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Bogging Down In the Sinks

The question of sinks in mitigating global warming is an important one. The article by Ashley Mattoon explains some of the pitfalls in the ongoing debate about what will be counted under protocols to the Framework Convention on Climate Change. Mattoon concludes that forests should not be included in mitigation plans. I have reached the opposite conclusion. Perhaps some additional information would help.

Mattoon has lumped all forestry measures into a single generalization when, in fact, options such as silvicultural plantations and maintenance of tropical rainforests have radically different carbon benefits, in addition to differences in their social and environmental effects. The argument that allowing carbon "sinks" in forests permits more carbon to be added to the active pool (atmosphere + biosphere + wood products, etc.), therefore providing a loophole to permit more fossil fuel burning, applies to plantations but not to forest maintenance, so long as the credits are calculated realistically. The main questions are (1) how the "baseline" for the forestry activities is specified and (2) what (if any) value is given to time.

Preventing deforestation in countries with large areas of remaining forest, such as Brazil, is much more akin to avoiding fossil fuel emissions than it is to planting eucalyptus for pulpwood. When the burning of a barrel of oil is avoided (due to increased energy efficiency, for example), the gain is considered to be a permanent one, even though the same barrel of oil will be pumped out of the ground and burned the following year. This is because the effect cascades forward in each successive year's emission. The same is true of avoided deforestation if a country's forest is far from coming to an end.

Time is the second question. Because global warming is not a one-time catastrophe, but rather changes the probability of events such as drought and famines from the time of the warming onward, postponing a given amount of warming, even for a single year, has a permanent value (by the same logic as that by which postponing the burning of a barrel of oil has a permanent value). Time is given value by means of a discount rate or other equivalent mechanism. Plantations, which keep carbon out of the atmosphere for a limited time, deserve some credit, the amount of which will depend on the value given to time (a moral and political decision, not a scientific one).

The conclusion that "managing the world's forests to mitigate climate change is not a realistic or an ecologically healthy ambition" is, fortunately, not justified. Some of the most important possibilities are both realistic and healthy. What could be more "ecologically healthy" than keeping tropical forests standing? In addition to great environmental benefits for biodiversity, reducing tropical deforestation would have substantial benefits for global climate. Tropical deforestation, in the aggregate, releases even more carbon annually than the most notorious fossil fuel burning nation of all: the United

States. Of course, global warming is a sufficiently large problem that much more than forestry is needed to fight it, and there can be no escape for industrialized countries facing up to reducing their profligate use of fossil fuels.

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The author responds:

Thank you for drawing attention to an important aspect of forest's role in climate change mitigation that I did not discuss in my article: that of the protection of standing forests—thus avoiding the emissions from deforestation that account for as much as 20 percent of the world's emissions of CO_2. I agree that avoiding emissions from deforestation by protecting forests would not only reduce carbon emission, it would also serve the many other innumerable benefits that come from keeping natural forest ecosystems intact.

Unfortunately, avoiding emissions from deforestation, particularly in the tropics, is not the primary focus of the protocol's provisions on sinks. Of the three activities listed, two involve planting of trees. While there is a penalty for deforestation, deforestation is most commonly defined as the permanent and total (80–90 percent of crown cover) loss of forest. So if trees are cleared and replanting occurs one or even 10 years later, the original loss of forest would not factor into a country's carbon budget.

My article was based on the realities of current policy negotiations – not on the best-case scenario outcome. Many pilot phase carbon offset projects have been successful in producing numerous ecological and socioeconomic benefits. However, for every well-designed, well-funded conservation project, there may be a project that is not as well designed and monitored, or a project that rewards companies for investing in commercial plantation projects that they will reap substantial profits from in addition to carbon offsets.

Ashley Mattoon