Carbon emission abatement costs from reduced deforestation: Introduction

Brent Swallow
Global Coordinator, ASB Partnership for the Tropical Forest Margins
World Agroforestry Centre, Nairobi, Kenya

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Presenting a new study on the “opportunities” for avoided deforestation with sustainable benefits

- Stern Report among studies concluding that avoided deforestation is a good economic investment compared to other abatement possibilities
- Results from the ASB Partnership for the Tropical Forest Margins provide insight into the tradeoffs between C and NPV for alternative land uses in the tropical forest margins
- Launching a new pan-tropical study of opportunity costs of avoided deforestation building on 10 years of past work
The ASB Partnership for the Tropical Forest Margins

• Beyond Slash-and-Burn: alternative land uses, drivers, consequences and responses

• Partnership of international and national organizations, with intensive field studies in humid West Africa, Amazon Basin and southeast Asia
Some studies of the opportunity costs of CO2 abatement from avoided deforestation.

McKinsey, 2007

Vattenfall, 2007
Opportunity Cost of Abatement in $ / tonne CO\textsubscript{2}eq

Abatement beyond BAU

Our goal: opportunity cost functions as a key element of abatement costs

Abatement costs = opportunity costs + transaction costs + costs of fixing policy and market distortions
Objectives

• Estimate opportunity costs of avoided deforestation for large multi-functional landscapes (the size of US states) in the humid tropics

• Present results in the form of CO$_2$eq opportunity cost curves for comparison with other (net) emission reduction activities

• Help negotiators and investors have a more realistic understanding of the potential and challenges of REDD
Methods

- Return to ASB sites in Indonesia, Cameroon, Philippines and Peru
- Time-averaged carbon stocks to compare across land use types and maturity of systems over time (t-ave C)
- Net Present Value / ha to compare land use types with life cycles from 1 to 25 years
- Analysis of remote sensing data and extensive ground truthing to assess changes in land use since 1990
- Identification of sequestering and emitting land use changes
- Pixel-by-pixel analysis of change in NPV and t-ave C for emitting land use changes and sequestering land use changes
Figure 1.1 - Land use change and C stock at the ASB site in Jambi, Indonesia, 1995

(Tomich et al., 1998)
Estimated investments required to avoid deforestation in the Amazon: A Peruvian perspective  
Miguel Barandiaran, Instituto Nacional de Investigación Agraria (INIA)

Landscape Analysis of Abatement Cost in the Philippines: preliminary results for the Lantapan ASB Case Study  
Rodel Lasco, ICRAF

Returns to land and comparative abatement costs in mixed land use systems in Cameroon  
Stephen Weise, IITA, Ghana

Landscape-level analysis of abatement costs in four landscapes in Indonesia  
Meine Van Noordwijk, ICRAF

Abatement costs of avoiding emissions from forest degradation  
Margaret Skutsch, University of Twente
Overall Conclusions:

(1) Farmers respond to market incentives in choices to shift to lower-carbon and higher-carbon land uses.

(2) About 80% of emitting land-use changes in the study areas since 1990 could have been offset by payments of less than $5 / tonne. Large amounts less than $1 / tonne.

(3) Future opportunity costs will depend on REDD incentives and land-use incentives. Large increases in farm price of biofuels may be a major threat to standing carbon, especially in areas with good market access.
Key messages:

(1) There are cost-effective opportunities for large reductions in CO2 emissions from avoided deforestation in the humid tropics.
- Governments and other stakeholders should take positive pragmatic steps as they negotiate long-term agreements.

(2) Urgent attention should be given to reducing emissions from the peatlands of Southeast Asia.
- This includes stopping conversion of peat forests and modifying farming practices on previously-converted peatlands.
- Negotiations, policies and programs should cover all peat lands.
(3) In the absence of incentives for land owners to maintain forest resources, market conditions favour conversion of forests over conservation.
   • To be effective, REDD mechanisms must provide financial incentives that more than outweigh the returns from conversion to other land uses.

(4) We have observed a considerable amount of carbon-sequestering land use changes that have also increased net returns to farmers.
   • Promote multi-strata agroforestry systems and some community forestry systems
   • Use net accounting systems a la GHG accounting for Annex-1 countries
(5) REDD schemes should consider opportunity costs, alternative sources of livelihoods, and alternative sources of wood products for local uses.

(6) There are tight connections between global and regional markets for tropical forest products and deforestation incentives.

- International organizations, national governments and industry groups should be aware of these spillovers and be accountable to reduce negative spillovers.