Why ignore tropical deforestation? A proposal for including forest conservation in the Kyoto Protocol

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Forest conservation projects are excluded from the Clean Development Mechanism (CDM); a mechanism for compensating reduced deforestation outside the CDM is proposed.

Although greenhouse gas emissions from the burning of fossil fuels are the principal causes of global warming, tropical deforestation is responsible for 20 to 25 percent of annual global carbon dioxide emissions (IPCC, 2000). However, the Kyoto Protocol has not adopted any mechanism for considering tropical forest conservation or prevention of deforestation as an action for mitigating climate change.

The Kyoto agreement established a binding target for greenhouse gas reductions of 5 percent below 1990 levels for industrialized (Annex I) countries, to be met in the first commitment period (2008 to 2012). This target follows the principle of common but differentiated responsibilities, by which the historical polluters of the atmosphere should take responsibility for initiating emission reductions. Although developing (non-Annex I) countries have made a general commitment to reduce emissions in the first commitment period, their obligation has not been quantified.

Developing countries are nevertheless able to contribute to climate change mitigation through participation in the Clean Development Mechanism (CDM) as partners and hosts. According to this mechanism, Annex I countries can generate emission offsets by supporting sustainable development projects in developing countries that reduce emissions or sequester carbon in forests. However, although the CDM allows renewable energy projects (e.g. projects that replace fossil fuels by renewable sources of wood energy), in the land-use sector it allows only plantation projects – reforestation (planting forest in areas that were deforested before 1990) and afforestation (planting forest in areas where there was previously no forest vegetation for at least 50 years) – aimed

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Tropical deforestation, shown here in Brazil, is responsible for 20 to 25 percent of annual global carbon dioxide emissions; thus incentives for conserving existing forest could be an option for lowering emissions

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at sequestering carbon from the atmosphere. Despite international debate on this issue, forest conservation projects are excluded from the CDM. This article describes a proposal for inclusion of forest conservation in the next commitment period (after 2012) of the Kyoto Protocol, which could encourage tropical countries to make meaningful contributions to reducing global emissions.

WHY THE OPPOSITION?

Environmental non-governmental organizations (NGOs), governments and scientists, attempting to avoid weakening of reduction targets through all sinks, opposed any kind of role for forests in the Kyoto Protocol. Their opposition was founded on concerns that forest conservation could be an action without effect in terms of benefits to the atmosphere (Fearnside, 2001). There is some uncertainty on the permanence of carbon in forest, since forests can be cut, burned and logged; and a high risk of leakage, i.e. the possibility that while forest is conserved in one area, deforestation could be promoted in another. Similar arguments could be made, however, for energy projects. For example, the fossil fuels not burned as a result of a clean energy project in one country could be burned by others.

The opposition to addressing prevention of deforestation or forest conservation in the CDM was fed partly by disregard for the actual and potential function of existing tropical forests as an enormous source of carbon and trace gas emissions though deforestation and land-use change. Policy discussions focused instead on planting forests as sinks that could remove carbon from the atmosphere to compensate for excess emissions, ignoring the essential role of existing tropical natural forests for the well-being of the global climate system. Plantations were thus used as an excuse to weaken emission reduction goals in industrialized countries.

WHY INCLUDE FOREST CONSERVATION?

Because the Kyoto Protocol does not address forest conservation or prevention of deforestation, tropical countries that have large areas of tropical forests and a so-called "clean" energy matrix (i.e. many renewable energy sources and low use of fossil fuels) or low energy consumption are restricted in their opportunities to benefit from the CDM. The typical example is Brazil, where about 20 percent of energy production comes from renewable sources (wood, charcoal, sugar-cane by-products and others) (Brazilian Ministry of Mines and Energy, 2005). If hydroelectric energy is included, this portion goes up to around 60 percent, although hydroelectric dams do emit some greenhouse gases (methane). Brazil's energy matrix is considerably cleaner than that of other developing countries. In 2002 the country released 95 million tonnes of carbon from fossil fuel combustion, 12 and 37 percent of the fossil fuel emissions of China and India, respectively (Energy Information Administration, 2005). Brazilian emissions may increase significantly in the coming years as a result of the country's recent drought-related hydroelectric energy crisis. Brazil's fossil fuel emissions are modest, however, in comparison with the country's emissions from deforestation.

The nearly 2 million hectares of forests cleared annually in the Amazon region alone in 2002–2003 resulted in net emissions of around 200 million tonnes of carbon (Houghton, Skole and Nobre, 2000). This figure does not include the emissions resulting from Amazon forest fires, which are frequent in El Niño years, when severe drought is common in the region. For example, in 1998, when the most intense El Niño of the twentieth century occurred, 3.8 million hectares of standing forest burned in the Brazilian Amazon region (Kirchhoff and Escada, 1998).

Precisely where Brazil could make a substantial contribution to climate change mitigation, through native forest conservation or reduction of deforestation or fires, the access to resources through the CDM or any other mechanism in the Kyoto Protocol is disallowed, since there is currently no specific provision or financial incentive that would commit tropical countries to participate in the Kyoto efforts though forest conservation.

LOOKING BEYOND THE CDM

Unlike Annex I countries, which have obligatory emission reduction targets, developing countries need incentives to promote voluntary emission reductions. Therefore, the Kyoto Protocol must develop other mechanisms more appropriate than the CDM to address the emission profiles of developing countries undergoing large-scale tropical deforestation. In addition to the CDM market mechanism, the protocol needs instruments that would better link international cooperation for environmental protection to emission reduction initiatives in developing countries. The historically greatest emitters should compensate developing countries, directly or through international financial institutions, for the reductions in forest emissions that developing countries can achieve. In this context, the following mechanism for reduction with compensation is proposed (Santilli *et al.*, 2005).

PROPOSAL FOR COMPENSATING REDUCED DEFORESTATION

It is proposed that, taking as the baseline average annual deforestation for the 1990s, developing countries that elect to reduce their emissions from deforestation during the five years of the first commitment period would receive financial compensation for the emissions avoided, based on the average market value of carbon in 2012 (Santilli *et al.*, 2005). Conversely, if these countries increase their deforestation rates during the first commitment period in relation to the


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Forest fires (shown: Mato Grosso, Brazil) are a significant source of emissions of greenhouse gases and are closely linked to deforestation

average of the 1990s, the incremental increase would have to be compensated by a compulsory reduction during the second commitment period. Only after thus offsetting increased emissions during the first commitment period would they again be eligible for financial compensation for additional reductions. If their deforestation rates continue to increase, they would be subject to international sanctions established in the Kyoto Protocol.

However, the notion of compulsory targets in the second commitment period would only be applicable if the Annex I countries were to meet all of their obligations in the first commitment period. As a control, it is proposed that the Intergovernmental Panel on Climate Change (IPCC) would establish common deforestation baselines for interested countries.

Each country with forest-based emissions interested in obtaining compensation would be responsible for defining its own strategy for achieving progressive and consistent reductions in deforestation rates. Deforestation would be kept distinct from random or seasonal factors such as emissions from burning pastures or from forest fires. Forest fires, a significant source of emissions of greenhouse gases, in particular are closely and positively linked to deforestation (Alencar, Solórzano and Nepstad, 2004). Reductions in deforestation rates will consequently lead to reductions in the area affected by forest fires.

Forms of compensation

It is proposed that countries that prove reduction of their emissions from deforestation during the first commitment period would be entitled to issue carbon certificates, with the support of relevant multilateral bodies, equivalent to the volume of their reductions, eligible for sale on the international carbon market.

However, to increase benefits for the global climate, only part of these certificates would be certified as offsets during the first commitment period, with a part valid for subsequent periods. Countries could transact sales at any point, but buyers could only use the certificates in their respective periods of validity.

Resources received by developing countries that reduce deforestation could be invested in any kind of sustainable development project, provided that this does not result in future increases in emissions.

Reducing deforestation will depend on the implementation of policies that combine law enforcement and promotion of sustainable activities. It will necessarily entail involvement of local governments in agricultural and economic expansion and in new infrastructure projects. More developing countries will be likely to use these mechanisms if they have access to the necessary resources to pay for them.

Countries that wish to reduce deforestation could pay for their programmes with their own resources or with the carbon certificates obtained.

CONCLUSION

In general, for governments as for private actors in tropical forest areas, there are more economic incentives for deforestation than for leaving forest standing. Forest protection implies high costs and few tangible returns. Compensating both private parties and governments for forest conservation would provide positive economic value for standing forest.

The kind of instrument described here, in the context of the Kyoto Protocol,

could promote the adoption of policies for the control of deforestation in developing countries while preserving their sovereignty in defining the means and allocating the benefits. It would make appropriate national accords possible, which could be translated into consolidated legal instruments. The intergovernmental, global character of such a mechanism surpasses a project-based approach.

In contrast with the CDM, the instrument would not be a market mechanism limited to specific projects, but a commitment among countries.

The prospect of meaningful participation by developing countries in international efforts to address global warming could facilitate international climate negotiations for subsequent commitment periods. ◆

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