

Emissions Embodied in Trade (EET) and Land use in Tropical Forest Margins

Increasing proportions of land use change responsible for emissions from deforestation, forest degradation and agriculture in developing countries is associated with commodities meant for export, hence the concept of Emissions Embodied in Trade-EET.

As many corporations, countries and consumers embrace carbon footprint labelling and advocate for “greener” commodities, there is potential for reducing emissions from land use change in the humid and sub-humid tropics. Yet, current debate on Reduced Emissions from Deforestation and Degradation – REDD+ has not considered the potential implications of EET.

In this brief, we present and briefly reflect on (a) how emission reductions may induce cross-border land use displacements; (b) how market demand for “greener” commodities and consumer pressure on some tropical commodities can shape behaviour of land use agents and influence emissions; and (c) the policy implications that result from EET.



Main findings

1. Countries reducing emissions might displace land use (hence emissions) to other countries:

Countries that have increased their forest area in recent years (turned the corner in forest transition terms) have done so partly by importing food, fibre and wood products, and thus increasing their external emissions footprint. The increase in external emissions footprint over the last 5 years was on average 50 percent of the new forest area. REDD implementation could therefore trigger increased displacement if not well implemented.

2. Market demand for “greener” commodities and consumer pressure are influencing land use and catalysing emission reductions:

Consumer boycotts and changes in behaviour in international value chains has so far (in some cases) been more effective in reducing emissions from deforestation than the nascent REDD+ institutional approach.

3. Multiple, varied and emerging carbon footprint labels and standards present challenges for planning and understanding potential implications.

Implications

- International emission displacement through trade in food, forest and wood products needs to be acknowledged in the ‘common but differentiated responsibility’ for controlling net emissions within the UNFCCC frameworks. For example, calculation of national emissions should also include emissions caused by products consumed within that country rather than only those produced within.
- More synergy can be achieved between trade-based (‘responsible global citizen’)

(Continues overleaf)

Implications (continued)

and area-based ('national carbon emission rights') approaches to emission accounting and accountability. There are also potential gains for private companies if and when they adopt greater transparency in accounting.

- There is need for standardized footprint accounting methods that are applicable across all commodities in order to increase transparency and accountability; thresholds and standards may vary but should be comparable.

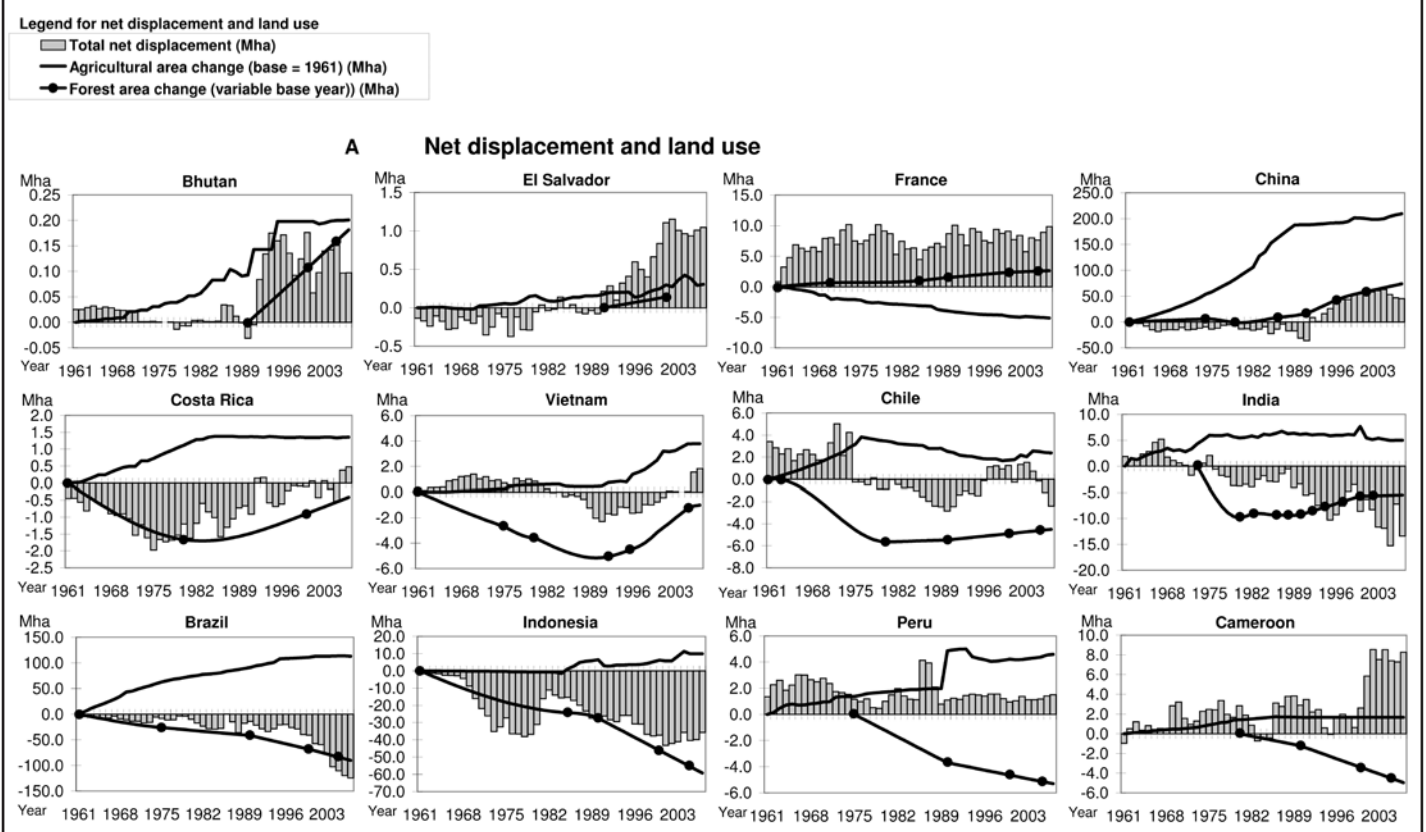
1. Forest transition countries increase their displacement of land use (hence emissions) to other countries

A recent study by Meyfroidt *et al.* (2010) showed that a number of developing countries, including Costa Rica, Vietnam and China have been able to reverse the trend of continued forest loss by achieving net reforestation. While part of this increase in forest area has been achieved by gains in agricultural productivity and policies of reforestation and forest protection, it has also been associated with an increase in net import of agricultural and forestry products, increasing the 'net displacement beyond the national boundary' of the country.

Displacement is here defined as the area outside a country's borders required to produce the imports of food, fibre and wood. When international trade data (in the FAO and COMTRADE databases), was converted into the area needed for the production of the different commodities, it revealed that in total, 52% of the increase in forest areas by these forest transition countries was offset by an increase in 'footprint' over the past 5 years. Although these area changes cannot be directly translated to carbon dioxide emissions.

Such international emission displacement is not included in current discussions and impending agreements on reducing emissions from deforestation and forest degradation (REDD+).

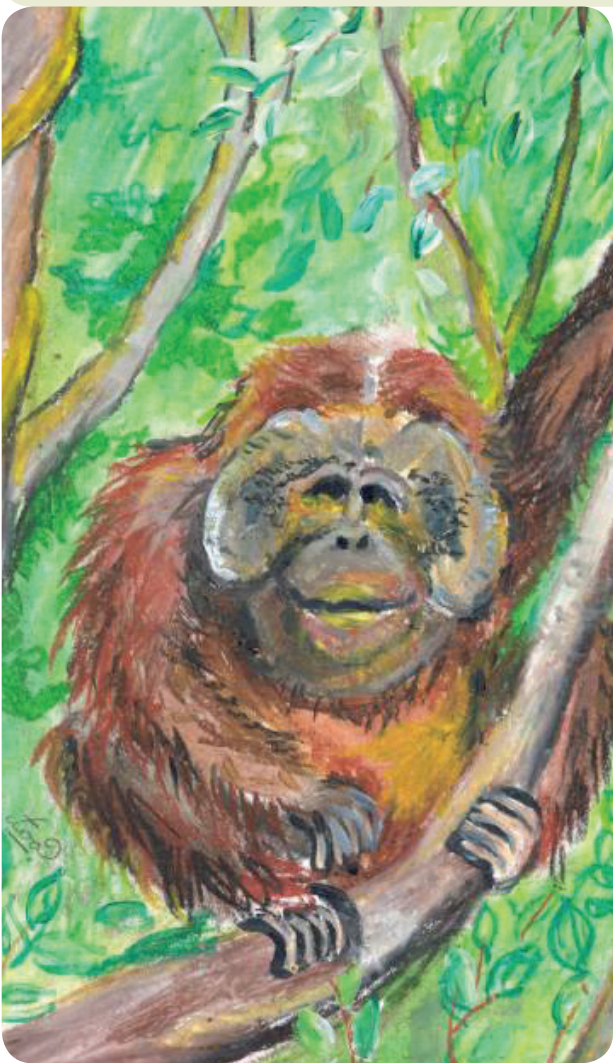
Figure 1: Net displacement represents the area of land used outside a country to produce the net traded volumes of agricultural and wood products. A positive value corresponds to net imports, and a negative value to net exports. Reprinted from Meyfroidt *et al.* (2010)



2. Market demand for "greener" commodities is influencing land use and catalysing emission reductions

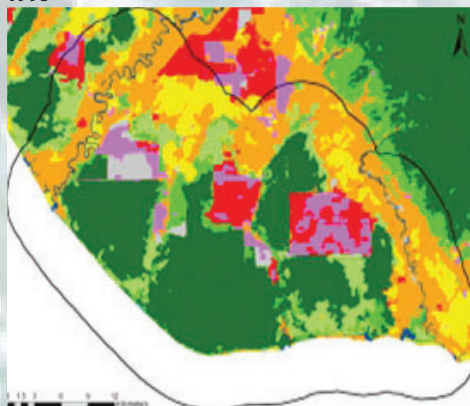
Massive conversion of tropical forests on mineral soils or peatlands to oil palm plantations has become a focus of debate,

initially linked to biofuel production but extended to palm oil used for the food industry. This debate has been driven by private consumers, retail chains; wood and agro-industry that together demand greener products and also sometimes target campaigns against poor environmental practice at specific



The Tripa swamp along the west coast of Aceh (Sumatra, Indonesia) was largely converted to oil palm in the 1990s, but one block of forest remains, home to Sumatran orangutans. Pressure from environmental NGO's led the concession holder to declare a voluntary moratorium on further conversion of the forest area.

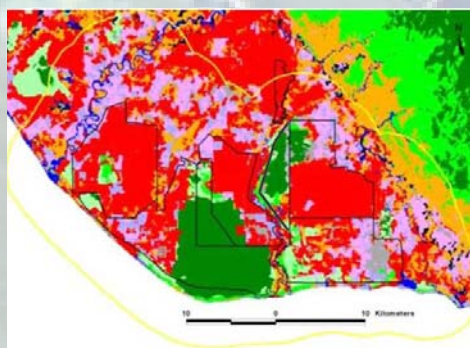
1995



Legend



2009



locations around the world.

Public outcry over the destruction of biodiversity habitat, including that of the highly threatened Sumatran orangutan as well as high emission rates, led to consumer boycotts and public declarations by the food industry. Consequently contracts were cancelled with plantation companies involved in new forest clearing. Cases of this nature are increasing and could be very influential on land use change. (Gritten & Mola-Yudego 2010).

3. Multiple and varied emerging rules for carbon footprints accounting

Labels, both national and voluntary, are being developed with diverse accounting rules. Examples include those from France, the USA, the European Union and the CarbonTrust private scheme.

Some key differences concern the scope of the project life cycle analysis required and which GreenHouse Gases (GHGs) to include.

We illustrate these challenges with two concepts ("carbon emissions intensity" and "induced land use change") below. Carbon footprints here refer to the carbon and GHG emissions associated with the supply chain and life cycle of the commodity.

The biofuel debate has led to rules of accounting for the carbon intensity of biofuels production, with a dominant role for the carbon debts incurred at the land conversion stage. For example, oil palm production with current techniques for fertilization and milling cannot meet the biofuel standards of the EU and USA unless it is produced without carbon debts. To meet these standards (or to be C debt free), the oil palm plantation should have replaced a vegetation with less than 40t C/ha (which is the time-averaged carbon stock) at the time of establishment (Dewi et al. 2009).

Some of the emerging rules include the concept of 'induced land use change', which recognizes that new ways of using agricultural products, such as biofuel, lead to further expansion of agriculture, possibly through permanent residences because of labour migration and several steps of products substitution in places far from where the initial change occurred. Even if a production stream can by itself meet the emerging standards, it will be held accountable for the average carbon intensity of the area to which it supposedly shifts production.

Strict application of such rules makes it impossible for any producer to meet the standards and may therefore be counterproductive in efforts to reduce emissions from land use. There is need to find better ways of linking international trade in products with global markets that respond to supply and demand.

Way forward

a. Improve transparency in land use planning and implementation

Consumer demand for “green”/carbon neutral products requires an adjustment in national and local land use planning practices. This implies more transparency, good record keeping and reporting, and deliberate attempts at low carbon development pathways along the value chains of commodities in developing countries. Relevant models for such low carbon development need to be developed.

b. Joint development of comparable standards for carbon footprints

Negotiating some globally acceptable rules and methods for carbon footprint accounting would be an important way forward in terms of resolving the current diverse and multiple emerging schemes. Such a process needs to involve all key players along the value chain and within an internationally acceptable process.

One example of such an attempt within the oilpalm sub-sector is the Roundtable for Sustainable Palm Oil-RSPO (<http://www.rspo.org/>), a forum where the industry meets with trade partners and environmentalists. RSPO has decided to facilitate the design of accounting rules that are transparent and that will allow the clean producers to certify compliance, facilitating choice for consumers, importing countries and food processing industry. Other commodities such as sugar cane and biofuels may need to consider this option.

c. Consideration of EET within the UNFCCC and World Trade Organization (WTO) negotiations

The above evidence points to the need for recognition of EET within the context of international leakage in the REDD+ discussions. A number of possibilities could be considered,

such as:

(i). Minimum indicative reporting on potential / estimated displacements within national accounting for REDD+ and eventually Nationally Appropriate Mitigation Strategies (NAMAs).

(ii). Setting incentives and guidelines for managing regional level displacement. For example, current evidence indicates that trade in timber and wood products, partly illegal, is significant among certain countries and therefore could be impacted by REDD schemes, especially for the South East Asia region (Vietnam, Lao, China and Cambodia) and the West African region (Ghana, Cote D'Ivoire, Burkina Faso and Mali). This could also be extended to a global threshold of adherence to any REDD agreement similar to that which was required for enforcing the Kyoto Protocol.

(iii). The responsibility of nation states for their land use and emissions needs to be clearly reflected in rules that match World Trade Organization standards which guard against ‘protectionism’, while achieving ‘conservation’.



Conversion of forest to oil palm plantation in South East Asia. PHOTO\V. Meadu

The ASB Partnership for the Tropical Forest Margins is working to raise productivity and income of rural households in the humid tropics without increasing deforestation or undermining essential environmental services.

ASB is a consortium of over 90 international and national-level partners with an ecoregional focus on the forest-agriculture margins in the humid tropics, with benchmark sites in the western Amazon basin of Brazil and Peru, the Congo Basin forest in Cameroon, southern Philippines, northern Thailand, and the island of Sumatra in Indonesia.

The ASB Policybriefs series aims to deliver relevant, concise reading to key people whose decisions will make a difference to poverty reduction and environmental protection in the humid tropics.

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Further research and key references

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Cover photo

Logs stacked at the Lyttelton railway station yards, New Zealand. Photo by Matthew25187 at en.wikipedia.org