

INTERNATIONAL FOREST CARBON SEQUESTRATION IN A POST-KYOTO AGREEMENT

BY ANDREW J. PLANTINGA AND KENNETH R. RICHARDS



OVERVIEW

Forest carbon management must be an important element of any international agreement on climate change. This paper considers alternative approaches to forest management. A “national inventory” approach, in which nations receive credits or debits for changes in forest carbon inventories relative to a measured baseline, would reduce global CO₂ emissions more effectively than the current Kyoto Protocol system.

DISCUSSION

Forest carbon flows comprise a significant part of overall global greenhouse gas emissions. While global forests as a whole may be a net carbon sink, global emissions from deforestation contribute between 20 and 25 percent of all greenhouse gas emissions. Furthermore, the amount of carbon sequestered in forest vegetation is approximately 359 billion tons, compared to annual industrial CO₂ emissions of 6.3 billion tons. Thus, natural and anthropogenic changes to forests could have an enormous impact on the global carbon cycle.

An effective international forest carbon management system must provide landowners and governments incentives to protect and expand stocks of carbon. The Kyoto Protocol has proven ineffective in this regard. For one, the Kyoto approach discourages countries from accepting the responsibility and benefit of all carbon changes under their authority. Second, the Protocol’s Clean Development Mechanism (CDM) fails to provide developing countries with incentives to reduce carbon emissions through forest management. Since the carbon effects of individual forestry projects are difficult to measure, the CDM is a poor tool to provide incentives for forestry policy. Finally, the Kyoto Protocol approach may actually accelerate deforestation by shifting timber harvesting from Annex I to non-Annex I countries.

The expiration of the Kyoto Protocol in 2012 invites a reexamination of how to address terrestrial carbon management within the framework of an international climate change treaty. There are three basic policy approaches.

The first approach, which is currently used by the CDM, is project-level accounting. Under this system, individual landowners can apply for credits for net increases in carbon stored in forests on their land. Once the permitting authority verifies the carbon sequestration is valid, the landowner can then sell the credits in permit markets. Unfortunately, past experience has shown that project-by-project accounting faces serious challenges including the difficulty of establishing the counterfactual reference case against which to evaluate projects.

A second, more promising approach is national inventory accounting. Under this approach, nations conduct periodic inventories of their entire forest carbon stock. The measured stock is compared to a pre-negotiated baseline stock to determine the offset credits that can be redeemed, or debits that must be covered, in the permit market. To avoid the difficult task of forecasting future stocks, international negotiations determine the reference stock.

A final policy approach is a “delinked” system in which forest carbon programs are not linked to the emissions allowance system. Rather than focusing on carbon credits, the program would focus on inputs such as policies to discourage deforestation, programs to encourage conversion of marginal agricultural land to forests, and projects to better manage forests in forest-rich countries. These commitments would be incorporated in the national plans required under the UNFCCC and would be funded by overseas development aid, international institutions, or through a separate climate fund. Such a delinked system

would have several advantages, including lowering transaction costs, but it would also have two particularly serious disadvantages. First, the delinked approach would dull incentives. Second, decoupling the forest carbon program from the cap-and-trade program removes one of the best sources of funding to promote changes in land-use: emitters who are seeking lower cost options to reduce their net emissions.

KEY FINDINGS & RECOMMENDATIONS

- *The Kyoto Protocol's current forestry policy—project level accounting—should not be a central component of the forestry mechanisms adopted in a post-2012 agreement.* This approach has too many fundamental flaws, including problems with additionality, permanence, leakage, and adverse selection.
- *The national inventory approach offers many advantages relative to the current Kyoto Protocol approach.* It greatly reduces the problems of additionality, leakage, permanence, and adverse selection that plague the CDM's project-by-project approach. It also provides comprehensive coverage of changes to forest carbon stocks.
- *The national inventory approach also has disadvantages that need to be acknowledged.* First, the scope of carbon sequestration activities is limited to those that will show up in a national forest carbon inventory. Second, the approach provides incentives for governments, not private project developers, which may be a disadvantage in countries with weak institutions, corruption, or powerful special interest groups. Third, problems with additionality, permanence, etc. may resurface with domestic carbon sequestration policies pursued by national governments.
- *A delinked, input-based approach could be used as an interim measure if current measurement technologies are inadequate to support the national inventory approach.* The national inventory approach requires regular and reliable national forest inventories for a large group of countries. An input-based approach could be used temporarily while the scientific community works to further develop the measurement capacity necessary to support national inventories.

CONCLUSION

The national inventory approach is an attractive alternative to the Kyoto Protocol's existing forestry approach.

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The goal of the Harvard Project on International Climate Agreements is to help identify key design elements of a scientifically sound, economically rational, and politically pragmatic post-2012 international policy architecture for global climate change. It draws upon leading thinkers from academia, private industry, government, and non-governmental organizations from around the world to construct a small set of promising policy frameworks and then disseminate and discuss the design elements and frameworks with decision-makers. The Project is co-directed by Robert N. Stavins, Albert Pratt Professor of Business and Government, John F. Kennedy School of Government, Harvard University, and Joseph E. Aldy, Fellow, Resources for the Future.

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