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## Environmentally and socially responsible global production and trade of timber and tree crop commodities: certification as a transient issue-attention cycle response to ecological and social issues

### Introduction

The Sustainable Development Goal (SDG) number 12 of Agenda 2030 states that the world ‘requires a strong national framework for sustainable consumption and production, integrated into national and sectoral plans, sustainable business practices and consumer behaviour’.<sup>1</sup> This goal interconnects with other goals aimed at improving ecological infrastructure (SDG 13, 14, 15), changing institutions, increasing transparency, reducing conflicts, and ensuring sufficient food, water and energy for global society (SDG 2, 6, 7). In essence, these goals underline a shared belief that a shift towards more effectively managed biodiversity conservation and ecosystem services (ES) is indispensable.

This Special Issue in *International Journal of Biodiversity Science, Ecosystem Services & Management* aims to contribute to the emerging science on how to maintain and rehabilitate biodiversity and ES effectively in the tropics where agricultural expansion has shaped the landscapes. Food production as a provisioning ES dominates direct economic value and employment in roughly half the world.<sup>2</sup> Its sustainability, or lack thereof, depends on the way the trade-offs between human activities and ES, beyond the provision of food, are balanced and managed locally (e.g. impacts on water and soil quality and availability) and globally (e.g. impacts on macroclimate and global biodiversity) (Namirembe et al. 2018). Economic and social concerns closely interact with the ecological aspects of sustainable agriculture (Bernard et al. 2014) and reliance on child labour clashes with universal rights to education (Berlan 2004). The viability of rural communities has emerged as an issue during rapid urbanization with hopes that responsible consumption can reduce risks on both sides of the *desa-kota* (or rural–urban) continuum (Pelling and Mustafa 2010).

In response to concerns over the environmental and social consequences of resource use and value chains in agricultural sectors, and dissatisfaction with public regulation, initiatives have been developed to create markets for goods that are sustainably produced under environmentally and socially responsible conditions (Potts et al. 2014). Different agencies in the organic and ecological movements have created a range of different standards that are used to certify and eventually label products. As

the standards and their schemes are progressing, standards and certification systems demonstrate that environmental and social impact is not only considered the sole responsibility of producers and producing countries, but is also part of the responsibilities of processor and consumer countries (Kogg and Mont 2012).

Certification is based on adherence to products and process standards. It allows end-product consumers to act through their consumption choices on concerns they have about product quality, the quality of the production process and their footprint, and shared responsibility for expansion and mainstream development. A rich body of literature has already discussed many theoretical benefits and localized or partial impacts of certification (Cashore et al. 2005; Potts et al. 2014). However, the longer-term social and environmental impacts of certification are ambiguous (Steering Committee of the State-of-Knowledge Assessment of Standards and Certification 2012; DeFries et al. 2017; Ruben 2017). Evaluation of certification impacts might depend on the scope (objectives) and scale (system boundaries) of the assessment. The debate on whether certification works has to look at the perspectives of 1) consumers choosing to buy (or not) certified products; 2) farmers deciding to participate (or not) in certification schemes; 3) intermediaries integrating certification into their business model, which also includes choices about multiple certification standards; 4) nation states deciding (or not) to take a stance on a peculiarly market-driven process, given their overarching national economic and sovereignty perspective; and 5) global citizens making choices about how they want to act on the SDG portfolio as a whole.

In addition, more attention needs to be paid in the field of sustainability standards and certifications to a broader perspective on when, where and how standards and certifications have emerged in response to public debate on social, economic and environmental issues. Questions can range from ‘when and where did public pressures intensify and diminish the emergence of certification systems?’ to ‘do voluntary, self-regulated, sustainable value chains interact positively with formal policy and regulations?’ Contextually, the knowledge of standards and certifications addressing such questions differs among commodities and markets (Rivera et al. 2009; Manning et al. 2012; Reinecke et al. 2012). For major globally traded (sub-) tropical commodities, adequate

information comparing the performances of such standards is lacking. These commodities include cacao, coffee, rubber and palm oil, that is, export-oriented tree crops, and tropical timber.

The scope of this Special Issue is to summarize the findings of a global comparative study aimed at understanding the potential role that certification as a societal and economic process plays in the way value chains evolve, responding to social, environmental and economic concerns. New insights have emerged in three dimensions: 1) the stages in a political process where agents or institutions initiated standards and certification in response to increased public awareness of emerging issues; 2) the range of commodity production systems within which standards and certification differentiate; and 3) power interactions among agents and institutions along a value chain that provide multiple feedback options for environmental policies, including, but not restricted to, certification.

As part of the CGIAR Research Program on forests, trees and agroforestry (FTA), we initiated a research program that would take one or two steps back (or 'zoom out') from the details of certification schemes as such and ask the broader questions of when, where and how certification responses arise to what types of issues, by whom they are initiated and what broader consequences they have. From our initial understanding of the timeline and processes involved, we framed a set of propositions, introduced by Mithöfer et al. (2017c), and then explored a set of commodity case studies (tropical timber, rubber, oil palm, cacao, coffee). As a sampling frame, we used a portfolio of Sentinel Landscapes (SLs) used across the three tropical continents. Dewi et al. (2017) analysed the representativeness (and remaining biases) of this portfolio with respect to the issues of forest, human population density, deforestation rates and roles of the set of tropical tree crops studied here. The overall approach of the research project reported in this Special Issue is outlined below.

- (a) The first step was an extended *brainstorm* by the core project team and key external resource persons to develop ideas on the contrasts between commodities, ecologies, histories, implications for smallholder decision-making on land use and adoption of production of certain commodities, regulatory approaches and value chains into the present 'stage 1' conceptual framework and to commission reviews of praxis and theory.
- (b) The second step was an *international symposium* where the concepts were presented and discussed.
- (c) The third step was the elaboration of the present conceptual framework and its application by development of a joint set of questions to be

applied across commodities and sites. By means of expert consultations and the use of secondary data, other sources of information were collected on the main issues, as outlined above, as well as views on the propositions put forward.

- (d) The fourth step was *fact-finding on the sites* within the FTA SLs portfolio (Dewi et al. 2017) to test applicability of the framework and the suggested methods.
- (e) The fifth step was the *synthesis of results* in the commodity papers (various contributions in this issue).
- (f) Finally, comparisons were made across the commodities with reflections on the propositions.

## Topics in the Special Issue

This Special Issue is a compilation of several articles.

Mithöfer et al. (2017c) introduces a conceptual framework built on three strands of literature: 1) the issue-attention cycle that describes stages in the public policy response to newly emerging issues (Tomich et al. 2004; van Noordwijk 2017); 2) management swing potential (Davis et al. 2013) as a quantification of the difference between best and worst-case production systems, evaluated from the perspective of one or more ES or social concerns; and 3) governance of global value chains as a concept that interacts with systems of sustainability initiatives and standards (Gereffi et al. 2005).

Based on a first comparison between cacao, coffee, rubber, oil palm and tropical timber, four formal propositions are formulated: 1) a strong and prominent issue-attention cycle on ES threats and social problems drives sustainability concerns and actions; 2) dynamics within determinants of global value chain governance (positively and negatively) interact with the emergence of sustainability standards, initiatives and certification; 3) pressures from the public evoke sustainability initiatives and shift standards systems; 4) sustainability initiatives, standard settings and certification only provide partial solutions for ES and social problems.

Dewi et al. (2017) discusses pantropical data on the relations between people, forests and tree crops and uses these data to test the validity of the FTA tropical landscapes portfolio. The FTA portfolio provides a 5% sample of area, 8% of people, 9% of tree cover and 10–12% of potential tree crop presence across the tropics. The conceptual 'forest transition' model can be operationalized within ecological zones (with the exception of the very dry zone) and help to understand the way replacement of forest by tree crops contributes to economic development but has negative impacts on biodiversity and other ES beyond 'provisioning'.

Mithöfer et al. (2017b) discusses the micro-, meso- and macro-scale factors in sustainability standards, policies and development projects addressing

sustainability concerns. As the global cacao sector faces serious threats, including declining productivity in some major producing countries, use of child labour in production, persistent poverty among cacao growers and deforestation linked to expanding cacao area, a range of sustainability standards and associated certification responses have emerged. Empirical results are discussed from ongoing studies in Sulawesi in Indonesia, Ucayali in Peru and the Centre Region of Cameroon, representing different stages of forest transition and cacao expansion. Existing sustainability standards focus on on-site aspects but debate is shifting to the consequences elsewhere of on-site productivity gaps.

Mithöfer et al. (2017a) assesses the issue-attention cycle of coffee production in India and Nicaragua, producer concerns and responses to these concerns. Voluntary certification systems in coffee are relatively old and well established. Empirical results on the potential impact of sustainability standards are analyzed by a systematic comparison of sustainability standards to the socioeconomic, environmental and policy contexts in Western Ghats in India and Matagalpa in Nicaragua. The sustainability concerns of local stakeholders do not necessarily match those expressed at global level, and are reflected in their certification schemes. Local context shapes potential impact pathways of sustainability standards. Historical path-dependency deserves wider attention in a national and international context. Building on its strength of being an internationally recognized biodiversity hotspot, Indian stakeholders further explore certification of geographic origin, while Nicaraguans build on the strength of their small-holder sectors by establishing the 'small producer' symbol of certification.

Bray and Neilson (2017) assess the impacts of certification on producers' livelihoods assets. Impacts on certification are non-conclusive. For human capital, a positive correlation between certification and education exists but causation is precarious. Social capital is generally enhanced with the caution of unequal access to certification. For both physical and natural capitals, small-scale impacts are observable, however, targeting larger investment public infrastructure and landscape-scale conservation impacts are beyond certification schemes. These might cover more intensive and integrated collaboration with other public and private sector agents under various development programmes. Financial capital of producers is likely to increase owing to other factors, such as improved yields, increased resilience and enhanced access to credit, rather than directly from marginal price premiums.

Kennedy et al. (2017) consider the trends and challenges in the emergence of natural rubber eco-certification, using empirical studies in Jambi in

Indonesia, Xishuangbanna in China and Kerala in India. The expansion and intensification of natural rubber cultivation in recent decades has been associated with widespread forest conversion, habitat and biodiversity loss, increased livelihoods' vulnerabilities, and in some cases, dispossession of land. While these issues have attracted considerable attention from the scientific and academic communities, public awareness – particularly in terms of consumer demand for standards and certification – has been slow to develop in comparison to other agro-commodity crops, such as timber, coffee and oil palm.

Savilaakso et al. (2017) summarize findings on tropical timber and the drive towards sustainability. Timber certification came into existence after the Rio conference in 1992 as a response to concerns of international nongovernmental organizations on deforestation and forest degradation. The failure to reach an international treaty on forest management and conservation led to discussions on private and voluntary schemes of certification, eventually resulting in the creation of the Forest Stewardship Council (FSC) certification scheme in 1994. Issues related to social welfare and economic development became defining issues in forest governance, besides deforestation and forest degradation. Voluntary instruments and public governance interact in multiple ways, some complementary, some involving substitution, others antagonistic. Empirical findings from Indonesia, Cameroon and Peru show how governance regimes have evolved in response to environmental and social issues. Certification influences all stages of the policy process: agenda setting, negotiation, implementation, monitoring and enforcement. It has introduced new concepts and practices that correspond to the social and environmental issues faced by countries over the years and FSC requirements complement and strengthen governmental regulations regarding several environmental and social issues, such as biodiversity conservation and community relations.

Krause and Ness (2017) applied the framework to an emerging commodity, *guayusa* (*Ilex guayusa*), as an additional native commodity to diversify Amazonian agroforestry systems. They found that commercializing guayusa production by indigenous farmers in the Ecuadorian Amazon had not produced revenues that overtook those from other cash crops. The locally tailored approach of guayusa commercialization with a monopsony and vertically integrated value chain supports the continuation of traditional agroforestry practices. However, the scheme had not fully responded to environmental, social and economic issues for local communities and for ES protection in general.

Published elsewhere, van Noordwijk et al. (2017b) reviewed the issues of oil palm expansion on tropical forest margins, with lessons in the public-private



governance of global value chains. Oil palm expansion into tropical forest margins has captured headlines on a range of ecological and social issues, leading to threats of consumer boycotts and multiple differentiation and market segmentation responses using a range of certification standards. Based on case studies in Indonesia, Cameroon and Peru, it becomes clear that multiple phases of the issue-attention cycle interact, with negotiated standards rebalancing between environmental, social and accountability issues. Active involvement of the two main producing countries has created expectations that certification is not only shifting blame but trickling down to enforceable good-practice standards. The palm oil debate balances public self-regulation and formal governance roles and responsibilities with initiatives by the private sector and civil society groups, where the moral high ground of norms interacts with rule- and incentive-based instruments.

Also elsewhere, Leimona et al. (2014) consider the way all the five commodities described so far interact in Indonesia's efforts to 'green' agriculture by closing the gap between aspirations and application. Indonesia's agricultural policies have recognized the environmental, social and economic imperatives of green agriculture and a significant portion of the national strategy for green economic growth aims to reduce agriculture's environmental footprint. In reality, however, environmental challenges remain in four areas: 1) continued expansion of agricultural land and conversion of forests leading to ES and biodiversity loss; 2) organic and inorganic pollution leading to water and soil contamination; 3) uncontrolled use of water resources; and 4) mismanagement of soil nutrients and poor site selection, including slash-and-burn, leading to soil and land degradation. A number of national strategies have evolved but they include inconsistencies and unresolved trade-offs.

Amaruzaman et al. (2017) provides further detail about the multiple discourses on the green agriculture performance gap in Indonesia, using the results of a Q-methodology study. Among experts, three main groups were characterized as 1) Endorsers of regulations; 2) Providers of access to capital, technology and knowledge; and 3) Proponents of cost internalization. Groups 1 and 3 share the strong opinion that non-synchronized and inconsistent land-use planning between national and local governments is a major contributor to the gap. Meanwhile, Groups 2 and 3 perceive that comprehension of ES from the agricultural sector has not been sufficient to promote green agriculture development. By simultaneously addressing the gaps at each level and understanding how each factor contributes to the gaps, implementation plans for greening agriculture may obtain the broad support needed.

## Insight and future research

Reflecting on all these studies, we propose that certification is to be viewed as a transient issue-attention cycle phenomenon. From the perspective of the issue-attention cycle, progress on resolving sustainability concerns, mostly advocated by civil society organizations, is not a linear and smooth process. Initial responses from private enterprises and public officials to emerging issues tend to focus on denial and are sometimes emotionally loaded. This situation opens an opportunity for subsequent fact-finding that can lead to a more nuanced perspective on the multiple causes and variable extent of the environmental, social and economic issues, and provide space for people along the value chains to seek at least partial solutions.

Comparison across the six commodities reveals differences in 'management swing potential' that are not directly related with the emergence of certification. The largest ecological swing potential is observed in the various ways of producing rubber (Kennedy et al. 2017) and, to some extent, of cocoa (Mithöfer et al. 2017b) and coffee (Mithöfer et al. 2017a). The impact gaps for biodiversity conservation and ES between best- (i.e. 'jungle' rubber system) and worst- (i.e. rubber monoculture) case production systems are huge. Yet, interest in certification of rubber is low compared to coffee and cocoa. Thus, the emergence of certification may surpass the ecological swing potential. The likelihoods of certain commodities trigger consumer attention and evoke certification is that the commodities are being physically ingested thus have more immediate health impacts on consumers (Van den Beemt 2011; Alvarez and Hagen 2012).

Despite current efforts in developing contextual and commodity-specific sustainability standards and certification, these have not always corresponded to more sustainable impacts on the ground. Apparently, public debates and pressures evoking standards and certification are path dependent and may be only partly based on scientific information. Thus, it remains elusive to what degree certification is about 'shifting the blame' to non-certified producers or whether (possibly on a different, longer time frame) it also contributes to a reduction of the issue that gave rise to the public debate in the first place.

As consumer concerns are broadening to include how commodities are produced and to what extent their global footprints are shared responsibly, the effectiveness and inter-dependence of voluntary standards and certification remain an open question (van Noordwijk and Leimona 2017). The distinction between 'certified' (i.e. procedural aspects of certification) and 'certifiable' (i.e. commodity production systems that have addressed underlying ecological, social and economic concerns) may help to understand the political dimensions of the way the issues evolve. The role of the public sector has to be strengthened and self-regulatory private initiatives

have to be synergized with local and national government initiatives. Finally, debates on 'zero-deforestation claims' as branding to attract consumers (van Noordwijk et al. 2017a) need to be considered because the definition of 'forest' reveals that agriculture and forest are mutually exclusive categories, while on the other hand, biodiversity conservation and ES are provided by 'non-forest' land-use systems, such as agroforestry.

## Notes

1. <https://sustainabledevelopment.un.org/sdg12>.
2. <https://data.worldbank.org/indicator/SL.AGR.EMPL.ZS>.

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