Key Technical Issues Relevant to CDM Forestry Projects

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The inclusion of project activities from the land use, land use change, and forestry (LULUCF) sector into the Clean Development Mechanism (CDM) and Joint Implementation (JI) frameworks has been the source of some controversy. Concerns relating to the loss of temporarily stored carbon (the *permanence* problem), the accounting of real emissions removals (the *additionality, leakage* and *measurement & monitoring* problems), and the loss of biodiversity and livelihood (the *sustainable development* problem), have triggered significant debate. This debate lasted until COP-9 in 2003 when the parties to the UNFCCC defined solutions that satisfactorily addressed the risks associated with LULUCF projects. This note describes how the current regulation deals with these five issues and outlines additional measures that can be taken to mitigate such risk.

Permanence

During the negotiations leading up to and subsequent to the Kyoto Protocol, there was considerable concern that credits issued for carbon sequestration may become void in cases where human action or natural events, such as wildfires, reversed the carbon benefits. This was called the permanence risk and it is unique to LULUCF projects under the Protocol.

In 2003, Parties to the UNFCCC agreed to address the permanence problem by creating temporary credits. Certified Emissions Reductions (CERs) arising from CDM afforestation and reforestation projects would be issued with a defined expiry date, but could be re-issued or renewed every five years after an independent verification to confirm sufficient carbon was still sequestered by the project to account for all credits issued.

Furthermore, on a project level, developers can help ensure that the carbon benefits (and credits) associated with their projects will remain in tact for many decades by incorporating activities that are sufficiently rewarding to local people so they are encouraged to continue with those activities in the future. This encouragement can be backed by contractual agreements that require the emission reductions to be maintained for a long time. Besides designing projects to reduce permanence risk upfront, prudent project developers hold significant buffer stocks to mitigate against unplanned losses of carbon through disturbances such as fires.

Additionality

Additionality is an important, and often confusing, concept in the Kyoto Protocol made more confusing by the term being used in different ways within the Protocol. For projects carried out in countries that do not have targets under the Kyoto Protocol (i.e., CDM projects) it must be demonstrated that the carbon sequestration or emission reductions would not have occurred if it were not for the incentives provided by the existence of the Kyoto Protocol. Without this there would be no benefit to the atmosphere.

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Regarding the additionality aspect of the Kyoto Protocol, LULUCF projects do not differ from any other emission reduction projects leading to permanent carbon credits. Rules, regulations and procedures for handling the additionality problem equally apply to all climate project types.

The Marrakesh Accords and subsequent decisions on the CDM state that a LULUCF project is additional if the actual net greenhouse gas removals by sinks are increased above the removals that would have occurred in the absence of the proposed project activity (i.e., in the baseline scenario[2]). The difference is the amount of greenhouse gas reductions that can be claimed as CDM credits.

Projects can demonstrate they are additional when:

- The project faces barriers to its implementation that cannot be surmounted without carbon finance (e.g., costs of converting open gardens to agroforestry);
- The activity without carbon finance is not economically or financially the most attractive course of action even if it is the most climate and environmentally and socially acceptable, and hence will not attract the required project financing (e.g., in small-scale forestry projects); or
- The project brings together several activities that would not have been carried out other than because of the incentive provided by carbon finance (e.g., implementing a mix of agroforestry, community forestry and forest conservation across a landscape).

Leakage

Some projects will be successful in sequestering carbon within the project area, but the project activities may change activities or behaviours elsewhere. These changes may lead to reduced sequestration or increased emissions outside the project boundary, negating some of the climate benefits of the project. These unintended side effects are called leakage. A simple example is a project that reforests an area of poor-quality grazing land, but leads to the owners of the displaced livestock to clear land outside the project boundaries to establish new pastures. The types of activities that might result in leakage vary by project type, but both LULUCF and non-LULUCF projects are subject to leakage.

Developers of LULUCF and non-LULUCF CDM projects are recommended to address leakage in the project design[3], or otherwise account for it by subtracting it from the project performance. Only negative leakage (increased GHG emissions) must be included. Positive leakage (reduced GHG emissions) – although a beneficial result of the activity – may not be accounted for.

By excluding avoided deforestation projects from the CDM, the negotiators eliminated the project class that raised most concerns with respect to the leakage risk.

Leakage can often be minimized by good project design – such as in the example above, by including improved pasture management around the plantation so that displaced livestock can be accommodated without further clearing. A well-designed monitoring plan helps further mitigate leakage-related project risks.

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[2] Sometimes the baseline is a net decrease in carbon pools. To be eligible for CDM certification, projects must use baseline methodologies that have undergone rigorous review by the CDM afforestation/reforestation working group and been approved by the CDM Executive Board.

[3] Project developers can use a landscape management approach to identify pressures that lead to land-use change (e.g. deforestation actions) and, where possible, remove or reduce these pressures, thereby minimizing potential leakage. In addition, by integrating sustainable livelihood programs into the project design, the risk of leakage occurring from shifted human activities outside the project boundaries can be diminished.

Measurement and Monitoring

Scientific complexity, insufficient data and the challenge of monitoring LULUCF projects has also led to criticism of such projects. The accounting rules for carbon removals therefore command a cautious approach in measuring and monitoring sequestration activities.

Full carbon accounting, i.e., the assessment of carbon fluxes within all compartments of a forest ecosystem, can be achieved by choosing between various scientific models, which have been developed by the FAO and scientific forestry research institutions. Reliable and approved measuring methods, the design and application of a comprehensive monitoring methodology, and the verification of specific project setups by an experienced Designated Operational Entity (DOE) is intended to resolve the most critical arguments brought up against LULUCF projects, such as imprecise estimation of carbon sequestered, leakage or potentially negative environmental and social impacts.

Applying state-of-the-art remote sensing techniques in combination with terrestrial surveys guarantees the accurate monitoring of activities and impacts during the project's lifetime. In many countries complex Geographic Information Systems (GIS) have been installed which provide useful information on the history and development of natural resources, and facilitate monitoring.

Sustainable Development

When the Kyoto Protocol was first being negotiated, some NGOs expressed concern that the CDM might unwittingly promote the development of LULUCF projects that were detrimental to local communities and the environment. These groups believed that the CDM would foster insensitively managed monoculture plantations, which cheaply sequestered carbon, but at the expense of sustainable livelihoods and biodiversity.

To begin with, the CDM additionality test means that typical large-scale timber projects, which make economic sense without carbon finance, are not eligible for crediting. Also, the Protocol attempts to directly address this issue by requiring that all CDM projects describe socio-economic and environmental impacts in their Project Design Documents, which must be submitted and approved before credits can be issued. Host governments are expected to deny approval to projects that do not further their country's sustainable development goals.

To further address project impacts, qualitative criteria such as the Climate, Community & Biodiversity (CCB) Standards can be used to design and evaluate land-based carbon projects. CCB-certified projects are independently verified to ensure that the project conserves biodiversity and supports local communities in addition to benefiting the global climate. In addition, most major funders/donors have their own sustainability screening criteria, which include environmental and social assessments to ensure the integrity of the projects they support.

Experience has demonstrated that sustainable development has generally benefited rather than suffered from the implementation of LULUCF projects. By looking at the current CDM pipeline, it is clear that the LULUCF projects being developed, by and large, deliver impressive environmental and socio-economic benefits on both the global and local scale. This contrasts with the CDM pipeline of non-LULUCF (i.e., energy-based) projects, the majority of which can be seen to deliver few sustainable development benefits.