

Land Use, Land Use Change and Forestry: Strategies for the Future

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The Pew Center on Global Climate Change and LULUCF

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The Center contracts with experts in the scientific and academic communities to publish balanced studies and analyses on domestic and international policy, economics, environmental impacts, and practical solutions relating to climate change. These studies represent syntheses of the current state of knowledge in a particular area and are exhaustively reviewed to assure accessibility to policymakers. The Center also actively engages in international and domestic meetings and employs media opportunities to get good quality information about climate change to the general public.

The Pew Center's Business Environmental Leadership Council (BELC), which now consists of 36 companies, was formed with the belief that climate change demands serious solutions to which business can contribute, both in the marketplace and the public policy arena. The BELC companies do not contribute money to the Center, nor does the Center lobby for these companies. The guiding principles of the Council are:

1. We accept the view of most scientists that enough is known about the science and environmental impacts of climate change for us to take actions to address its consequences.
2. Businesses can and should take concrete steps now in the US and abroad to assess opportunities for emissions reduction, establish and meet emissions reduction objectives, and invest in new, more efficient products, practices and technologies.
3. The Kyoto agreement represents a first step in the international process, but more must be done both to implement the market-based mechanisms that were adopted in principle in Kyoto and to more fully involve the rest of the world in the solution.
4. We can make significant progress in addressing climate change and sustaining economic growth in the US by adopting reasonable policies, programs and transition strategies.

LULUCF in the climate change negotiations

Tensions between advocates of focusing on reductions in fossil fuel emissions and advocates of taking emissions and removals due to the terrestrial biosphere fully into

account lie at the heart of the international negotiating process. In the international process, was agreed that the role of the biosphere had to be acknowledged, and gross-net accounting was accepted as the method to do this. An alternative to gross-net accounting is net/net accounting.

In the gross/net system, only fossil fuel emissions are counted in the base year, while both fossil fuel emissions and biomass are counted in the commitment period (the first one being 2008-2012). In the net/net system, both biomass and fossil fuel emissions are counted in both the base year and in the commitment period. Going into the Kyoto negotiations, the United States assumed that a net/net system would be used for dealing with LULUCF. However, concerns voiced primarily by the European Union resulted in selection of the gross/net system.

Arguments against the gross-net system include the fact that under this system any credits due to LULUCF are essentially “freebies” in assisting meeting the targets agreed to. This leads to a need to restrict the number or extent of the “freebies” and thus to a need to define parts of the terrestrial biosphere to include in the accounting system. . The gross-net system resulted in needs to define what is a forest; e. g., is a degraded forest still a forest, and to determine at what point a forest is considered deforested. One also needs to determine whether, once an area is deforested, will it stay deforested or will it re-grow? The resultant accounting system is very complex and generally unlikely to be transparent.

In net-net accounting, on the other hand, the carbon being removed from (or released to) the atmosphere is counted in the base year and again in the commitment period. If the biosphere is taking more carbon from the atmosphere in the commitment period than it was during the base year, the nation will not have to work hard on fossil fuel reductions. If the biosphere is taking up less than in the base year (or has become a source of carbon), the nation will have to work harder on its fossil fuel emissions reduction. As shown in Figure 1, using net-net accounting magically eliminates many of the problems associated with gross-net accounting.

[insert Slide 10, the "magic hat"]

As mentioned previously, the Kyoto Protocol elected to utilize gross-net accounting in incorporating LULUCF into the international policy instrument, an approach which leads to the need to restrict the extent to which one counts LULUCF activities, thus failing to tally some of the terrestrial biosphere emissions or removals that atmospheric conditions will reflect. Ultimately tensions over this issue were one cause of the breakdown of COP6, providing the window of opportunity that the US used to withdraw from the international process.

Comprehensive use of the terrestrial biosphere in US policy and for developing countries

The decision by the US not to engage in the Kyoto Protocol indicates that in the near future, at least until the next Presidential election, the US is likely to develop its climate change programs independently of the Kyoto process. The US is likely, for a range of

reasons, to include a full range of LULUCF activities -- the entire terrestrial biosphere -- in any domestic climate change mitigation policy it might adopt. A comprehensive approach of this type is good for the atmosphere. Even if an accounting system does not count all the actions of the biosphere, the atmosphere will. You can fool yourself, but you can't fool the atmosphere. The US is also likely to include full use of LULUCF activities in developing countries to offset domestic emissions. This is in stark contrast to the Kyoto Protocol, which at present only allows use of afforestation in its Clean Development Mechanism.

In the period 2005-2012 the Parties to the Kyoto Protocol will be assessing their progress toward commitments. This assessment will be critical for their positions, credibility and leverage as they enter the negotiations for the 2nd commitment period (after 2012). Assuming the US re-engages in the Kyoto process in time for the 2nd commitment period, this would be the period when the credibility of the US's own climate policies would also be assessed.

Although at present many developing countries do not favor use of their lands to assist the developed world in dealing with climate change, as these countries gain a better understanding of the benefits that could accrue to them from LULUCF projects, this attitude may change. In particular, the use of agricultural soil carbon, as it results in improvements in yields and remediation of degraded and desertified lands, supports many high priority goals of these countries.

In developing countries, deforestation is the most significant source of GHG emissions. However, efforts to reduce these emissions must focus on improving yields in the subsistence agriculture sector. Improvements in agricultural yield result from improved soil fertility, which in turn improves the water cycle. Shifting from unsustainable practices to more productive and sustainable agriculture will reduce the pressures that are causing approximately $\frac{1}{3}$ of deforestation in developing countries. Currently, poor farmers can not afford to leave their land fallow long enough for it to regain its fertility, forcing farmers to continually bring more land into production to meet the food needs of the population. If, through improved practices, they can produce more food on less land, it would reduce the pressure for deforestation. Figure 2 illustrates that a successful LULUCF program in developing countries needs to be based on agriculture. If one starts with agriculture, reduction of deforestation will be a natural result of addressing the socio-economic forces that drive deforestation and one will be building on a firm foundation that can support other LULUCF activities. If, on the other hand, one tries to implement LULUCF practices such as afforestation first -- illustrated by the upside down triangle and the present approach under the Kyoto Protocol -- one will have to rely on institutional mechanism such as leakage control to prevent perverse effects. If land is taken out of the food-production system (i.e. a forest is planted on agricultural land), one increases the need to cut natural forests. This is a perverse result since the newly planted forest will remove approximately 100 tons of carbon per hectare while cutting or burning the natural forest to supply agricultural the land will emit approximately 300 tons of carbon per hectare.

[insert Slide 18 the two triangle - upside down and right side up]

Successful LULUCF projects will address the developing countries' priorities: not only increasing agricultural yields and remediating land degradation and desertification, but also supplying investment money and leap-frogging technologies. The fact is that many developing countries (not of course India or China) simply do not have large opportunities for energy-side emission reductions. Their largest opportunities are for reductions in emissions from LULUCF. Investment money from developed countries will flow to the big, not small, reduction opportunities. The technologies used in improving agricultural yields and other LULUCF activities are much more appropriate for many developing countries than energy technologies. The agricultural technologies do not require replacement parts and high-level maintenance skills that are often unavailable in developing countries and that are needed for many emissions-reducing energy technologies. It is possible to achieve greater developing country participation with this approach, but the US must first have a credible domestic greenhouse gas emissions reduction program underway.