January 18, 2008

RESPONSE TO DG ENVIRONMENT'S STAFF WORKING DOCUMENT
IMPACT ASSESSMENT ON LULUCF AND FOREST-BASED CARBON CREDITS

This paper responds to the assertions on land use, land-use change and forestry ("LULUCF") and forest-based carbon credits of the Staff Working Document on an Impact Assessment accompanying the draft proposal for a Directive amending Directive 2003/87 on the EU Emissions Trading Scheme, which the European Commission's Directorate General for Environment circulated last December 2007 (the "Staff Working Document"). As shown below, the Staff Working Document is factually incorrect and reveals a bias against the contribution of sustainable forestry to climate change mitigation.

Among other things, the Staff Working Document fails to cite a single authoritative source for any of its broad assertions against LULUCF and forest-based carbon credits. In fact, the unsubstantiated assertions contained in the Staff Working Document are entirely at odds with the scientific, economic and political consensus that has emerged during the last several years and which was emphatically endorsed at the 13th Conference of the Parties of the United Nations Framework Convention on Climate Change at Bali. This is all the more surprising as the material referred to below is publicly available and has repeatedly been brought to the attention of DG Environment's staff during the last months.

Therefore, for the reasons set out below, policy makers should wholly ignore DG Environment's impact assessment on LULUCF and forest-based carbon credits.

1. Emissions from LULUCF Activities
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Land Use, Land Use Change and Forestry (LULUCF) activities can lead to emissions of greenhouse gas and their removal from the atmosphere. These processes are inherently reversible, and carbon stored can at some point be released.
RESPONSE

"*Risk of financial loss from a damaging natural event surely exists in timberland investments. Yet, 12 years of historical loss data reinforce what we have believed all along—that the risk of loss from a natural event has been very small, averaging 0.04 percent (4 basis points) of loss per year.*"[i]

Forests are a long-term store of carbon. They have covered vast areas of the earth's surface for millennia and contain 60% of the carbon stored in terrestrial ecosystems.[ii] Their duration exceeds any industrial facility. Robust methods are available to address or account for permanence. These include: maintenance of adequate reserves or buffers to cope with unforeseen losses in carbon stocks, insurance, discount factors based on the assessed risk of carbon loss, and general strategies to reduce risk to carbon stocks such as pest control and fire management. The risk of loss from a natural event in managed forests is very small, averaging 0.04% of loss per year.[iii] It is so small that most large forest enterprises self-insure.

2. The Carbon Sequestration Potential of Forests

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The capacity of carbon sequestration by forests diminishes with time, and climate change will have further negative influence on a natural carbon uptake by the terrestrial biosphere.

RESPONSE

"*Experiments have unequivocally shown that plants can grow faster and larger in a CO2-enriched atmosphere, and the mechanisms of response are well understood.*"[iv]

"*A series of carbon budgets based on data from forest inventories have shown that carbon is accumulating in northern mid-latitude terrestrial ecosystems.*"[v]

There is no evidence to suggest that carbon sequestration by forests diminishes with time. There is evidence that the size of the global carbon sink by forests has increased, as net primary productivity (NPP) of trees increases with increased carbon dioxide concentrations in the atmosphere. In a study recently published in the *Proceedings of the National Academy of Sciences* (Norby *et al*., 2005), an international team of 19 researchers states that "experiments have unequivocally shown that plants can grow faster and larger in a CO2-enriched atmosphere, and the mechanisms of response are well understood."[vi] Attention on the global carbon cycle over more than 30 years has focused on the so-called "missing sink," missing because the accumulation of carbon in the atmosphere that would be expected has not been observed. The average annual emissions of 8.5 PgC during the 1990s (6.3± 0.4 Pg from combustion of fossil fuels and 2.2± 0.8 Pg from changes in land use) are greater than the sum of the annual accumulation of carbon in the atmosphere (3.2 ± 0.2) and the annual uptake by the oceans (2.4 ± 0.7 PgC/yr). An additional sink of 2.9 PgC/yr is required for balancing the budget. The terms in the global carbon equation can be shown graphically over the period 1850-2000. In the last few years several independent analyses based on geochemical data (data from the atmosphere and oceans) and a series of carbon budgets based on data from forest inventories have shown that carbon is accumulating in northern mid-latitude terrestrial ecosystems.[vii]

Furthermore, for credits from project-based CDM and JI activities this statement in the document is entirely irrelevant and only serves to set a negative and biased tone. Any changes in carbon stocks over time within the project boundary will be picked up by a project's monitoring system. Credits are only issued for ex-post verified carbon sequestration above an established baseline, based on scientifically accepted monitoring techniques (see e.g. the IPCC's Good Practice Guidance for LULUCF and the nine approved A/R CDM methodologies).

3. Proceeds from Auctioning for Avoided Deforestation

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Proceeds from the auctioning of allowances within the EU ETS should be used to mitigate greenhouse gas emissions, in particular to fund measures to avoid deforestation.

RESPONSE

"*A study carried out for this* [Stern] *Review estimated opportunity costs on the basis for eight countries that collectively are responsible for 70% of land-use emissions (responsible for 4.9 GtCO2 in 2050 under BAU conditions) If all deforestation in these countries were to cease, the opportunity cost would amount to around $5-10 billion annually.*"[viii]

The resources required to combat forest degradation and encourage forest restoration are very substantial, measuring in the tens of billions of Euros and will be required for decades to come. Linking the land use sector to the carbon market is the only way sufficient capital will flow into this sector. One measure of the resources required to combat deforestation was the basis of a study carried out for the Stern Review. This estimated the opportunity cost for eight countries that collectively are responsible for 70% of land-use emissions. If deforestation in these countries were to be reduced by 50%, the opportunity cost would amount to at least $5-10 billion annually (approximately $1-2/tCO$_2$ on average).[ix] Although there are various proposals for public sector funding, donor governments and agencies show little sign of being able to contribute the funding that is necessary at that level.[x]

The use of the proceeds from the auctioning of allowances will be under competition from a variety of areas where there is a funding shortfall and cannot possibly make more than a token contribution to a massive problem. Within the Bali Action Plan a number of areas are identified, namely mitigation, adaptation, enhanced action on technology development and transfer, and enhanced action on the provision of financial resources and investment to support action on mitigation and adaptation and technology cooperation.[xi] All these areas need funding, and designation of all proceeds of auctioning revenues for avoided deforestation over and above these other worthy areas is questionable.

4. Approved CDM LULUCF Projects

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Only nine LULUCF methodologies have been so far approved for CDM use, resulting in only 2% of all CERs for the first phase. The official registry pipeline (UNEP Risoe) identifies only one JI LULUCF project as registered. The reason for this relatively small occurrence is primarily to be found in the complexity of solving inherent inconsistency of the LULUCF projects: ensuring permanency, verification and adequate monitoring of carbon storage.

RESPONSE

To date no JI LULUCF project and only one CDM A/R project has been registered.[xii] Contrary to the Staff Working Document's statement, the key reasons for this are the following:

i) The modalities and procedures governing LULUCF were scheduled to be and were discussed and decided only at COP 9 in Milan.[xiii]

ii) The slow bureaucratic process meant that there has been considerable policy uncertainty compared to other sectors, with only the first CDM A/R methodology approved in December 2005 and the first (and so far only) project registered in December 2006.

iii) The fact that LULUCF is excluded from the EU ETS has been a disincentive for investors to develop projects and methodologies in this sector as the market is limited.

iv) With the exclusion of LULUCF credits from the EU ETS governments have been the only possible buyers of CDM LULUCF. This means that minimal experience has been gained with respect to forestry credits . Governments have been wary to utilize credits with which they have little experience. Market liquidity, which is necessary for the efficient functioning of any market, has thus been denied to the forestry sector.

5. Effective Solutions for the Temporary and Reversible Nature of LULUCF Activities

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All options under consideration pose problems concerning the temporary and reversible nature of LULUCF activities. As forests and cultivated land are dynamic ecosystems, changes in carbon capture are not only linked to the developer's influence, but are subject to temperature, weather conditions, outbreaks of transmissible tree diseases and pests as well as fires. […]
The problems related to the temporary and reversible nature of LULUCF have not yet been solved and no effective solutions are in sight at the moment.

RESPONSE

"*The EU notes that non-permanence is not an issue when possible reversals are compensated. Approaches to deal with non-permanence include (a) using temporary credits in a manner similar to the current A/R CDM projects, (b) reducing future financial incentives to take account of deforestation emissions above the agreed level, (c) bank credits and debits from one period to another, or (d) by mandatory banking of a share of the emission reductions. The transition from unsustainable to sustainable land use management reduces the risk of increases in emissions from deforestation.*"[xiv]

Forests and natural ecosystems are in dynamic equilibrium. For many ecosystems, exposure to fire, changing weather conditions, pests etc are part of their natural disturbance and successional regimes.[xv] In the case of CDM A/R projects, CERs are only generated ex-post at various intervals during the project lifetime, so credits are only issued for carbon which has been physically measured on the landscape.[xvi]

The creation of temporary credits (tCERs and lCERs) is in itself a solution to the risk of non-permanence of forests. There are other approaches, such as insurance, buffers, risk discounts, the ton-year approach (which takes the life-time of a molecule of CO_2 in the atmosphere as a measure for permanence). All these approaches are solutions to non-permanene: it is mainly a matter of choice which one to use. The CDM's choice to go for temporary credits was not optimal since, though an adequate technical solution, it did not remove the perception of non-permanence risk from potential buyers.

The "temporary" nature of LULUCF has been addressed in a variety of ways in both the mandatory and voluntary sectors. For example, sequestration credits from forestry are considered permanent in the New South Wales Greenhouse Gas Abatement Scheme. There is no differentiation on the compliance buyer's part of a forestry credit from any other type of credit in the system. The NSW scheme has designed

measuring and accounting systems that insure the permanence of forestry credits in the scheme.[xvii] The New Zealand Permanent Forest Sink Initiative explicitly provides for Kyoto compliant carbon credits to be exchanged for investment in reforestation and will be an integral part of the New Zealand Emissions Trading System.

In the voluntary sector, the Voluntary Carbon Standard requires a buffer of credits that are held in reserve in the case of non-performance of the project. Project developers can draw on this buffer should the project not deliver the required amount of credits.[xviii] The Chicago Climate Exchange rules for forest-based carbon credits are well established and similarly require a buffer stock approach.[xix]

Furthemore, there are additional solutions to those above, including pooled buffers, insurance products, and project rating services that could give buyers guarantees of project performance.

6. Liability Risks of Temporary Credits

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Temporary credits create significant liability risks. For example, companies that consider closing down might be tempted to use temporary credits. If the company ceases to exist, it can no longer replace the temporary credits hence requiring that carbon cuts are made elsewhere to meet emissions targets. As a result, the Member State in which the company operated would have to cover for the expired credits. A key reason for not allowing the use of credits from LULUCF in Phase I and II would be to avoid the risk of liability falling on State where such credits have been used by companies. A company that intended to close its operations would have a clear incentive to use such credits and transfer liability to the State, since these credits – owing to the need for repeated surrender – will be less valuable than permanent credits. Council and Parliament also excluded any possible JI credits relating to LULUCF from the EU ETS because, as mentioned above, no modalities have been developed in relation to the non-permanence and other issues arising in relation to JI LULUCF projects.

RESPONSE

The temporary nature of credits does not affect the treatment of any liability of EU ETS operators in the case of insolvency. The obligation to surrender allowances forms part of the liabilities that belong to the legal estate of an operator.

It is extremely unlikely that an EU ETS operator would purchase any EU allowances in the face of bankruptcy. The liability to surrender any allowances to the Government is under most insolvency laws not a liability that is being given high priority. Certainly, an operator would first have to pay taxes, salaries or service senior financial obligations before he would have to fulfill EU ETS obligations. That same applies in the case of liquidation. The liquidator would also service more senior liabilities first.

Furthermore, in the extremely unlikely case the operator indeed would go out and purchase tCERs to meet its EU ETS obligations the obligation to replace these tCERs would form part of the legal estate of the operator and the outstanding liabilities that would have to be liquidated.

Consequently, the purchase of tCERs does not change the liability situation or the treatment of a bankrupt EU ETS operator in case of liquidation.

7. LULUCF Monitoring Technologies Available

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Current monitoring methodologies are still not reliable enough to fully measure the actual net carbon capture of LULUCF activities.

RESPONSE

"*In the EU's view the IPCC guidance for greenhouse gas estimation should be a basis for monitoring emissions. The approaches to land identification developed by IPCC allow for both ground-based and remote sensing methods. The most cost effective combination depends on national circumstances but in all cases it is very likely that both remote sensing and ground-based data will be needed, and that there will always be a requirement for an appropriate monitoring system.*"[xx]

Concerns over measurement of carbon biomass have been comprehensively addressed over the intervening years since the Conference of the Parties 7 in Marrakech and today. Strong scientific and technical capabilities are now in place for accurately assessing long-term gains and losses of biomass carbon, and other emissions, from the forestry and land use sector. Landholders and government agencies now measure and monitor forest status and growth using a combination of techniques including direct field measurements, satellite and aerial photography and computer modeling. Many protocols for measuring and monitoring carbon project benefits exist.[xxi] The Good Practice Guidance for Land Use, Land-Use Change and Forestry (GPG-LULUCF)[xxii] produced by the IPCC provides methods and guidance for estimating, measuring, monitoring and reporting on carbon stock changes and GHG emissions. It is consistent with guidance for other sectors and can be used to quantify changes in GHG from a diverse range of forestry and land-use management practices. The guide assists in the production of inventories for the sector that neither 'over' nor 'under' estimates. It supports the development of inventories that are transparent, documented, consistent over time, complete, comparable, assessed for uncertainties, subject to quality control and quality assurance, and efficient in the use of resources.

The currently approved CDM A/R methodologies have been developed as well as reviewed and approved by some of the leading experts in the field of forest carbon accounting and monitoring (see the UNFCCC's Roster of Experts, available from the Secretariat), and are all based on the IPCC's GPG-LULUCF. In contrast, the above claim made in the DG Environment's Staff Working Document is not based on any such references or credentials.

8. Interdependencies in Ecosystems

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Furthermore, interdependencies in ecosystems are far from being fully understood, making it very difficult to assess the actual change in GHG emissions. Whereas emissions reductions in industry can be quantified by measuring input and output values, ecosystems are inherently prone to leakage. They are often referred to as flux rather than sinks.

RESPONSE

"*Some methodological elements like baseline, additionality, leakage and permanence have already been*

addressed in the context of the Kyoto Protocol Clean Development Mechanism."[xxiii]

Ecosystems interdependencies are well studied to assess the actual changes in GHG emissions. The Staff Working Document's statement shows a clear misunderstanding of GHG quantification in the LULUCF sector. Carbon flux and sinks are distinct terms. Carbon flux refers to 'the transfer of carbon from one carbon pool to another'.[xxiv] Carbon sink is a carbon pool which, during a given time interval, has more carbon flowing into it than out of it.[xxv]

Contrary to what the Staff Working Document suggests, measurement uncertainties are very manageable in the LULUCF sector. Measuring carbon pools is straightforward and scientists have developed clear guidance and protocols for this (see the IPCC's GPG-LULUCF). Where uncertainties exist, all methodologies require a conservative approach to be taken, where the lower end of the error margin is favored and projects are more likely to be under-credited. The Staff Working Document also suggests that measurement uncertainties are equal to leakage. This is not so, as explained below. Finally, the statement implies that non-forestry projects would not be prone to leakage. This is also incorrect,[xxvi] though leakage is often overlooked in most non-forestry CDM methodologies.

Leakage, commonly defined as the unaccounted emissions of greenhouse gases outside of a project's accounting boundary as a result of project activities,[xxvii] has often been raised as a major challenge associated with avoided deforestation projects. Real projects have demonstrated that this can be controlled and measured when it occurs. The Noel-Kempff Climate Action Project, among others, has demonstrated that active management can reduce leakage, and that which cannot be eliminated can be quantified and deducted from the project's total carbon benefits.[xxviii] Société Générale de Surveillance (SGS), an internationally accredited CO_2 certifier and Designated Operational Entity of the UNFCCC, validated the project design, verified and certified emission reductions for the project.[xxix] Methodologies for control and measurement of leakage have now been approved by the Executive Board of the CDM and other practical methodologies have been adopted under various other standards.[xxx]

9. LULUCF and Technology Transfer

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Currently, the LULUCF sector is mainly driven by voluntary emissions reductions, although a future increase of their share in CDM and JI projects may become economically attractive, as these projects can offer emissions reductions at a low cost. […] LULUCF in CDM slows down technology transfer and low-carbon technology development, as credits from forestry and land use will be much more competitive on price and hence crowd out other project types.

RESPONSE

"*A substantial share of the overall opportunities, including a large potential to reduce emissions by protecting and replanting forests, lies in developing economies*"[xxxi]

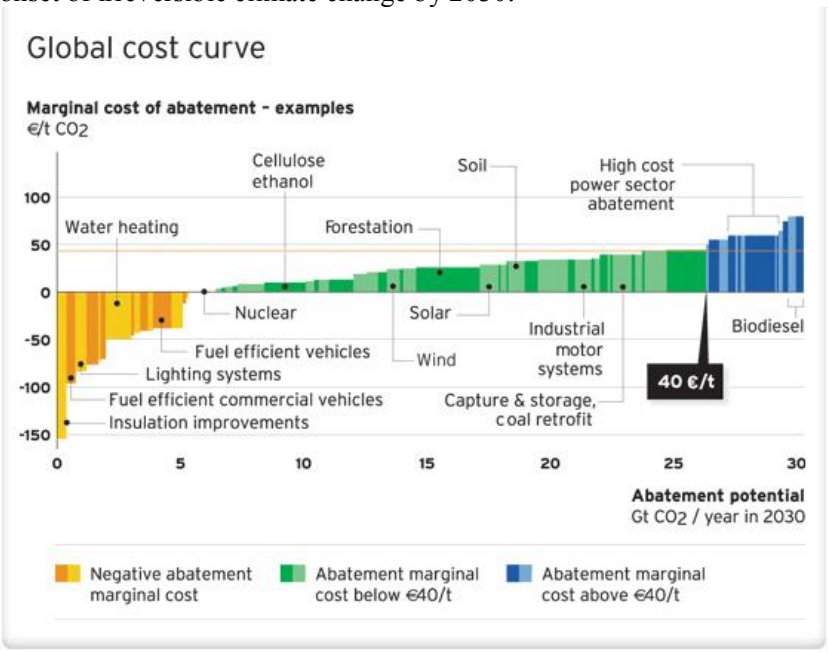
"*To control climate change effectively it will also be essential to halt tropical deforestation completely within the next two decades and then reverse it through afforestation or reforestation schemes. Deforestation currently contributes around 20% of global greenhouse emissions, more than transport. Discussions are taking place under the UN climate change convention aimed at creating appropriate incentives for reducing deforestation.*" [xxxii] There is absolutely no evidence to show that LULUCF in the CDM has slowed down technology transfer and low-carbon technology. On the contrary, inclusion of LULUCF can allow tougher commitments to be taken on, and for climate stabilization goals to be

achieved. Without the inclusion of LULUCF climate stabilization simply cannot be achieved at an acceptable cost.[xxxiii]

Furthermore, it would be a mistake to exclude the forestry sector simply because one favours other sectors. First, with its share of 20% of global anthropogenic GHG emissions the LULUCF sector just cannot be ignored. Second, reducing the rate of emissions does not reduce the concentrations of greenhouse gases in the atmosphere, but only reduces the *increase* of those concentrations. The world is already suffering the increasing impacts of climate change. Sinks are therefore needed to remove as much CO_2 as possible whilst mankind transitions to a low-carbon economy.

Climate research has shown that to avoid catastrophic changes to the global climate and large-scale irreversible systemic disruption, temperatures must not increase to a threshold of 2 degrees Celsius above those in pre-industrial times.[xxxiv] A stabilisation at around 450 ppm would imply a medium likelihood of staying below this threshold.[xxxv] Stabilizing atmospheric concentration at 450ppm would allow cumulative emissions of close to 2100 Gt CO_2e between 2000 and 2100.[xxxvi] Recent analysis has shown to get on track for long-term stabilization, by 2030, emissions should not exceed 32 Gt CO_2e/yr.[xxxvii] To achieve this target requires significant emission cuts against the business as usual scenario.

Reductions on this scale require the inclusion of emissions reductions from the forestry sector. Offsets from the forestry sector account for a larger share of potential reduction abatement than any other sector, including potential reductions from the power sector over that period.[xxxviii] The McKinsey study examined potential abatement scenarios for achieving the necessary emission reductions at a cost below €40/tCO2e.[xxxix] Forestry accounts for 25% of the additional reduction potential in emissions required to achieve this target. It is clear that to achieve stabilisation at 450 ppm by 2030 requires both avoided deforestation and reforestation. The potential 2030 abatement from reducing deforestation is ~3.3 Gt CO_2e /year, and from afforestation/reforestation a further 3.5 Gt CO_2e/year (see Figure below)[xl]. Without the inclusion of forestry offsets, achieving these emissions reductions targets at an acceptable cost is impossible. In other words, the alternative to achieving forest-based emissions abatement is the likely onset of irreversible climate change by 2030.



Source:Vattenfall, 2007, Global Mapping of Greenhouse Gas Abatement Opportunities up to 2030

IPCC research has also demonstrated that the potential of biological mitigation options is in the order of 100 GtC (cumulative) by 2050, equivalent to about 10 to 20% of projected fossil fuel emission during that period.[xli] The analysis shows that emission reductions from the forestry sector, while essential to achieving medium term abatement goals, are also biologically constrained in their ability to mitigate climate change beyond a certain point.[xlii] This, amongst other considerations, should dispel fears that offsets from forestry will "flood" the market and reduce incentives to technological change. Forestry carbon credits and offsets are necessary but are not, by any means, sufficient, to achieve climate stabilisation goals. There is absolutely no reason to believe that they will crowd out other projects. There is, however, significant evidence that without them the cost of compliance will be so high as to force the emigration of industrial plant and employment to countries without binding emissions reductions commitments.[xliii]

10. The Role and Impact of LULUCF in Least Developed Countries

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Another issue is that EU ETS aims at long-term emissions reductions in energy production and industry, the guideline being to foster the development of a low-carbon economy. Currently, the LULUCF sector is mainly driven by voluntary emissions reductions, although a future increase of their share in CDM and JI projects may become economically attractive, as these projects can offer emissions reductions at a low cost. While LULUCF projects offer a potential for the least-developed countries to benefit from the carbon market and profit from formerly unpriced carbon sequestration assets within forests and agriculture, they neither lead to technology transfer nor to carbon-conscious economic practices, thus hindering development towards a less carbon intensive economy by diverting financial resources from more promising projects with long-term benefits. LULUCF in CDM slows down technology transfer and low-carbon technology development, as credits from forestry and land use will be much more competitive on price and hence crowd out other project types.

RESPONSE

Sustainable forestry promotes sustainable development and technology transfer in least developed countries. In addition, CDM A/R rules ensure that project developers adopt carbon conscious economic practices. In fact, by definition a project developer must be carbon conscious as he/she is attempting to profit from a new economic asset (CO_2). By not adhering to the strict regulations of the CDM A/R process, the project developer would be foregoing the economic incentives provided by the CDM. The project developer must, therefore, adopt the practices mandated by the CDM in order to gain carbon credits. These practices necessitate the adoption of carbon forestry "best practices," which certainly represent a technology transfer.

This is well explained in the quotes from the IPCC and other bodies below:

"*No single policy instrument will ensure the desired transition to a future secure and decarbonized world. Policies will need to be regionally specific and both energy and non-energy co-benefits should be taken into account.*"[xliv]

"*Forestry can make a very significant contribution to a low-cost global mitigation portfolio that provides synergies with adaptation and sustainable development. However, this opportunity is being lost in the current institutional context and lack of political will to implement and has resulted in only a small portion of this potential being realized at present.*"[xlv]

"*Forests and trees cover nearly one third of the Earth's surface. Sustainable forest management of both natural and planted forests and for timber and non-timber products is essential to achieving sustainable development as well as a critical means to eradicate poverty, significantly reduce deforestation, halt the loss of forest biodiversity and land and resource degradation and improve food security and access to safe drinking water and affordable energy; in addition, it highlights the multiple benefits of both natural and planted forests and trees and contributes to the well-being of the planet and humanity*."[xlvi]

"*Technology deployment, diffusion and transfer in the forestry sector provide a significant opportunity to help mitigate climate change and adapt to potential changes in the climate. Apart from reducing GHG emissions or enhancing the carbon sinks, technology transfer strategies in the forest sector have the potential to provide tangible socio-economic and local and global environmental benefits, contributing to sustainable development (IPCC, 2000b). Especially, technologies for improving productivity, sustainable forest management, monitoring, and verification are required in developing countries. However, existing financial and institutional mechanism, information and technical capacity are inadequate. Thus, new policies, measures and institutions are required to promote technology transfer in the forest sector*."[xlvii]

"*R&D and technology transfer have a potential to promote forest sector mitigation options by increasing sustainable productivity, conserving biodiversity and enhancing profitability. Technologies are available for promoting mitigation options from national level to forest stand level, and from single forest practices to broader socio-economic approaches*."[xlviii]

"*The development of suitable low-cost technologies will be necessary for promoting thinning and mitigation options. Moreover, technology will have to be developed for making effective use of small wood, including thinned timber, in forest products and markets. Thinning and tree pruning for fuelwood and fodder are regularly conducted in many developing countries as part of local integrated forest management strategies*."[xlix]

"*Globally, hundreds of millions of households depend on goods and services provided by forests. This underlines the importance of assessing forest sector activities aimed at mitigating climate change in the broader context of sustainable development and community impact. Forestry mitigation activities can be designed to be compatible with adapting to climate change, maintaining biodiversity, and promoting sustainable development. Comparing environmental and social co-benefits and costs with the carbon benefit will highlight tradeoffs and synergies, and help promote sustainable development*."[l]

"*LULUCF activities can reduce dependence on fossil fuels primarily by providing a source of biomass that can be used as a renewable alternative to fossil fuels in generating energy and by supplying wood products that can substitute for other products requiring more energy to produce. Fossil fuel substitution will generally require investments in technology and infrastructure to enable the adoption of biofuels and less carbon-intensive products and processes*."[li]

"S*avings in the emission of GHGs can also be achieved through material substitution. Typical building materials-such as steel, plastics and aluminum-have large energy requirements for mining, processing, smelting, and, with some materials, reduction of oxidized ore. These energy requirements lead to corresponding CO2 emissions. Cement production also leads to additional direct CO2 release during manufacturing. Wood leads to the lowest emissions because it requires only minor energy inputs in harvesting and sawing. Hence, any substitution of wood for other materials could reduce energy requirements and associated GHG emissions (Kirschbaum, 2000). Moreover, the production of metals and plastics generates higher volumes of air, water, and solid waste pollutants than wood products such as lumber-particularly so with toxic chemicals (USEPA, 1997).*"[lii]

"*Carbon forestry and agriculture are the only meaningful methods of offering sustainable livelihoods to the rural poor and the only way they can participate and benefit from the carbon market*."[liii]

An analysis of the potential to increase carbon stocks in the Kakamega National Forest of western Kenya concluded that: "*The East African indigenous rainforest found in Kakamega supports high levels of biodiversity and provides sundry ecosystem services to Western Kenya. In addition, as a high carbon density land cover type, it can provide a global service as carbon store helping to mitigate climate change. While past human disturbances have reduced forest areas and depressed forest carbon densities, the results of this illustrates the potential to increase carbon storage in the Kakamega National Forest at a scale that is economically, and perhaps ecologically, significant for the region*."[liv]

11. LULUCF Projects and other More Costly Measures

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The risk of LULUCF projects crowding out more costly measures, such as projects aiming at CO_2 emissions reductions (especially in the case of Option 3.15) is considerable, taking into consideration that EU ETS is the most dominant buyer of CDM CERs at 86% market share in 2006 (ENTEC 2007b). Thus, the use tCERs and lCERs for compliance in the ETS would conflict with creating sustainable emissions reductions.

RESPONSE

As of 17 January 2008, the CDM Executive Board has approved only one CDM A/R project.[lv] This project is forecast to generate only 327,000 tonnes CO_2e of emission reductions over the first commitment period,[lvi] or just 0.27% of the amount allowed under the Marrakech Accords. In fact, it is forecast that all CDM A/R projects combined will generate only between 7 and 14 million tCO_2e reductions in the first commitment period (2.8 million tonnes CO_2e per year),[lvii] or about 1% of the total predicted CER market of a billion tonnes.[lviii] In contrast, the average ***daily*** trading volume in the EU ETS in 2007 was **over 6.0** million tonnes CO_2e.[lix] Therefore, at the high end of forecasts for credits from A/R (**2.8** million tCO_2e), ***annual*** reductions from A/R would be less than one half of the average ***daily*** trading volume in the EU ETS or less than one half of one percent of the annual EU ETS trading volume. Thus, the volumes of forestry credits in the trading markets are currently negligible compared to the sector's contribution to 20% of global greenhouse gas emissions.

12. Practical Implementation of LULUCF Projects

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Lastly, some issues relate to the practical implementation of LULUCF projects. The potential use of non-native or genetically modified species that are faster growing could pose threats to local ecosystems. Furthermore, there are concerns that indigenous or local populations could be denied access to their traditional resource lands or access to subsistence-use logging due to LULUCF projects.

RESPONSE

"*We need a mechanism that will assist people in developing countries, certainly in Africa, to protect their*

standing forests and plant trees, to protect their soil, protect biodiversity and protect livelihoods while reducing carbon emissions for everyone."[lx]

CDM documentation requires the project developer to document and analyze environmental impacts associated with a project (all projects including A/R). Furthermore, if environmental impacts are considered significant, an environmental impact assessment must be undertaken. Likewise, stakeholder consultations are also a requirement of CDM documentation.[lxi] All of the leading voluntary sector codes, including the Voluntary Carbon Standard and the Carbon, Community and Biodiversity Alliance provide for assessment of precisely these impacts before credits are certified.[lxii]

Potential Corporate Social Responsibility (CSR) issues may apply to any CDM or JI project. These concerns are not a reason to exclude any other sector from the EU ETS. They should be addressed by taking the appropriate care in the project design, as is the case with LULUCF projects.

The overwhelming view of indigenous people's organizations is that carbon crediting, based as it is on verifiable land title will serve to enhance their title to land and will provide them with direct benefits in preserving the ecosystems on which they depend.[lxiii]

13. The Commission's Approach to Address Deforestation

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It is clear that very substantial action needs to be taken to address deforestation in the coming decades, and auction revenues could contribute towards such action. The Commission has also proposed that proceeds from the auctioning of allowances within the EU ETS be used to mitigate greenhouse gas emissions, in particular to fund measures to avoid deforestation. Investments made in this way would be in line with government's priorities, rather than necessarily reflecting the market's natural incentive to find the lowest-cost potential for crediting.

RESPONSE

As mentioned above, the scale of funding needed to reduce and halt deforestation is estimated in the tens of billions of Euros.[lxiv] It is inconceivable, and disingenuous to suggest that this level of funding would be earmarked for avoided deforestation measures from auction proceeds not least because of competing demands for these funds.

14. Additionality and Double Counting of LULUCF Projects

DG ENVIRONMENT'S STAFF WORKING DOCUMENT

The additionality and double-counting of projects is serious issue which can undermine the environmental credibility of emissions trading systems. As broader initiatives advance to tackle deforestation, the likelihood of potential double counting and lack of additionality increases as regards the crediting of project activities in this area.

RESPONSE

The CDM itself is such a "broader initiative." The CDM process requires every project to demonstrate additionality through its "Additionality Tool," both for projects in the industrial sector and the land use

sector.[lxv] This tool could be extended to REDD projects. Double-counting is a registry issue. The EU has addressed this issue in the EU ETS through its national registries' interaction with the International Transaction Log. A similar system could be designed for credits from REDD projects.

15. Monitoring under the EU ETS

DG ENVIRONMENT'S STAFF WORKING DOCUMENT

Allowing already existing CDM credits from LULUCF in the ETS (Option 3.16) adds an additional monitoring burden on the EU and the ETS, although monitoring is already covered by existing UN CDM regulation. The main problem is that UN CDM targets state-level trade of tCERs, whereas the EU ETS aims at firms. Thus, while the ultimate liability would lie at the Member State level, the benefits would accrue to firms. Such a situation represents an indirect subsidy of LULUCF developers, as they would receive all benefits, while a share of the liability risk would be borne by the public.

RESPONSE

The project developer of LULUCF projects bears the costs of monitoring like any other project developer. This does not represent a subsidy.

Furthermore, the EU already needs to monitor compliance of ETS participants. Should LULUCF credits expire this will simply result in a debiting of its holder's account. The ETS itself is designed to transfer the liability of governments' Kyoto commitments to private operators. Through the system of fining the EU ensures that the liability stays with the private operators.

16. LULUCF Domestic Offset Projects

DG ENVIRONMENT'S STAFF WORKING DOCUMENT

Allowing domestic offset projects (DOPs) from LULUCF could be based on adopting existing monitoring guidelines for CDM projects. However, as the existing guidelines prove to be insufficiently satisfactory compared to EU standards, further development is needed before credits generated from LULUCF DOPs can be used for compliance in the EU ETS.

RESPONSE

The EU is free to impose stricter standards than the CDM. The project developer can make the decision whether or not invest in a project.

17. Future International Treatment of LULUCF

DG ENVIRONMENT'S STAFF WORKING DOCUMENT

Uncertainties are high concerning the future treatment of LULUCF on the international level. Currently, the use of LULUCF credits for compliance with Kyoto targets is only acceptable in the

first Kyoto period. Therefore, a recognition of LULUCF in the ETS now would increase the uncertainties about future supply. This contradicts one of the main objectives of the ETS: predictability of carbon credit supply. Any solution to this problem is likely to incur considerable higher costs compared to the current situation.
RESPONSE
If anything, results from Bali underscored the increasing certainty of LULUCF on the international level,[lxvi] particularly in relation to REDD. In terms of the Kyoto Protocol, there is, at present, only one commitment period for *all* Kyoto credits as the Protocol's trading periods ends in 2012. Therefore, future supply of credits is equally uncertain among all sectors, not specifically LULUCF. A cap and trade system functions through the demand being set by the cap, and the market responding to the cap to meet the targets. One of the consequences of this arrangement is an inherent uncertainty of supply. This is best illustrated in the EU ETS by the number and volume of HFC-23 projects, particularly from China which accounted for 61% of the volume transacted in the CDM market in 2006, of which HFC-23 projects contributed 34% (down from 67% in 2005).[lxvii]

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