



Do national strategies under the UN biodiversity and climate conventions address agricultural commodity consumption as deforestation driver?



Sabine Henders^{a,b,c}, Madelene Ostwald^{a,d,*}, Vilhelm Verendel^d, Pierre Ibisch^b

^a Center for Climate Science and Policy Research (CSPR), Department of Environmental Change, Linköping University, 581 83 Linköping, Sweden

^b Centre for Economics and Ecosystem Management, University for Sustainable Development, 16225 Eberswalde, Germany

^c Thünen Institute of Forest Ecosystems, 16225 Eberswalde, Germany

^d Chalmers University of Technology & GMV, 412 96 Gothenburg, Sweden

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ABSTRACT

Forest conversion in the tropics is increasingly driven by global demand for agricultural forest-risk commodities such as soy, beef, palm oil and timber. In order to be effective, future forest conservation policies should include measures targeting both producers (the supply side) and consumers (the demand side) to address commodity-driven deforestation. Whereas the UN Conventions on Biodiversity (CBD) and Climate Change (UNFCCC) do not make reference to this driving factor, here we explore whether and how recent national strategies by member states to the Conventions acknowledge the role of agricultural commodities in tropical deforestation. A text analysis of 139 Intended Nationally Determined Contributions (INDCs) to climate change mitigation and 132 National Biodiversity Strategies and Action Plans (NBSAPs) shows that the general trade-off between national development aspirations and forest conservation is commonly acknowledged. However, only few strategies link deforestation to commodity production and consumption, whereas most documents do not mention this topic. This lack of reference to a key driver of tropical deforestation limits the prospects of safeguarding tropical forests for biodiversity and climate change mitigation purposes as part of the two UN Conventions, and might jeopardise their overall effectiveness.

These findings were complemented by a content analysis of INDCs, NBSAPs and REDD+ documents from eight case countries affected by commodity-driven deforestation. We investigated whether this driver is acknowledged in the national strategies, and which policy measures are suggested to address forest loss from agricultural commodities. We found that six case countries mention agricultural commodities as deforestation driver in their REDD+ documents, whereas the biodiversity and climate change strategies were silent on the topic. Policy measures targeting commodity production were suggested in four REDD+ strategies, ranging from incentive payments, sustainable agricultural practices and land-use planning to demand-side approaches such as certification and the promotion of sustainable lifestyles.

One conclusion from this exercise is that UN member states seem not to consider climate and biodiversity national plans the adequate forum to discuss detailed forest conservation approaches. We argue that in order to increase effectiveness, strategies under the UN Conventions should take commodity-driven deforestation into account, through measures that address both the producer and the consumer side.

1. Introduction

Tropical deforestation amounted to around 8.5 million hectares (Mha) annually in the years 2000–2012 (Hansen et al., 2013), whereas 24 Mha annually were subject to degradation between 2007 and 2012 (Tyukavina et al., 2016). Deforestation and degradation cause severe environmental impacts, among them on biological diversity and the global climate. Biodiversity impacts include population declines and escalating species extinction (e.g., Corlett 2007; Canale et al., 2012;

Gibson et al., 2013) as well as impaired ecosystem functions (Fearnside 2005; Foley et al., 2005, 2007). Carbon dioxide (CO₂) emissions from deforestation and forest degradation reached 5.0 Gt per year in the period 1990–2010 and accounted for 14–21% of total global human-induced CO₂ emissions between 2000 and 2005 (Houghton, 2013; Harris et al., 2012; Grace et al., 2014).

Tropical deforestation and its impacts pose a central challenge to environmental sustainability (MEA, 2005), which is why measures for forest conservation are essential parts of several international policies,

* Corresponding author at: Chalmers University of Technology, Div. of Physical Resource Theory, 412 96 Gothenburg, Sweden.
E-mail address: madelene.ostwald@liu.se (M. Ostwald).

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including the UN Conventions on Biological Diversity (CBD) and the Framework Convention on Climate Change (UNFCCC). Both were established in the early 1990s to prevent detrimental environmental impacts on the atmosphere and biosphere. However, in the face of increasing tropical forest destruction (Hansen et al., 2013), rising greenhouse gas (GHG) emission levels (Hartmann et al., 2013) and unabated loss of biodiversity (Butchart et al., 2010), the question arises whether these policies effectively tackle the drivers behind global change.

1.1. Agricultural commodities and tropical forest loss

One factor only recently receiving increased attention and thus potentially overlooked in the Conventions is the role of production and consumption of agricultural commodities in tropical deforestation. Whereas the general links between consumption in industrialized countries and tropical deforestation have been postulated for decades (e.g., Myers 1981; Hecht, 1993; Barbier, 2000), commercial agriculture has gained importance in tropical forest loss dynamics since the 1990s (Rudel et al., 2009). An increasing share of agricultural commodity production is destined for export markets, with at least 20% of the global harvested cropland area in the 2000s devoted to the production of export commodities (Kastner et al., 2014; MacDonald et al., 2015). With this, international demand for commodities like soybeans, palm oil, meat or timber has, in recent years, become a major driving force for forest conversion in the tropics (DeFries et al., 2010; Lambin and Meyfroidt 2011; Hosonuma et al., 2012). Over 40% of total tropical deforestation between 2000 and 2011 was due to the production of these four forest-risk commodities in just seven countries (Henders et al., 2015).¹

This development can be understood as part of a general process, where globalization and a growing international commodity trade have dissolved local cause-effect chains through the spatial separation of production and consumption (Erb et al., 2009). High or growing trends of environmental impacts embodied in trade flows have been described for land use (Weinzettel et al., 2013; Yu et al., 2013), deforestation (Cuypers et al., 2013; Persson et al., 2014), GHG emissions from land-use change (Karstensen et al., 2013; Henders et al., 2015), carbon in timber flows (Kastner et al., 2011) and biodiversity (Lenzen et al., 2012; Chaudhary and Kastner 2016; Moran and Kanemoto 2017). These findings show that global consumer demand is becoming increasingly important in promoting environmental impacts in the locations where commodities are produced.

Such globalized driving factors are difficult to address with traditional policy approaches at the national or local level (Lambin et al., 2014), which typically target the producer, or supply-side of agricultural commodities through measures such as land use regulations, logging bans, or incentives for conservation. While often locally effective, these measures do not mitigate global consumer demand for agricultural commodities. If this demand increases unabated, national forest conservation policies might either be undermined by macro-economic factors (Gasparri et al., 2013), or conversion could shift to other places, creating a leakage effect (Meyfroidt et al., 2013; Henders and Ostwald 2014). Both processes carry the risk of rendering international forest conservation efforts, such as REDD+, ineffective in the long-term (Henders, 2014). Hence, forest conservation policies need not only address domestic deforestation drivers, but also react to international pressures posed by markets and consumer demand. These can be tackled by demand-side measures, which aim to create awareness and lifestyle changes in the consumers, promote demand for sustainably sourced commodities and encourage deforestation-free production along supply chains; thus indirectly influencing land use decisions (see Background section).

1.2. Agricultural commodities in the UN conventions on biodiversity and climate change

Both the UNFCCC and the CBD were outcomes of the Rio Earth Summit in 1992, responding to the recognition that biodiversity loss and climate change are global challenges that require internationally coordinated responses. Although intending to address the underlying drivers of global change, commodity consumption as driver for forest loss is not mentioned in the Convention texts and their major decisions. Even general wording on sustainable production and consumption is found only in very recent documents: the Paris Agreement (UNFCCC, 2015) in a by-sentence “also recogniz... (es) that *sustainable lifestyles and patterns of consumption and production*, with developed country Parties taking the lead, *play an important role in addressing climate change*”, whereas the 2020 Strategy (UNCBD, 2010) in one of 20 targets calls for *the development of plans on sustainable production and consumption to address biodiversity loss*.

In the light of this vague wording in international agreements, here we explore the research question: Do recent national biodiversity and climate change strategies developed by member states to the Conventions reflect global developments and address agricultural commodity consumption as deforestation driver?

To this end, we conducted a detailed text analysis of National Biodiversity Strategies and Action Plans (NBSAPs) submitted to the CBD, as well as Intended Nationally Determined Contributions (INDCs) submitted to the UNFCCC, up to March 2016. A total of 271 national strategies were screened for terminology around international trade, consumption, and exports to identify links between deforestation and commodity consumption. We then examined in further detail the national strategies developed by eight case countries sustaining both substantial deforestation rates and export production of agricultural forest-risk commodities: Argentina, Bolivia, Brazil, Cameroon, Indonesia, Malaysia, Papua New Guinea and Paraguay. In addition to these countries' INDCs and NBSAPs, we also analysed the national strategies developed in the context of major REDD+ initiatives, the UN-REDD programme and the World Bank's Forest Carbon Partnership Facility (FCPF).

2. Background: demand-side measures addressing commodity-driven deforestation

Several private-sector and civil-society initiatives have been developed to address the effect of agricultural commodity consumption on deforestation. Such demand-side measures can take the form of certification schemes and roundtables for sustainable production, of moratoria or legislation to restrict market access for products incurring deforestation (Walker et al., 2013), or of industry commitments to deforestation-free supply chains (Forest Trends, 2016), see Table 1.

Roundtable and/or certification schemes are voluntary governance mechanisms that are jointly developed by producers, members of the industry and civil society. Major commodity roundtables include the Roundtable on Sustainable Palm Oil (RSPO), the Roundtable on Responsible Soy (RTRS), the sugarcane roundtable (BonSucro), and the Roundtable on Sustainable Biofuels (Walker et al., 2013). Certification is a popular and widespread measure to facilitate consumer demands for sustainable commodities, and is also commonly used to show companies' adherence to *zero-deforestation pledges* (Forest Trends, 2015). A point of criticism is that it focuses on 'cleaning up' one product and its supply chain, which does not account for the fact that deforestation drivers are interlinked at landscape level – in the worst case this can lead to simply 'shifting the blame' to other crops, rather than a real reduction in deforestation rates (Mithofer et al., 2017). Another problem is related to the definitions, criteria and indicators used by some certification schemes, which not necessarily ensure an effective conservation of ecosystems (Neff and Linhares-Juvenal 2017).

Moratoria in this context are agreements between industry players,

¹ Argentina, Bolivia, Brazil, Indonesia, Malaysia, Paraguay and Papua New Guinea.

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