforestation which is excluded from the CDM.

A National Strategy Study (NSS) on CDM in the forestry sector for Indonesia, estimated that about 5 Mha were available for agroforestry projects and another 5 Mha for land rehabilitation projects. Such an area could sequester an additional 1 to 2 Gt of carbon over

this century while bringing considerable environmental and social benefits. However, this potential is unlikely to be realized for several reasons. First, some of these areas and projects may not be compatible with the CDM rules, for example they have been deforested since 1990. Also the amount of carbon that can be credited from sinks projects in the CDM is limited to 1% of the Annex 1 parties 1990 emissions. This is about 30 MtC/year worldwide, if all Annex 1 parties use their full quota, but even this quota is unlikely to be reached.

The greatest limitation will arise from the limited amount of money for investment in such projects. Credits from sinks projects in the CDM are currently excluded from the EU trading system and intensive lobbying within Europe by NGOs with an agenda to limit actions to renewable energy projects done within country has led many governments to be cautious about seeking sink credits. Fortunately many Japanese companies have recognized that cost effective sinks can be delivered from socially and environmentally beneficial projects. However, there are few organizations that are prepared to deal with the complexities of sinks in the CDM. The BioCarbon Fund will be a pioneer, building upon the expertise built up within the World Bank. Its total investment is likely to amount to about \$30M or about 1 to 1.5 MtC over its 18-year operational phase. The BioCarbon Fund is designed to demonstrate the potential for socially and environmentally sound sinks projects. Its experience can be used in negotiations leading to either the second commitment period of the Kyoto Protocol or alternative regimes.

At this stage it is urgent that many sectors work together to fully develop the opportunity to bring together the global need to mitigate climate change and seek new pathways to achieving sustainable development. Financing for sinks projects through the CDM can provide that opportunity. It is essential that the highest environmental and social standards are set with respect to project design; that the accounting for greenhouse gases is scientifically sound, and that issues such as additionality and permanence are treated with the rigor that they must. We now have all the elements to achieve this in place.