



Governing sustainable palm oil supply: Disconnects, complementarities, and antagonisms between state regulations and private standards

Pablo Pacheco 

World Wildlife Fund (WWF), Washington, DC, USA

Center for International Forestry Research (CIFOR), Bogor, Indonesia

George Schoneveld

Center for International Forestry Research (CIFOR), Nairobi, Kenya

Ahmad Dermawan, Heru Komarudin

Center for International Forestry Research (CIFOR), Bogor, Indonesia

Marcel Djama

CIRAD Agricultural Research for Development, Universiti Putra Malaysia, Kuala Lumpur, Malaysia

Abstract

The global palm oil value chain has grown in complexity; stakeholder relationships and linkages are increasingly shaped by new public and private standards that aim to ameliorate social and environmental costs while harnessing economic gains. Regulatory initiatives in the emerging policy regime complex struggle to resolve sector-wide structural performance issues: pervasive land conflicts, yield differences between companies and smallholders, and carbon emissions arising from deforestation and peatland conversion. Identifying opportunities for more effective governance of the palm oil value chain and supply landscapes, this paper explores disconnects, complementarities, and antagonisms between public regulations and private standards, looking at the global, national, and subnational policy domains shaping chain actors' conduct. Greater complementarities have emerged among transnational instruments, but state regulation disconnects persist and antagonisms prevail between national state regulations and transnational private standards. Emerging experimental approaches, particularly at subnational level, aim to improve coordination to both enhance complementarities and resolve disconnects.

Keywords: palm oil, regime complexity, sustainability, transnational governance, value chain.

1. Introduction

Effectively regulating oil palm expansion to mitigate negative environmental impacts while reducing the yield and return differences between large-scale plantations and smallholder oil palm growers has become one of the tropics' most pressing sustainability challenges (Sayer *et al.* 2012; Rival & Levang 2014). This is a particular problem in Malaysia and Indonesia, the global market's primary suppliers of palm oil (Food and Agriculture Organization of the United Nations [FAO] 2016). Improving sector regulation involves overcoming a critical governance dilemma: palm oil development results in contradictory outcomes. The sector contributes fiscal and foreign exchange earnings to producer countries, employs large numbers of rural workers, and supports the livelihoods of a growing number of smallholders, who increasingly embrace this crop as their main income source (Edwards 2015; Pacheco *et al.* 2017a). In contrast, oil palm expansion generates significant carbon emissions, particularly when planted in peatlands (Miettinen *et al.* 2013), and contributes to biodiversity loss when production involves

Correspondence: Pablo Pacheco, World Wildlife Fund (WWF), 1250 24th St NW, Washington, DC 20037, USA.

Email: pablo.pacheco@wwf.org

Accepted for publication 7 August 2018.

© 2018 The Authors. Regulation & Governance Published by John Wiley & Sons Australia, Ltd

This is an open access article under the terms of the Creative Commons Attribution License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

the conversion of primary forests (Koh & Wilcove 2008; Savilaakso *et al.* 2014; Vijay *et al.* 2016), thereby undermining national commitments to biodiversity protection and climate change mitigation.

There is increasing global demand for palm oil because of its fungibility. It is widely used in the food, chemical, pharmaceutical, and cosmetic industries. Its superior productivity in terms of oil yield per hectare means that it has long been the most cost-competitive oil seed on the global market (Rival & Levang 2014). Because global demand and prominent Northern consumer goods manufacturers have fueled the palm oil sector's expansion, it has become an easy target for consumer and civil society activism. As a result of weak regulatory enforcement capacity in producer countries, such pressures have resulted in international state and non-state regulatory initiatives seeking to address environmental concerns through other avenues, from multistakeholder certification initiatives and private sustainability commitments, to consumer country sustainability incentives (Cramb & McCarthy 2016). As regulatory instruments are rarely developed in unison, the result is regime complexity, characterized by “parallel, overlapping and competing initiatives [that] are not combined into a single hierarchical system” (Overdevest & Zeitlin 2012:2).

In the palm oil sector, the state regulations and private standards that constitute this policy regime complex ultimately aim to address three of the sector's major unresolved performance gaps: (i) conflicts over land and benefit flows, linked to industrial plantation expansion; (ii) the large yield gap between smallholders and company plantations; and (iii) detrimental environmental impacts (Cramb & McCarthy 2016; Pacheco *et al.* 2017a). Conflicting public and private sector perspectives and approaches to address these gaps – reflecting equally divergent development and sustainability priorities – have frustrated efforts to develop a coherent governance system.

Bridging these performance gaps in ways that resonate with all stakeholders and contribute to regulatory cohesion is key. Three interrelated pathways to reversing sector performance issues have been put forward by industry stakeholders and experts: (i) harmonizing public and private standards in a more targeted, regulatory manner (Lambin *et al.* 2014; Pacheco *et al.* 2018); (ii) improving business models to enhance social inclusion (Smit 2014; Jelsma *et al.* 2017); and (iii) orchestrating synergies by undertaking a jurisdictional approach (Paoli *et al.* 2016; Wolosin 2016). These approaches, which share attributes characteristic of experimentalism as defined by Overdevest and Zeitlin (2012) and Zeitlin (2015), show the potential to foster complementarities and reduce tensions between actors, yet their effectiveness is still to be proven at scale.

This paper is guided by three research questions: (i) What are the elements that characterize the policy regime complex governing the palm oil sector?; (ii) What are the main interactions – in terms of disconnects, complementarities, and antagonisms between public regulations and private standards – that affect the performance of the palm oil sector?; and (iii) What is the potential of the three pathways identified to bridge sector performance gaps and enhance regulatory cohesion and legitimacy? To answer these questions, we critically examine the interactions between global regulatory initiatives and public regulations that shape the global palm oil value chain, while focusing on the specific case of Indonesia, the world's largest oil palm producer, where a comparatively dynamic context of policy innovation has emerged.

This paper has an exploratory objective and draws on different methods and sources of information. It is embedded in a wider research initiative implemented by the Center for International Forestry Research (CIFOR), which aims to better understand emerging governance arrangements in the palm oil sector and their socio-environmental implications. First, this paper draws on a review of the large body of existing literature analyzing palm oil sector performance and the evolving governance arrangements that aim to regulate that performance. Second, it is informed by a review of the most relevant recent laws and regulations pertinent to the Indonesian palm oil sector (see Appendix I), as well as the private standards and initiatives that influence behavior in the sector (see Appendix II). Third, our analysis draws on insights from semi-structured interviews carried out with 25 key informants between 2016 and early 2017, which help us to understand politico-institutional dynamics within the Indonesian palm oil sector. These key informants were affiliated to government agencies (such as the Ministry of Agriculture, the coordinating Ministry of Economic Affairs, the National Land Agency, the Ministry of Environment and Forestry, and the Ministry of Finance), oil palm associations (such as GAPKI, the Indonesian Palm Oil Association), individual companies, sustainable standard bodies, and non-governmental organizations (NGOs). The interviews were complemented with findings from a study conducted at subnational level in the provinces of Central Kalimantan, West Kalimantan, and South Sumatra to understand public and private initiatives (and their interactions) to support sustainable palm oil (Luttrell *et al.* 2018). Finally, this paper draws on

the authors' knowledge, based on their participation in sustainable palm oil dialogs at national and international levels over the last four years. It emphasizes the road map process for sustainable palm oil in the context of the Indonesian Palm Oil Platform (InPOP), the strengthening of Indonesian Sustainable Palm Oil (ISPO) standards, and European Union (EU) debates on sustainable palm oil. Guided by our analytical framework, this paper pulls together these different sources of information and perspectives to answer our three overarching research questions.

The paper consists of eight sections, including this introduction. Section 2 outlines the conceptual underpinnings that frame the paper's main analysis and arguments. Section 3 provides a background to palm oil sector characteristics and performance gaps, with emphasis on Malaysia and Indonesia. Section 4 describes the evolving transnational palm oil governance regime. Section 5 analyzes disconnects, complementarities, and antagonisms between state policies and regulations and private standards, with emphasis on Indonesia. Section 6 introduces actions undertaken to tackle governance disconnects and institutional antagonisms, in order to enhance the sector's sustainability. Section 7 discusses these approaches, in the context of a more integrated governance perspective. Finally, Section 8 concludes with a reflection on findings.

2. Analytical framework

The transnational regime complex concept provides a foundation for our analytical framework, guiding our analysis on public and private policies and regulations, and the interactions among them, from global to subnational level. In this analysis, we emphasize issues pertinent to upstream production processes, where much of the chain's sustainability impacts are concentrated. Likewise, performance issues and vertical interactions among other nodes in the chain are considered where relevant. The transnational regime complex concept is grounded in diverse disciplinary perspectives, including multi-level and transnational governance (Eberlein *et al.* 2014), interactive governance (Torfing *et al.* 2012), and ensemble regulation (Perez 2011). Transnational regime complexes are also increasingly viewed in the context of experimentalist governance (Sabel & Zeitlin 2011).

Perspectives on multi-level governance stress how rules and institutions originate at multiple levels and are shaped by complex interactions between state, private, and civil society actors. In the context of globalization and privatization of public regulation this increasingly results in lower tier state actors becoming directly connected to, and embedded in, global networks and processes (Mwangi & Wardell 2012). These perspectives often focus on the legitimacy of multi-level regulatory processes and power dynamics among different tiers of government, with respect to resolving diverse societal and environmental challenges (Adger *et al.* 2005; Ravikumar *et al.* 2015). Interactive governance, in turn, emphasizes the interactions between state and non-state actors in decision-making, and the influence different types of actors wield in shaping regulatory dynamics horizontally, vertically, and diagonally (Torfing *et al.* 2012).

When examining regulatory processes at a global level, the primacy of transnational processes, especially with respect to the dissemination of rules promulgated by commodity-specific sustainability standards, is typically the focus of analysis (Schmitz-Hoffmann *et al.* 2014). This has shown the leverage of non-state actors vis-à-vis states, and how they engender innovative solutions around the management of negative social and environmental impacts, in the context of production linked to transboundary trade and global markets (Perez 2013). However, such literature points to weak uptake of multistakeholder regulatory instruments and the comparatively weak legitimacy of international private standards vis-à-vis national standards in producing countries (Hospes 2014; Wijaya & Glasbergen 2016). The latter emerged because of a perceived lack of legitimacy where global standards were concerned; for example, in the context of their limited respect for national regulatory sovereignty and weak alignment with national development priorities (Schouten & Bitzer 2015), or moral arguments linked to the exclusion of smallholder farmers without the capacity to comply (Brandi 2017).

Private sector actors, in their attempts to regulate the sustainability of supply, establish different interactions with state regulations and initiatives, as well as civil society organizations. These interactions can result in competing policy processes between market-oriented transnational standards (which typically reflect Western social and environmental norms) and national mandatory regulations (which respond to territorial realities and interests in specific national or subnational jurisdictions) (Hospes 2014). Conversely, these same interactions can yield productive new partnerships between public, private, and civil society actors to formulate negotiated sustainability

targets, and result in upward convergence of diverse public and private regulatory instruments (Lemos & Agrawal 2006). Such interactions and partnerships can take place across multiple levels and are increasingly embedded in complex global networks where stakeholders can exert power in different ways; not only through their position in the value chain, but also through their embeddedness in horizontal networks that transcend the value chain (Oosterveer 2015).

Lambin *et al.* (2014) argue that public and private rules and regulations can be complementary to one another, but can also result in substitution or antagonism. They are complementary when their operational mechanisms reinforce each other and antagonistic when they undermine each other. Likewise, private regulations can substitute state regulations when similar objectives are pursued through different mechanisms. This can result in disconnects; for example, when regulations pursue common objectives but fail to establish productive interactions.

In short, literature pertinent to international regime complexity highlights how regulatory systems can involve rules and institutions that emerge and play out across different scales, but also across different domains (e.g. between state and non-state actors, such as private sector and civil society organizations). This ensemble of overlapping and non-hierarchical rules and institutions constitutes a regime complex, which is increasingly transnational in its nature, scope, and response to international public good problems (Alter & Meunier 2009; Keohane & Victor 2011; Orsini *et al.* 2013).

Regime complexity can have both positive and negative effects: it results in strategic inconsistency when the proliferation of rules enables some to be undermined; yet equally, it fosters competition among private and public regulatory actors, which may encourage experimentation, learning, and improved accountability (Alter & Meunier 2009). Productive interactions among regulatory initiatives and institutions in regime complexes are responsive to orchestration (Abbott & Snidal 2009; Overdevest & Zeitlin 2012), but only if negative and positive interactions, and their outcomes, are fully understood. The concept of ensemble regulatory structures, in which legitimacy is intimately linked to effectiveness, as posited by Perez (2011), is especially relevant in this respect. Such structures can emerge in transnational regime complexes when regulatory disconnects are addressed, complementarities are effectively exploited, and antagonisms are resolved.

Yet to be effective, the transnational regime complex requires the capacity to address obstacles to strong sustainability performance in the palm oil sector. These performance issues, as mentioned in the introduction, include: (i) conflicts over land and benefit flows, linked to industrial plantation expansion; (ii) yield gaps between smallholders and industrial plantations; and (iii) environmental impacts, mainly with respect to Greenhouse Gas (GHG) emissions. Thus, the dynamics within this transnational regime complex mirror the competing interests and divergent perspectives of the different stakeholders in the palm oil sector at different levels. As such, any improvement in the transnational regime complex will likely translate into positive change when dealing with social conflict, closing yields gaps, and reducing negative environmental impacts.

The evolving institutional context and need to overcome performance gaps have created scope for some experimentalist governance approaches to emerge. Experimentalist governance refers to initiatives that embrace more flexible problem-solving arrangements framed in an open-ended way, the outcomes of which often cannot be defined *ex ante* (Sabel & Zeitlin 2011). The solutions are often as diverse as the situations (Zeitlin 2015) and are subject to periodic revision, in light of the knowledge and learning generated by involved stakeholders (De Búrca *et al.* 2014). Recently emerging initiatives, involving public and private actors backing sustainable palm oil supply at subnational level, explicitly address negative social and environmental production effects by supporting the uptake and upscaling of more sustainable production standards. We argue that such approaches constitute a form of experimentalist governance.

3. Rapid growth in the palm oil sector, but with unresolved performance issues

Oil palm is one of the most profitable tree crops. In recent decades, it has experienced a high rate of expansion in the humid tropics, in terms of both output and area. However, the social and environmental impacts of this expansion make palm oil one of the most controversial commodities traded globally; lands suitable for oil palm development tend to overlap with the worlds' most biodiverse and carbon-rich forests (Pirker & Mosnier 2015). Oil palm plantations cover approximately 20.2 million hectares worldwide, with an estimated total production of

64.5 million tons in 2016 (IndexMundi 2016). Approximately 65 percent of the total planted area is located in Malaysia and Indonesia. This area accounts for 83 percent of total global palm oil production (FAO 2016). With increasing demand for sustainability (particularly from the European market) and with rapid demand for growth in emerging markets with fewer sustainability requirements (such as India, Pakistan, and China), the sector faces a risk of bifurcating into “green” and “brown” supply chains (Gnych *et al.* 2015; Nepstad *et al.* 2017).

A handful of corporate groups control processing and the crude palm oil trade (i.e. Wilmar, Musim Mas, Golden Agri-Resources, Cargill, and Asian Agri in Indonesia; and Sime Darby and Felda in Malaysia). These seven palm oil groups control 60 percent of the two countries’ total supply of fresh fruit bunches, but their market share in processing and trade is estimated at almost 90 percent (AgroIndonesia 2015). The groups also own refineries in China, Europe, and India (Wilmar 2016). They supply large consumer goods manufacturers and retailers, producing and marketing food products, chemicals, pharmaceuticals, and cosmetics. Crude palm oil (CPO) is also increasingly sold to biodiesel refineries; much CPO and kernel oil processing takes place in Indonesia, Malaysia, and Singapore. Secondary and tertiary manufacturing occurs in Europe, the United States (US), India, and China, from where consumer goods containing palm oil derivatives are shipped to global consumers. Most palm oil imported by India, China, and other large developing countries is used by the domestic food industry (Fan & Eskin 2012; Arora *et al.* 2017), while approximately 45 percent of European palm oil imports in 2014 targeted the biodiesel market (Transport & Environment 2016). The government-supported biodiesel market in producer countries is also becoming increasingly important (United States Department of Agriculture [USDA] 2016).

Large oil palm companies rarely rely on their plantations alone, thus also source from external parties. These include contracted outgrowers, who typically have exclusive offtake arrangements with companies in return for input and technical support, and third parties, such as independent farmers not under formal contract (Suharno *et al.* 2016). Most external parties are smallholders. There are different definitions of smallholders, although the Roundtable for Sustainable Palm Oil (RSPO) definition is commonly accepted and includes those farmers who typically grow oil palm alongside subsistence crops, rely on family labor, and have an area of planted oil palm of less than 50 hectares (see Jelsma *et al.* 2017). According to official estimates, smallholders account for approximately 41 percent of total production in Indonesia in 2014, and 13 percent in Malaysia in 2015 (Directorate General of Estates 2014; Malaysian Palm Oil Board [MPOB] 2015); these figures have increased steadily since the early 2000 (Pacheco *et al.* 2017a). Studies have shown that smallholders are a highly heterogeneous population. Their diversity is reflected in differences in landholdings, livelihood strategies, productivity and sustainability, and legality challenges (Jelsma & Schoneveld 2016). In most situations, smallholders develop their plantations in the interstices between larger oil palm concessions, often encroaching onto state forestlands, meaning that they cannot formalize their tenure rights (Schoneveld *et al.* 2017). While analysis of smallholder attributes is outside the scope of this study and has been addressed elsewhere (see Baudoin *et al.* 2015; Glenday & Paoli 2015; Jelsma *et al.* 2017), such attributes demand particular attention in the context of regime complexity. Oil palm smallholders increasingly face different (and sometimes conflicting) regulatory requirements that many are unable to meet, as a result of resource, capacity, and/or legality constraints (Brandi *et al.* 2015; Schoneveld *et al.* 2017). Because smallholders experience different barriers to compliance, more actor-disaggregated approaches to smallholder compliance challenges are needed (Jelsma *et al.* 2017).

As previously mentioned, the sector faces three major performance issues that threaten to undermine long-term sustainability. The first pertains to persistent land conflicts between companies and indigenous, often politically marginalized populations that typically lack secure tenure rights (Colchester & Chao 2013; Abram *et al.* 2017). As more independent smallholders (who are rarely autochthonous and often rely on informal land transactions and illegal encroachment) enter the sector, land conflicts are increasingly spreading to the informal oil palm sector (Potter 2008, 2012). The second issue relates to the yield difference between smallholders and industrial plantations. Smallholder yields are between 6 and 40 percent lower than best practice reference yields, with commercial operations typically exceeding smallholder yields by 46–116 percent (Molenaar *et al.* 2013). This can largely be ascribed to smallholders’ failure to adopt best management practices and the widespread use of substandard planting material (Molenaar *et al.* 2013; Jelsma *et al.* 2017). Increasing smallholder yields will not only contribute to sector competitiveness, it will also reduce land pressure and enhance rural incomes (Jelsma & Schoneveld 2016). The third issue relates to the large carbon debt resulting from oil palm expansion into forestlands

and peatlands. Carbon debts are especially high on converted peatlands, because of peat oxidation and land subsidence (Khasanah *et al.* 2012). Paradoxically, many companies prefer to establish their oil palm plantations in peatlands and forestland because of the reduced likelihood of land conflicts and the potential to cover plantation establishment costs by initial timber extraction (Goldstein 2016). One associated environmental impact of oil palm expansion into peatlands has been that of prolific fires, as a result of the 2015 *El Niño* effect and accompanying haze, which led to an environmental crisis (World Bank 2015; Tacconi 2016; Purnomo *et al.* 2018).

Two out of the three main performance issues are domestic in nature (social conflicts around land access and development, and yield differences with effects on benefit sharing), while the third (carbon emissions) is more transnational because of the global impact on climate change. Regardless of whether impacts are domestic or global, these three issues now increasingly feature on the transnational sustainability agenda. International stakeholders are concerned not only by the climate-related environmental impacts of production, but also local tenure rights, smallholder inclusion, and decent labor conditions (Thorlakson *et al.* 2018). Emerging perspectives suggest that these performance issues should involve global responsibility, as they relate not only to producer countries, but also constitute externalities from consumers and/or investors driving the expansion of commodities in production landscapes (Sachs *et al.* 2017).

4. An evolving transnational governance regime for palm oil supply

Regime complexity is typically manifested by: wide-ranging policies and regulations, developed and implemented by state and non-state actors (or a combination of both); differences in scalar focus (from global to the lowest jurisdictional level); and differences in the types of environmental, social, or economic issues prioritized (Gluck 2010; Margulis 2013). Figure 1, building on the different dimensions of our analytical framework, offers a stylized depiction of the transnational regime complex governing the global palm oil sector. This involves a combination of state regulations, emanating from diverse policy domains (i.e. finance, trade, fiscal, production, and land), and private standards, such as third-party and second-party certification, codes of conduct, and self-regulatory initiatives. Appendix I describes regulations in Indonesia, and Appendix II lists sustainability initiatives driven by the private sector.

This regime complex involves regulations and initiatives at multiple scales, from transnational to subnational. Our analysis on transnational governance does not include value chain governance interventions put in place by companies (e.g. optimization processes, risk management, traceability, and monitoring); thus, when Figure 1 refers to the value chain and chain stakeholders, this is primarily a descriptive device to represent actors, their functions, and the way in which they are affected by state regulations and private standards. The landscape configuration at the bottom of Figure 1 refers to a meso-scale, equivalent to a subnational jurisdictional level.

The left side of Figure 1 depicts the different policies and regulations that shape oil palm development. These range from finance, trade, and fiscal policies, to production and land-related policies, such as peatland restoration, land allocation, tenure, and spatial planning. A detailed assessment of these regulations can be found elsewhere (Caroko *et al.* 2011; McCarthy *et al.* 2012; Aurora *et al.* 2015). The right side of the diagram depicts the different private standards developed to govern the palm oil sector, including certification systems, guidelines and codes of conduct, and self-regulatory initiatives. The latter have grown in importance since the early 2000s to become a prominent constituent of the palm oil regime complex (van Noordwijk *et al.* 2017; Pacheco *et al.* 2017a, 2018).

Arguably the most important public regulation governing Indonesian production activities is the mandatory public standard for sustainable oil palm, the ISPO system, which the Government of Indonesia launched in 2011. ISPO essentially bundled the existing public regulations on palm oil production into one instrument (Suharto *et al.* 2015). Despite enhancing clarity on public regulatory requirements, it has yet to achieve sector-wide compliance because of unresolved issues related to tenure rights and the conservation of high-carbon forest within concessions (Hidayat *et al.* 2018). The Malaysian version, the Malaysian Sustainable Palm Oil (MSPO) certification standard, was introduced in 2013. Unlike ISPO, MSPO is voluntary, although a government statement in February 2017 announced a timeline for its mandatory nationwide implementation by 2019 (Malaysian Palm Oil Certification Council [MPOCC] 2017). To harmonize the two standards and stabilize the palm oil market, the Malaysian and Indonesian governments established the intergovernmental Council of Palm Oil Producing Countries (CPOPC) in 2015 (Ministry of Plantation Industries and Commodities [MPIC] 2016). It is currently

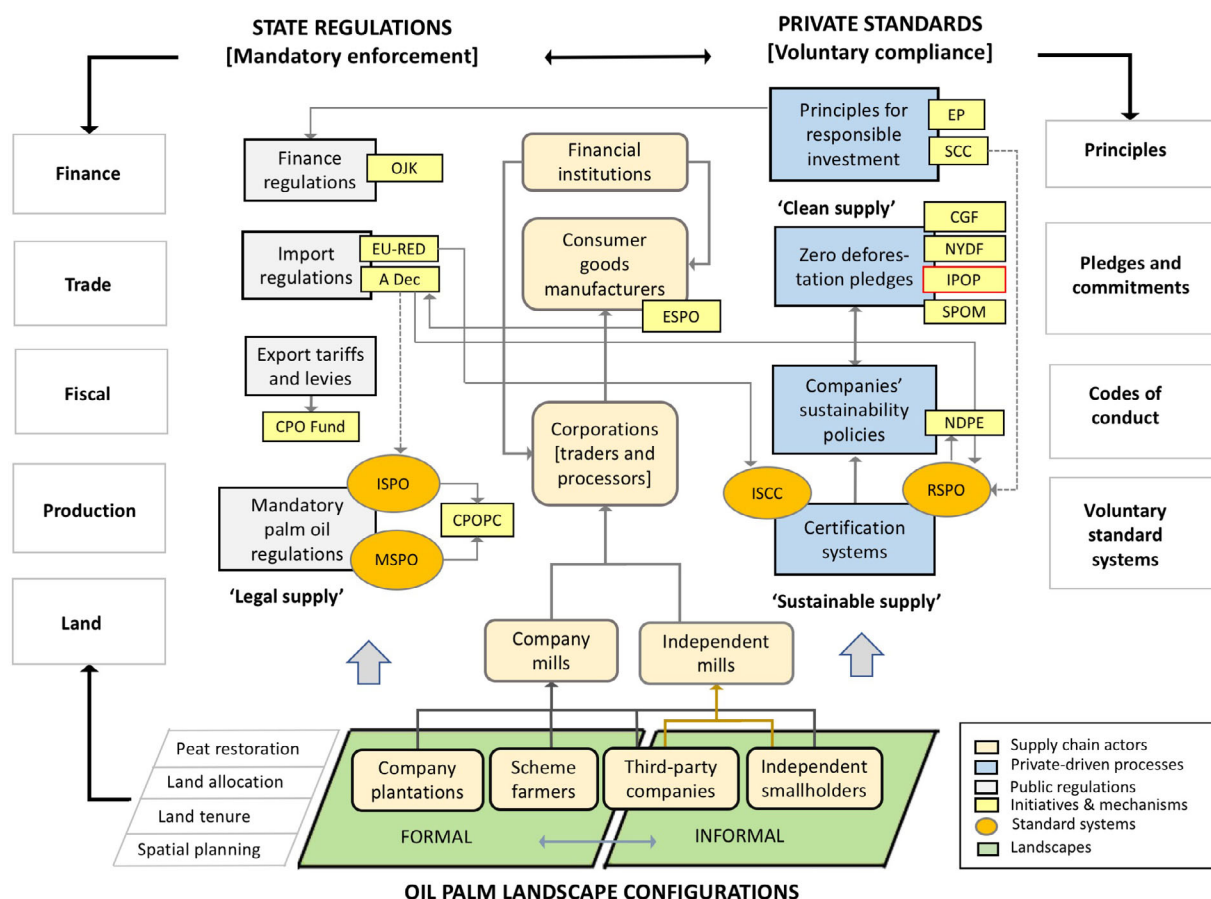


Figure 1 The palm oil sector transnational regime complex. A Dec, Amsterdam Declaration; CGF, Consumer Goods Forum; CPO, Crude Palm Oil; CPOPC, Council of Palm Oil Producing Countries; EP, Equator Principles; ESPO, European Sustainable Palm Oil; EU-RED, European Union Renewable Energy Directive; IPOP, Indonesian Palm Oil Pledge; ISCC, International Sustainability and Carbon Certification; ISPO, Indonesian Sustainable Palm Oil; MSPO, Malaysian Sustainable Palm Oil; NDPE, No Deforestation, No Peat, No Exploitation policy; NYDF, New York Declaration on Forests; OJK, Indonesian Financial Services Authority; RSPO, Roundtable on Sustainable Palm Oil; SCC, Soft Commodities Compact; SPOM, Sustainable Palm Oil Manifesto.

exploring options to extend membership to include major regional palm oil producers. Other domestic initiatives include the CPO Fund in Indonesia, where CPO export levies are used to subsidize biofuel production and support replanting oil palm on smallholder lands in order to reduce the yield gap (USDA 2015). Different types of taxes are levied in Indonesia, yet 64 percent of oil palm tax revenues originate from CPO export levies, with both income tax (individual and corporate) and land and buildings tax each contributing only 15 percent. Most taxes are collected centrally, with only 11–14 percent flowing back to oil palm producing provinces in 2012/2013 (Falconer *et al.* 2015).

Such fiscal and production policies are complemented by regulations on land allocation and spatial planning. The latter policies have tended to accommodate rather than obstruct private sector interests by facilitating access to state-held lands classified as conversion forest or those with forest concessions; this neglects customary land rights in both Malaysia and Indonesia, with deleterious effects (Brad *et al.* 2015). While spatial planning policies offer mechanisms for harmonizing land zoning and allocation at national, provincial, and district levels, these are rarely employed in practice because of competing interests, and bureaucratic and technical complexities. More recently, in Indonesia, concerted efforts have been made to protect forests and peatlands to reduce carbon emissions in the context of national climate change commitments (Brockhaus *et al.* 2012). While this heralded a moratorium on primary forest and peatland conversion in 2011, as forests within existing concessions were exempt, the effect on curbing deforestation has been limited (Busch *et al.* 2015; Suwarno *et al.* 2018). In 2016, peatlands

were explicitly incorporated into policy: new concessions on peatlands were halted and mechanisms were created for restoring peatlands affected by forest fires. This was largely motivated by bad publicity, pursuant diplomatic conflict, and public outcry over the health effects (Tacconi 2016).

Over the past decade, private sector initiated self-regulation and co-regulation have gained prominence, partly in response to the increasingly stringent procurement standards of consumer goods manufacturers. These private regulations, most notably the international voluntary certification systems, are increasingly filling the regulatory vacuum. The RSPO, established in 2004, involves third-party compliance monitoring of adherence to the RSPO standard, which primarily addresses aforementioned land and environment performance issues. Although it is currently the most widely adopted private standard, it is yet to be adopted industry-wide (Morley 2015), with just 21 percent of total global CPO supply RSPO certified in 2015 (Roundtable on Sustainable Palm Oil [RSPO] 2016). Adoption has been most prevalent among large, well-resourced corporate groups, with smaller producers facing financial, technical, and legal barriers to compliance (Brandi *et al.* 2015). Many corporate groups have also begun to formulate and adopt their own codes of conduct, to further institutionalize social and environmental performance targets, and lower financial and reputational risk (Gnych *et al.* 2015). Another certification system increasingly being adopted is the International Sustainability and Carbon Certification (ISCC), established in 2010 to certify CPO sold to the EU biodiesel market. To secure market access, CPO sold to EU biodiesel markets must be certified under a European Commission (EC) accredited certification scheme, to count toward the European Union Renewable Energy Directive (EU-RED) biofuel blending targets (International Sustainability and Carbon Certification [ISCC] 2017).

Since 2013, many large chain actors have made ambitious pledges to fully eliminate deforestation from their supply chains, most by 2020. Although diverse chain actors have made such pledges, the zero deforestation movement is chiefly driven by large consumer goods manufacturers who have pressured their suppliers further upstream to comply with the pledges (Climate and Land Use Alliance 2014; Bregman 2015). Many European governments, through the 2015 Amsterdam Declaration, are also committed to ensuring that all palm oil traded within their markets is certified by 2020, with industry platforms established for that purpose in Belgium, Denmark, France, Germany, Italy, Norway, the Netherlands, Sweden, and the United Kingdom (UK). In 2015, the Dutch Oils and Fats Industry (MVO) along with the Sustainable Trade Initiative (IDH) established the European Sustainable Palm Oil (ESPO) project to support 100 percent sustainable palm oil sourcing (European Sustainable Palm Oil [ESPO] 2017). In 2016, Norway became the first country to apply zero deforestation commitments to all public procurement activities (Gaworecki 2016). Likewise, the European Parliament issued a non-binding resolution in April 2017, attempting to impose more stringent conditions on palm oil imported by European markets, including the phasing out of palm oil as a component of biofuels, preferably by 2020 (European Parliament 2017).

Financial service providers play an important role in financing plantation expansion, processing, and refining capacity. Most major international financial institutions (IFIs) provide financial services to palm oil actors (Chain Reaction Research 2017). Lending to the sector is increasingly subject to adherence to the Equator Principles and, for certain banks, sector-specific Environment, Social and Governance (ESG) criteria. With IFIs increasingly being held to account for their clients' social and environmental misconduct, risk mitigation strategies strongly underpin the recent momentum behind more explicit ESG integrations (Stampe & McCarron 2015). Common standards are also beginning to emerge, with finance platform the Banking Environment Initiative (BEI) developing the Soft Commodities Compact, whose responsible lending guidelines now incorporate numerous RSPO criteria (University of Cambridge 2018). These changing norms and practices have prompted the Indonesian Financial Service Authority (OJK) to formulate the "Sustainable Financial Roadmap," which establishes a pathway for integrating responsible lending practices into the operations of eight of Indonesia's largest commercial banks (Pramudya *et al.* 2017) and recently, to issue a regulation that provides the legal basis for requesting sustainability plans from Indonesia's financial services providers.

Private sector initiatives, as well as the European Parliament's resolutions on palm oil, have not been well received by the Indonesian and Malaysian governments, particularly zero deforestation commitments and attempts to ban palm oil imports. The establishment of CPOPC has been regarded as a political strategy to improve the governments' capacity to dictate governance dynamics within the palm oil sector and undermine the ongoing privatization of sector regulation. The Indonesian government's stance on these processes is reflected in

their accusation of six corporate groups – attempting to coordinate the operationalization of their zero deforestation commitments through the Indonesian Palm Oil Pledge (IPOP) – of cartel practices. Subsequent threats by the national anti-monopoly agency to subject them to investigation forced IPOP's disbandment in mid-2016 (Vit 2016). This was viewed as a government strategy to undermine the legitimacy of private sector commitments and platforms, and re-establish the primacy of public regulations and state enforcement authority. Subsequently, the corporate groups made explicit that they would continue to pursue their commitments individually (Vit 2016). Despite this, multistakeholder efforts to develop a common set of zero deforestation definitions and principles are ongoing through the High Carbon Stock Approach initiative, which has successfully harmonized two different approaches. To improve the legitimacy of national standards, the Indonesian government was forced to initiate a process to strengthen ISPO, including a third-party monitoring mechanism. This is an ongoing process, and its legitimacy is still in question (Hidayat *et al.* 2018).

5. Governance challenges: Disconnects, complementarities, and antagonisms

The myriad state regulations and private initiatives constitute a regime complex, characterized by disconnects, complementarities, and antagonisms, related to palm oil sustainability objectives and strategies. By systematically unpacking these interactions, we identify opportunities for enhancing coherence across, and capitalizing on potential synergies between, the different regulatory initiatives. Table 1 provides a synthesis of disconnects, complementarities, and antagonisms across different policy realms. It draws on the information provided in Appendices I and II.

As Table 1 illustrates, the palm oil regime complex suffers from major internal disconnects. In the finance realm, communication is lacking between OJK, international banks, and CPO Fund efforts to support responsible lending and smallholder access to finance. In the trade realm, import policies adopted by consumer countries (EU-RED and ESPO) do not align with producer country developed standards (ISPO and MSPO), but rather with international standards (RSPO and ISCC). The third disconnect relates to fiscal policy. National revenues from palm oil-related land, income taxes, and export levies are not used to support major producing districts to take up more sustainable practices. The fourth disconnect highlights the lack of harmony between procurement requirements under private standards (“sustainable supply” under RSPO and ISCC certification, and “clean supply” under corporate zero deforestation policies) and those under public standards (i.e. “legal supply” under ISPO and MSPO). This creates confusion among chain actors about supply segregation rules, and increases disputes between public and private sector actors around implementation (Pirard *et al.* 2015). The fifth disconnect manifests itself in a lack of coherence between national and subnational sustainability policies. National government has opposed the use of High Conservation Values (HCV), a method developed under the RSPO to set aside conservation areas, yet subnational governments still attempt to incorporate it into their provincial regulations.

Despite these disconnects, complementarities between regulations and initiatives are also emerging. The first complementarity relates to finance. Many IFIs are adopting responsible lending policies, which has encouraged a number of major commercial banks in Malaysia and Indonesia to do the same. As part of due diligence requirements, these lending policies demand the adoption of public and private standards by major corporate actors receiving financial services from these banks (Pramudya *et al.* 2017), encouraging more widespread adoption of such standards. The second complementarity, related to trade, is the increasing use of voluntary standards (i.e. RSPO, ISCC) by consumer countries to verify that their national imports originate from sustainable sources (e.g. national initiatives under ESPO, EU-RED). The third is explicit inclusion in the CPO Fund of targets to support smallholder adoption of improved production practices; this is also discussed under the RSPO and endorsed by major corporations. The fourth is related to private sector efforts to develop and adopt industry-level codes of conduct and sustainability policies to enhance coherence and transparency in corporate policy. These industry initiatives draw heavily on RSPO and evolving zero deforestation norms, which could augment adoption rates. The final complementarity relates to land-use criteria in recent regulations, in which only unproductive lands can be converted into plantations. Government efforts to legalize essential ecosystem areas outside existing conservation and protected areas (which match the internationally recognized HCVs), complement the endeavors of major oil palm companies to set aside conservation areas. The integration of higher standards in the revised ISPO

Table 1 Disconnects, complementarities, and antagonisms in the global palm oil sector

Levels	Disconnects	Complementarities	Antagonisms
Finance	Public funds (e.g. the CPO Fund) are not completely aligned with private sector attempts to support responsible lending to stimulate smallholder adoption of ISPO standards	Policies adopted by international financial institutions are being internalized by domestic commercial banks in Malaysia and Indonesia, stimulated by state regulatory bodies	Formal processes to integrate ESG criteria within the banking system conflict with widespread domestic bank and informal local lender practices, which target less sustainable plantations
Trade	Import policies adopted by consumer countries do not rely on state mandatory system standards adopted in producer countries (i.e. ISPO and MSPO)	Consumer countries adopt import policies that rely on voluntary system standards (i.e. ISCC, RSPO) to verify that supply originates from sustainable sources	Transnational consumer goods companies set market constraints (i.e. deforestation-free supply) that conflict with expansion goals of national states and companies
Fiscal	Palm oil taxes collected are only partially channeled to support sustainable supply in the main producing districts	The CPO Fund targets resources to support improvements to smallholder yields under approaches endorsed by companies	Local authorities use informal ways to capture economic rents from plantations, through the granting of permits
Production	Different types of standards and methods linked to “legal” (ISPO), “sustainable” (RSPO, ISCC), and “clean” supply (company pledges) are developing to segregate different types of palm oil supply	The private sector adopts codes of conduct and sustainability policies that rely on RSPO certification, and occasionally, makes more ambitious efforts toward de-linking supply from deforestation	State regulations contradict private sector attempts to comply with zero deforestation pledges, mainly relating to attempts to set aside HCV and HCS areas within concessions granted for oil palm development
Land use	There is a lack of communication between national and provincial levels over methods adopted for setting aside conservation areas	Land-use regulations pay increasing attention to methods and criteria developed by private standards to protect forests and peatlands	Land, finance, and service provision transactions occur formally and informally, which makes state and company actions to regulate illegal supply more difficult

CPO, crude palm oil; ESG, environmental, social and governance; HCS, high carbon stock; HCV, high conservation value; ISCC, International Sustainability and Carbon Certification; ISPO, Indonesian Sustainable Palm Oil; MSPO, Malaysian Sustainable Palm Oil; RSPO, Roundtable on Sustainable Palm Oil.

criteria and indicators, along with third-party monitoring, will further improve these standards, increasing their convergence with those of private standard systems.

However, several antagonisms between regulatory initiatives are also apparent. Within finance, the key antagonism relates to the emergence of a formal banking sector process to upscale ESG integration. This conflicts with domestic bank and informal lender strategies that target a less sustainable client base. A disproportionately large amount of CPO funding goes to subsidize biofuels, while only a small proportion has been disbursed to finance smallholders' replanting efforts and promote environmentally friendly practices. This appears to contradict the original idea of the CPO policy. The second antagonism, in the trade realm, relates to transnational consumer goods manufacturers' deforestation-free sourcing policies. Such policies conflict with the sector expansion goals of both governments and companies in producer countries. The third antagonism, in the fiscal realm, relates to the informal capture of economic rents by local governments. Formal taxes collected at national level rarely reach the production zone departments that often bear enforcement responsibilities and are thus best placed to promote upgrading on the ground. The absence of a fiscal mechanism to incentivize those adopting and promoting sustainable practices represents another critical gap. The fourth, in the production realm, is associated with private standard compliance requirements that involve setting aside conservation areas within oil palm concessions, using HCV or High Carbon Stock (HCS) approaches. Because statutory law does not recognize such land-use

classifications, privately conserved lands within concession areas risk reversion back to state control and reallocation to producers that lack similar sustainability ambitions (Aurora *et al.* 2015). Another major source of antagonism emerges from the clash between the oil palm economy's formal and informal segments. Because most transactions involving smallholders are informal and outside the purview of the state, the government is unable to effectively regulate smallholder production practices. This often results in forest land being freely traded to smallholders, production inputs such as planting material and fertilizers being of substandard quality, and fresh fruit bunch trade being highly opaque. For companies wishing to clean their supply chain while remaining inclusive of smallholders, this type of informality raises a number of challenges, mainly how to implement more rigorous traceability systems and enhance productivity. In addition, the vast majority of independent smallholders lack formal claims to land, therefore cannot access public funding and incentives, and cannot comply with the requirements of sustainability standards (Rietberg & Slingerland 2016). This threatens to further alienate smallholders from the formal (sustainable) economy and undermines the effectiveness of initiatives that aim to promote the upgrading of smallholder production systems.

6. Emerging actions to foster transitions to sustainability

Various actors at different levels are beginning to address disconnects and antagonisms, while further exploiting existing complementarities, based on experimentalist approaches. These actions have three broad objectives: (i) to refine and harmonize sustainability regulations, standards, and tools, while learning from applicability across a range of companies; (ii) to implement business models that increase productivity, while overcoming the challenges of involving smallholders (often implemented by development organizations and NGOs); and (iii) to reconcile value chain interventions with landscape-based ones, by adopting jurisdictional approaches. These approaches are increasingly orchestrated by provincial level governors and facilitated by NGOs, which tend to operate as intermediaries.

6.1. Refining and harmonizing sustainability regulations and standards

The deforestation-free supply chain commitments of consumer goods manufacturers led to The Forest Trust, Golden Agri-Resources (GAR), and Greenpeace developing the High Carbon Stock Approach (HCSA) to identify restricted areas for plantation development (Greenpeace 2013). This move resulted in a concrete implementation approach for zero deforestation based on objective and verifiable criteria (Greenpeace 2014). In 2014, a separate group of major palm oil producers, known as the Manifesto group, announced a voluntary moratorium on the clearance of HCS areas, based on empirically valid thresholds of carbon stocks under the HCS+ approach, which deviated from the Greenpeace-initiated HCSA. In 2015, a process was created to harmonize HCSA and HCS+, and, in late 2016, the different stakeholders agreed upon a single set of principles (High Carbon Stock Approach [HCSA] 2016). In 2017, a HCSA toolkit that merged the two approaches was finalized; its implementation is now being piloted by all major corporate stakeholders.

Two additional initiatives to augment sustainability standards are in place; one related to the RSPO, and one to ISPO. The RSPO has developed RSPO Next, which includes advanced add-on criteria for palm oil growers seeking to comply with “no deforestation, no fire, no planting on peat, reduction of GHGs, respect for human rights and transparency” (RSPO 2017). This is partly a response to criticism from consumer goods manufacturers that RSPO principles and criteria were not sufficiently comprehensive. In regards to ISPO, the Indonesian government, through the coordinating Ministry of Economic Affairs, initiated “Strengthening ISPO,” replicating timber sector experience associated with the EU's initiative on Forest Law Enforcement, Governance and Trade (FLEGT), which engaged Indonesian public and private authorities in a multistakeholder process to develop and implement a jointly agreed timber standard and legality assurance system (Obidzinski *et al.* 2014). “Strengthening ISPO” is a participatory process involving stakeholder groups, such as state agencies and environmental NGOs, to improve existing Indonesian standards. Issues the group is trying to resolve include the development of criteria to evaluate land availability for plantation development, community consultation mechanisms, and legal conflicts associated with HCV protection. To improve credibility, efforts are being made to establish an accreditation body, a third-party auditing process, and an independent monitoring system through government regulation. The

Ministry of Environment and Forestry's efforts to legalize and protect essential ecosystem areas within concessions, like HCVs, will further strengthen the standards. Yet with the development of further oil palm plantations, only low-carbon areas will be converted, ensuring only "unproductive lands for plantation" – as already included in the regulation – are adopted during the land allocation process. The outcomes of these efforts are uncertain because of the vested and conflicting political interests involved in the process. Despite this, the increasing proliferation of sustainability initiatives illustrates that they have potential to stimulate an upward convergence of standards, although not without conflict.

6.2. Enhancing business models for enlarging productivity and smallholder inclusion

Major corporate groups are increasing their efforts to link enhanced traceability systems to better monitor and verify performance over commitments to zero deforestation. They are also linking them to improved business models. Such models provide services to help overcome the resource, capacity, and legality constraints preventing (certain) smallholders from achieving their productivity potential, fully complying with regulatory requirements, and accessing global palm oil markets on equitable terms. Recognizing the need for smallholders' requirements to be more explicitly addressed through actor-disaggregated approaches, companies and NGOs are collaborating on innovative new business models and value chain strategies to prevent smallholder disarticulation from global standards-driven markets. These actors include development organizations, such as IDH and the Dutch Development Organization (SNV), multilateral banks, such as the International Finance Corporation (IFC), and corporate sector-driven initiatives, such as the Partnership for Indonesia Sustainable Agriculture (PIS-Agro) and the PT SMART Working Group. Most initiatives share the common goal of enhancing the transparency and traceability of upstream activities in the value chain, by facilitating smallholder access to finance, typically through aggregation. This is primarily geared toward supporting smallholders to replace substandard oil palm varieties with improved varieties to increase yields and to overcome financial barriers to compliance (Bronkhorst *et al.* 2017). In addition, the national government is seeking to overcome the legality challenges preventing smallholders from formalizing their operations, through enactments such as Presidential Regulation No. 88/2017. This regulation aims to resolve conflicts over plantations on state forestlands by enabling smallholders to obtain land titles if lands have been occupied for over 20 years. However, few smallholders on state forestlands are likely to be able to benefit from this regulation (Jelsma *et al.* 2017; Schoneveld *et al.* 2017).

6.3. Reconciling value chain and landscape-based interventions by adopting jurisdictional approaches

The private sector and NGOs increasingly acknowledge that progress will be piecemeal if underlying structural issues affecting the sector are not comprehensively addressed. This necessitates more effective exploitation of the complementarities between public and private sector interventions (Wolosin 2016). Private–public partnerships are widely viewed as critical, especially around issues of sector competitiveness and formality, and improving the demarcation of production and protection areas. Private sector actors, NGOs, donors, and development organizations are supporting efforts in specific jurisdictions to identify and register smallholder lands and promote district-level monitoring, reporting, and verification of land-use change (Watts & Irawan 2016). This is part of a broader attempt to link deforestation-free supply chain initiatives with jurisdictional approaches to reducing deforestation and forest degradation (REDD) (Meyer & Miller 2015). Provincial regulations are emerging in support of private standards for sustainability: South Sumatra's Governor committed to transforming South Sumatra into a sustainable province; the Governor of Central Kalimantan acknowledged the importance of aligning regulations with HCV principles by allowing palm oil companies to retain and protect areas within their concessions; and, in 2015, Sabah state issued a 10-year plan detailing a process to ensure all CPO produced within its jurisdiction was RSPO certified. Many of these subnational state initiatives seek to attract investors by aligning with private standards (thus reducing company risk and monitoring costs), benefiting from offtake markets that, in turn, become more accessible (Pacheco *et al.* 2017b). Such approaches were championed by Unilever and Marks & Spencer, who in late 2015 launched the "Produce and Protect" approach, through which they commit to prioritizing commodity procurement from areas implementing jurisdictional forest and climate initiatives (Consumer Goods Forum 2015).

7. Discussion

Rapid palm oil sector expansion has contributed to rural economic development and reduced poverty rates in Southeast Asia, notably in Malaysia and Indonesia. However, this comes at the expense of the environment through carbon emissions, deforestation, and biodiversity loss. It has also given rise to new developmental challenges. Smallholders face constraints that prevent improved practices and yields, access to formal oil palm economy benefits, and secure tenure rights. With the value chain's growing complexity, regulations and initiatives governing palm oil have become more complex, producing a transnational regime complex that mixes state regulations and private standards, such as certification, codes of conduct, and self-regulatory initiatives.

This transnational regime complex is maturing and taking on increasingly challenging issues: improving the terms of smallholder participation; reducing land conflicts; addressing substandard labor conditions; halting crop expansion on biodiverse and high carbon stock forests and peatlands; and reducing fires and haze. As the sector becomes more environmentally conscious, new challenges are emerging. With unabated growth in the global demand for palm oil, issues arising from expansion and increasing pressure on land outside forest and peatlands will need to be addressed (Pirker *et al.* 2016). This will include the recovery of degraded lands and the integration, rather than displacement, of smallholders occupying low-carbon stock croplands, without undermining food supply and local livelihoods. Ongoing efforts to build more coherent governance architecture should reduce current performance issues and enhance sector capacity, with reduced social and environmental impacts (Austin *et al.* 2015).

The unresolved disconnects and antagonisms, particularly between producer country state regulations and international standards, have frustrated efforts to build international synergies among private corporate policies and codes of conduct and transnational initiatives in consumer countries, particularly in the EU. While processes of upward convergence are evident between different private standards, weak alignment of these private standards with producer country state interests has undermined improved governance. This hinders the development of more effective coordination mechanisms and the implementation of incentives to resolve the negative social and environmental tradeoffs arising from market and production conditions beyond the duty and capacity of individual companies. It also challenges governments' enforcement capacity.

We identified several areas where synergies could be established between public and private initiatives. The areas with the greatest potential include: coordination in the supply of responsible finance under agreed criteria, complementarities in the provision of incentives to improve smallholder performance, and rules to set aside high-carbon forest while safeguarding the rights of local populations. These require improved coordination across different levels of governance, as well as across public and private realms of decisionmaking.

The three main goals to improve the effectiveness and legitimacy of the transnational palm oil regime complex are: (i) to strengthen accountability and transparency in the value chain and political systems; (ii) increase smallholder empowerment, and production and environmental performance; and (iii) introduce new incentives to increase the uptake of sustainability practices, in ways that level the playing field for independent smallholders. These three goals should be pursued simultaneously.

Initiatives are emerging, particularly in Indonesia that have the potential to improve complementarities between state regulations and private standards, suggesting that greater harmonization of policies and regulatory frameworks across public and private sectors and between different levels of government is possible. Yet antagonisms persist as a result of strong vested interests and patronage systems reinforcing private actors' privileges, while protecting the power position of key state actors benefiting from business-as-usual situations. Emerging initiatives are largely adopting experimentalist approaches. These may be more effective in mobilizing public and private action related to regulatory harmonization, business models, and jurisdictional approaches, in which government actors, corporate players, and NGOs attempt to establish different institutional arrangements.

Regarding accountability and transparency, important steps have been taken, with major corporate groups establishing and taking up third-party certification, notably the RSPO. This has become an accepted mechanism for compliance with the import regulations of major consumer countries, as well as with the procurement policies of major consumer goods manufacturers; however, it will take time before they are accepted by other major consumer countries (e.g. China and India). While demand-side compliance pressures have, despite limitations, contributed to increasing private standard adoption rates, supply-side pressures remain comparatively weak.

Although the CPOPC and a strengthened ISPO have the potential to develop a system built on principles and criteria similar to those adopted by the RSPO, a more transparent monitoring system needs to be developed for such standards to be perceived as legitimate by major importer countries and consumer goods manufacturers. Greater collaboration around the design of such a system is therefore warranted. Reducing the compliance gap could help to reduce production costs and enhance sector-wide capacity to adopt and adhere to standards. Improved land-use planning, monitoring of illegal land occupation, and land tenure regularization could reduce the prevalence of producers ineligible for certification. While common rules for doing so need to be established nationally, subnational governments require support to implement those rules. As such, sectoral fiscal earnings and CPO Fund finance should be invested in subnational level capacity building, albeit with improved checks and balances that ensure more effective outcomes.

Constantly changing sustainability norms threaten to alienate smallholders by increasing barriers to compliance. While cited interventions could contribute to overcoming barriers, reducing the yield gap, and enhancing smallholder competitiveness in global markets, targeted smallholder support is required. Improved public extension services and oversight in input and offtake markets (and funding to subnational governments to support this) are key to integrating smallholders into the formal, standard-driven palm oil market. However as companies – and the internal and external private standards shaping their practices – are partly accountable for the emerging pressure on smallholders to upgrade, equity considerations should feature more prominently in corporate strategy. New business models that better link independent smallholders to inter alia input markets, finance, and technical support are being implemented by development projects and NGOs acting as intermediaries, often with support from companies. Yet the upscaling of successful schemes is still a major barrier that may require more active involvement of financial institutions, civil society organizations, and local government institutions.

Because private standards, at least in the oil palm sector, typically lack mechanisms to encourage companies to further invest in smallholder integration, targeted national-level (fiscal) incentives may be necessary. In addition to the promotion of better business models, incentives could be introduced to further encourage jurisdictions to pursue sustainability and productivity objectives more actively, to align associated interventions with corporate procurement policies, and to stimulate sectoral agencies to better enforce regulations in support of ISPO and MSPO. To enhance the legitimacy of those efforts, closer collaboration between stakeholders is needed to develop a uniform monitoring, reporting, and verification system. Exploiting complementarities between company-level RSPO auditing and landscape-level monitoring systems is desirable.

The emergence of jurisdictional approaches is a step in that direction. However, they are thus far limited to a select number of provinces and lack an overarching national framework. Jurisdictional approaches will require strong alignment between public policies and private initiatives, as well as alignment across levels of government. Advancing sustainability at the jurisdictional level may not only attract companies interested in sourcing from clean suppliers, it could also serve to orient public investments to overcome performance issues and upgrade value chains. They may also stimulate increased collaboration among stakeholders in specific jurisdictions, to advance territorial planning for land use and infrastructure development, conservation of threatened ecosystems, safeguarding of local populations' rights and cultural values, provision of services, and technological knowhow for smallholders, as well as the monitoring of jurisdictional performance over time. Adopting experimentalist approaches to solve disconnects, overcome antagonisms, and strengthen complementarities in the palm oil regime complex may offer the potential to address the three major issues affecting the palm oil sector's social, economic, and environmental performance, but specific actions are needed.

One specific mechanism through which experimentalist governance approaches could help to resolve the coordination problems identified is that of public comparison or “benchmarking of equivalence” as a way of reconciling and promoting convergence among competing standards (see Overdevest & Zeitlin 2012). Another is the establishment of joint committees, comprising national and transnational actors, to review the implementation of agreed sustainability principles or standards. Such committees can recommend corrective actions on the ground and, where necessary, revisions of the standards and procedures themselves, as has been the case with FLEGT implementation (see Overdevest & Zeitlin 2018). Experimentalist approaches can also benefit from comparative assessments, resulting from companies self-reporting, with NGO support, on the outcomes (e.g. in sustainable production, standards uptake, farmers benefits) of their different experiences in diverse geographical contexts, as part of debates on existing platforms (e.g. Innovation Forum, Responsible Business Forum).

8. Conclusions

The global palm oil value chain has increased in complexity over time, as has the governance system for the sector. The latter has evolved into a transnational regime complex involving state policies and regulations, market-based mechanisms, and self-regulatory initiatives that interact on and within different scales, from the global to the subnational. In our conceptualization of the palm oil regime complex, we have highlighted the diversity of interactions among state and non-state actors and regulatory instruments, both vertically and horizontally, by unpacking emerging disconnects, complementarities, and antagonisms. This offers insights into the complexity of the system governing the global palm oil value chain. We have emphasized three major performance issues that challenge the effectiveness of this regime complex: land conflicts, yield gaps, and carbon emissions. Despite progress, these issues have proven to be intractable, and continue to undermine the sustainability and inclusivity of the sector.

While important complementarities between state regulations and private sector-driven initiatives are increasingly being explored at international level, several disconnects and antagonisms have emerged nationally and subnationally. These reveal unresolved disputes over power and authority both within government, and between government, the private sector, and major consumer countries. Addressing these disputes is critical to advance sectoral sustainability and inclusivity goals. Complementarities have been built primarily around transnational companies and NGO initiatives, largely a result of pressure from consumer goods manufacturers, and increasingly, retailers and banks. Such complementarities are yet to contribute meaningfully to the reversal of the sector's structural performance issues because of challenges in resolving disconnects and antagonisms. Additionally, the legitimacy of Malaysian and Indonesian efforts to set up their own globally recognized standards, in ways that are acceptable for end-users and governments, is still in doubt if they fail to build in a multistakeholder process.

It is difficult to foresee how the palm oil regime complex will evolve. Our conceptualization, however, offers important insights to help overcome institutional barriers and build greater synergies between institutions and regulations at value chain and territorial level. Our analysis examines how public and private regulations impact the performance of the sector, yet it does not interrogate the role of specific interventions adopted by individual companies or their impacts. For example, supply chain and risk management interventions could influence chain governance dynamics, which in turn bears on regulatory processes within transnational regime complexes. Questions that warrant further critical enquiry analysis thus include: How is the regime complex shaped by the way in which leading companies govern the palm oil value chain?; What type of coordination mechanisms do leading companies adopt, with respect to their suppliers and buyers?; Which actors are best positioned to drive improvements in global value chain governance?; and How do sustainability considerations play into these dynamics? Linking analyses on regime complexity to global value chain dynamics could serve to better represent the interface between commercial and public interests, in the context of sustainability governance.

Acknowledgments

This work was partly funded by the United States Agency for International Development through the Governing Oil-palm Landscapes for Sustainability (GOLS) Project, and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. This work was undertaken as part of the CGIAR Research Program on Forests, Trees and Agroforestry (CRP-FTA) lead by the Center for International Forestry Research (CIFOR) in partnership with Bioversity International, the Tropical Agricultural Research and Higher Education Center (CATIE), the Agricultural Research Centre for International Development (CIRAD), and the International Center for Tropical Agriculture and the World Agroforestry Centre.

References

- Abbott KW, Snidal D (2009) The Governance Triangle: Regulatory Standards Institutions and the Shadow of the State. In: Mattli W, Woods N (eds) *The Politics of Global Regulation*, pp. 44–88. Princeton University Press, Princeton, NJ.
- Abram NK, Meijaard E, Wilson KA *et al.* (2017) Oil Palm–Community Conflict Mapping in Indonesia: A Case for Better Community Liaison in Planning for Development Initiatives. *Applied Geography* 78, 33–44.

- Adger WN, Brown K, Tompkins EL (2005) The Political Economy of Cross-scale Networks in Resource Co-management. *Ecology and Society* 10(2), 9.
- AgroIndonesia (2015) IPOP Langgar Kedaulatan RI. AgroIndonesia, Jakarta, Indonesia.
- Alter KJ, Meunier S (2009) The Politics of International Regime Complexity. *Perspectives on Politics* 7, 13–24.
- Arora B, Dyoti D, Singh S, Singh A (2014) *Responsible Business Practices in the Indian Palm Oil Sector*. Center for Responsible Business, New Delhi.
- Aurora L, Palmer B, Paoli G, Prasodjo R, Schweithelm J (2015) *Indonesia's Evolving Governance Framework for Palm Oil: Implications for a No Deforestation, No Peat Palm Oil Sector*. Daemeter Consulting, Bogor, Indonesia.
- Austin KG, Kasibhatla PS, Urban DL, Stolle F, Vincent J (2015) Reconciling Oil Palm Expansion and Climate Change Mitigation in Kalimantan, Indonesia. *PLoS One* 10, e0127963.
- Baudoin A, Bosc P-M, Moulin M *et al.* (2015) Linking the Transformation of Production Structures to a Multidimensional Sustainability Assessment Grid of Smallholders' Oil Palm Plantations. *International Journal of Sustainable Development & World Ecology* 22, 520–532.
- Brad A, Schaffartzik A, Pichler M, Plank C (2015) Contested Territorialization and Biophysical Expansion of Oil Palm Plantations in Indonesia. *Geoforum* 64, 100–111.
- Brandi CA (2017) Sustainability Standards and Sustainable Development: Synergies and Trade-offs of Transnational Governance. *Sustainable Development* 25, 25–34.
- Brandi C, Cabani T, Hosang C, Schirmbeck S, Westermann L, Wiese H (2015) Sustainability Standards for Palm Oil: Challenges for Smallholder Certification under the RSPO. *The Journal of Environment & Development* 24, 292–314.
- Bregman T (2015) Achieving Zero (Net) Deforestation Commitments: What it Means and How to Get There. Global Canopy Programme, Oxford, UK.
- Brockhaus M, Obidzinski K, Dermawan A, Laumonier Y, Luttrell C (2012) An Overview of Forest and Land Allocation Policies in Indonesia: Is the Current Framework Sufficient to Meet the Needs of REDD+? *Forest Policy and Economics* 18, 30–37.
- Bronkhorst E, Cavallo E, van Dorth tot Medler M-M, Klinghammer S, Smit HH, Gijsebergh A *et al.* (2017) Current Practices and Innovations in Smallholder Palm Oil Finance in Indonesia and Malaysia: Long-term Financing Solutions to Promote Sustainable Supply Chains. CIFOR Occasional Paper No. 177. Center for International Forestry Research, Bogor, Indonesia.
- Busch J, Ferretti-Gallon K, Engelmann J *et al.* (2015) Reductions in Emissions from Deforestation from Indonesia's Moratorium on New Oil Palm, Timber, and Logging Concessions. *Proceedings of the National Academy of Sciences* 112, 1328–1333.
- Caroko W, Komarudin H, Obidzinski K, Gunarso P (2011) Policy and Institutional Frameworks for the Development of Palm Oil-based Biodiesel in Indonesia. CIFOR Working Paper No. 62. Center for International Forestry Research, Bogor, Indonesia.
- Chain Reaction Research (2017) Banks Finance More Palm Oil than Investors: Investors Face Indirect Exposure. Aidenvironment, Climate Advisers, Profundo, Amsterdam, the Netherlands.
- Climate and Land Use Alliance (ed) (2014) Cascade of Corporate Commitments to Zero-deforestation Palm Oil. In: Climate and Land Use Alliance (ed). *Disrupting the Global Commodity Business: How Strange Bedfellows are Transforming a Trillion-dollar Industry to Protect Forests, Benefit Local Communities, and Slow Global Warming*, p. 19. Climate and Land Use Alliance, San Francisco, CA.
- Colchester M, Chao S (2013) Conflict or Consent? The Oil Palm Sector at a Crossroads. Forest Peoples Programme (FPP), Sawit Watch and TUK INDONESIA, Moreton-in-Marsh, UK.
- Consumer Goods Forum (2015) *Statement from Consumer Goods Forum Co-chairs, Acting Individually: Production Protection 1*. [Last accessed 14 Feb 2017.] Available from URL: http://tfa2020.org/wp-content/uploads/2015/12/01122015-_Produce-Protect-CGF-statement.pdf.
- Cramb R, McCarthy JF (2016) *The Oil Palm Complex: Smallholders, Agribusiness and the State in Indonesia and Malaysia*. NUS Press, Singapore.
- De Búrca G, Keohane RO, Sabel C (2014) Global Experimentalist Governance. *British Journal of Political Science* 44, 477–486.
- Directorate General of Estates (2014) Tree Crop Estate Statistics of Indonesia 2012–2014: Oil Palm. Ministry of Agriculture, Republic of Indonesia, Jakarta, Indonesia.
- Eberlein B, Abbott KW, Black J, Meidinger E, Wood S (2014) Transnational Business Governance Interactions: Conceptualization and Framework for Analysis. *Regulation & Governance* 8, 1–21.
- Edwards R (2015) Is Plantation Agriculture Good for the Poor? Evidence from Indonesia's Palm Oil Expansion. Crawford School of Public Policy, Australian National University, Canberra, Australia.
- ESPO (European Sustainable Palm Oil) (2017) Making Sustainable Palm Oil the Norm in Europe: Progress Report on the Import and Use of Sustainable Palm Oil in Europe. The ESPO Secretariat, MVO - The Netherlands Oils and Fats Industry, Zoetermeer, the Netherlands.
- European Parliament (2017) Palm Oil and Deforestation of Rainforests. European Parliament Resolution of 4 April 2017 on Palm Oil and Deforestation of Rainforests (2016/2222(INI)). 2016 edn. European Parliament, Brussels, Belgium.
- Falconer A, Mafira T, Sutiyono G (2015) Improving Land Productivity through Fiscal Policy: Early Insights on Taxation in the Palm Oil Supply Chain. Climate Policy Initiative, San Francisco, CA.
- Fan L, Eskin NAM (2012) Frying Oil Use in China. *Lipid Technology* 24, 131–133.
- FAO (Food and Agriculture Organization of the United Nations) (2016) FAOSTAT. Food and Agriculture Organization of the United Nations, Rome, Italy.
- Gaworecki M (2016) *Norway Commits to Zero Deforestation*. Mongabay, 26 May.

- Glenday S, Paoli G (2015) Indonesian Oil Palm Smallholder Farmers: A Typology of Organizational Models, Needs, and Investment Opportunities. Daemeter Consulting, Bogor, Indonesia.
- Gluck P (2010) Core Components of the International Forest Regime Complex. In: Rayner J, Buck A, Katila K (eds) *Embracing Complexity: Meeting the Challenges of International Forest Governance*, pp. 37–56. IUFRO, Vienna.
- Gnych SM, Limberg G, Paoli G (2015) Risky Business: Motivating Uptake and Implementation of Sustainability Standards in the Indonesian Palm Oil Sector. CIFOR Occasional Paper No. 139. Center for International Forestry Research, Bogor, Indonesia.
- Goldstein JE (2016) Knowing the Subterranean: Land Grabbing, Oil Palm, and Divergent Expertise in Indonesia's Peat Soil. *Environment and Planning A* 48, 754–770.
- Greenpeace (2013) Identifying High Carbon Stock (HCS) Forest for Protection: Towards Defining Natural Forests and Degraded Lands (Formerly Forest) in the Tropics. Greenpeace, Amsterdam, the Netherlands.
- Greenpeace (2014) The HCS Approach: No Deforestation in Practice. Greenpeace, Amsterdam, the Netherlands [Last accessed 3 Dec 2016] Available from URL: https://www.greenpeace.org/archive-international/Global/international/briefings/forests/2014/HCS%20Approach_Breifer_March2014.pdf.
- HCSA (High Carbon Stock Approach) (2016) *Agreement on Unified Approach to Implementing No Deforestation Commitments*. High Carbon Stock Approach, Kuala Lumpur, Malaysia. [Last accessed 4 Dec 2016.] Available from URL: <http://highcarbonstock.org/agreement-on-unified-approach-to-implementing-no-deforestation-commitments>
- Hidayat NK, Offermans A, Glasbergen P (2018) Sustainable Palm Oil As a Public Responsibility? On the Governance Capacity of Indonesian Standard for Sustainable Palm Oil (ISPO). *Agriculture and Human Values* 35, 223–242.
- Hospes O (2014) Marking the Success or End of Global Multi-stakeholder Governance? The Rise of National Sustainability Standards in Indonesia and Brazil for Palm Oil and Soy. *Agriculture and Human Values* 31, 425–437.
- IndexMundi (2016) *Agriculture - Palm Oil*. [Last accessed 3 Dec 2016.] Available from URL: <http://www.indexmundi.com/commodities/?commodity=palm-oil&months=360>
- ISCC (International Sustainability and Carbon Certification) (2017) *ISCC in Short*. ISCC, Cologne, Germany. [Last accessed 2 Mar 2017.] <http://www.iscc-system.org/>
- Jelsma I, Schoneveld GC (2016) Towards More Sustainable and Productive Independent Oil Palm Smallholders in Indonesia: Insights from the Development of a Smallholder Typology. CIFOR Working Paper No. 210. Center for International Forestry Research, Bogor, Indonesia.
- Jelsma I, Schoneveld GC, Zoomers A, van Westen ACM (2017) Unpacking Indonesia's Independent Oil Palm Smallholders: An Actor-disaggregated Approach to Identifying Environmental and Social Performance Challenges. *Land Use Policy* 69, 281–297.
- Keohane RO, Victor DG (2011) The Regime Complex for Climate Change. *Perspectives on Politics* 9, 7–23.
- Khasanah N, van Noordwijk M, Ekadinata A *et al.* (2012) *The Carbon Footprint of Indonesian Palm Oil Production*. Technical Brief No. 25: Palm Oil series. World Agroforestry Center, ICRAF, Bogor, Indonesia.
- Koh LP, Wilcove DS (2008) Is Oil Palm Agriculture Really Destroying Tropical Biodiversity? *Conservation Letters* 1, 60–64.
- Lambin EF, Meyfroidt P, Rueda X *et al.* (2014) Effectiveness and Synergies of Policy Instruments for Land Use Governance in Tropical Regions. *Global Environmental Change* 28, 129–140.
- Lemos MC, Agrawal A (2006) Environmental Governance. *Annual Review of Environment and Resources* 31, 297–325.
- Luttrell C, Komarudin H, Zrust M, Pacheco P, Limberg G, Nurfatmiani F *et al.* 2018 Implementing Sustainability Commitments for Palm Oil in Indonesia: Governance Arrangements of Sustainability Initiatives Involving Public and Private Actors. CIFOR Working Paper No. 241. Center for International Forestry Research, Bogor, Indonesia.
- Margulis ME (2013) The Regime Complex for Food Security: Implications for the Global Hunger Challenge. *Global Governance: A Review of Multilateralism and International Organizations* 19, 53–67.
- McCarthy JF, Gillespie P, Zen Z (2012) Swimming Upstream: Local Indonesian Production Networks in “Globalized” Palm Oil Production. *World Development* 40, 555–569.
- Meyer C, Miller D (2015) Zero Deforestation Zones: The Case for Linking Deforestation-free Supply Chain Initiatives and Jurisdictional REDD. *Journal of Sustainable Forestry* 34, 559–580.
- Miettinen J, Wang J, Hooijer A, Liew S (2013) Peatland Conversion and Degradation Processes in Insular Southeast Asia: A Case Study in Jambi, Indonesia. *Land Degradation & Development* 24, 334–341.
- Molenaar JW, Persch-Orth M, Lord S, Taylor C, Harms J (2013) *Diagnostic Study on Indonesian Oil Palm Smallholders*. International Finance Corporation, Jakarta, Indonesia.
- Morley D (2015) RSPO, the Global Standard for Sustainable Palm Oil. *Agro Food Industry Hi-Tech* 26, 29–30.
- MPIC (2016) Ministerial Meeting: The Council of Palm Oil Producing Countries, MPIC. [Last accessed 4 Dec 2016.] Available from URL: <https://www.mpic.gov.my/mpic/index.php/en/media-feedback/65-maklumbalas-kepada-media-2016-bi/657-establishment-of-the-council-of-palm-oil-producing-countries-cpopc>
- MPOB (Malaysian Palm Oil Board) (2015) *Oil Palm Planted Area by State as at December 2015*. Malaysian Palm Oil Board, Kuala Lumpur, Malaysia. [Last accessed 27 May 2016.] Available from URL: http://bepi.mpob.gov.my/images/area/2015/Area_summary.pdf
- MPOCC (Malaysian Palm Oil Certification Council) (2017) *Way Forward for MSPO as a Mandatory Certification Scheme*. Malaysian Palm Oil Certification Council, Kuala Lumpur, Malaysia. [Last accessed 6 Feb 2017.] Available from URL: <http://www.mpocc.org.my/single-post/Way-Forward-for-MSPO-as-a-Mandatory-Certification-Scheme>
- Mwangi E, Wardell A (2012) Multi-level Governance of Forests. *International Journal of the Commons* 6, 79–103.
- Nepstad D, Watts J, Arif J, Irawan S, Shimada J (2017) Corporate Deforestation Pledges: Five Risks and Seven Opportunities. In: Pasiecznik N, Savenije H (eds) *Zero Deforestation: A Commitment to Change*, pp. 199–205. Tropenbos International, Wageningen.

- Obidzinski K, Dermawan A, Andrianto A, Komarudin H, Hernawan D, Fripp E et al. (2014) Timber Legality Verification System and the Voluntary Partnership Agreement in Indonesia: The Challenges of the Small-scale Forestry Sector. CIFOR Working Paper No. 164. Center for International Forestry Research, Bogor, Indonesia.
- Oosterveer P (2015) Promoting Sustainable Palm Oil: Viewed from a Global Networks and Flows Perspective. *Journal of Cleaner Production* 107, 146–153.
- Orsini A, Morin J-F, Young O (2013) Regime Complexes: A Buzz, a Boom, or a Boost for Global Governance? *Global Governance: A Review of Multilateralism and International Organizations* 19, 27–39.
- Overdeest C, Zeitlin J (2012) Assembling an Experimentalist Regime: Transnational Governance Interactions in the Forest Sector. *Regulation & Governance* 8, 22–48.
- Overdeest C, Zeitlin J (2018) Experimentalism in Transnational Forest Governance: Implementing European Union Forest Law Enforcement, Governance and Trade (FLEGT) Voluntary Partnership Agreements in Indonesia and Ghana. *Regulation & Governance* 12, 64–87.
- Pacheco P, Gnych S, Dermawan A, Komarudin H, Okarda B (2017a) The Palm Oil Global Value Chain: Implications for Economic Growth and Social and Environmental Sustainability. CIFOR Working Paper No. 220. Center for International Forestry Research, Bogor, Indonesia.
- Pacheco P, Hospes O, Dermawan A (2017b) Zero Deforestation and Low Emissions Development: Public and Private Institutional Arrangements under Jurisdictional Approaches. CIFOR, WUR, Bogor, Indonesia.
- Pacheco P, Levang P, Schoneveld G, Dermawan A (2018) The Palm Oil Governance Complex: Progress, Problems and Gaps. In: Rival A (ed) *Achieving Sustainable Cultivation of Oil Palm*. Burleigh Dodds Science Publishing, Cambridge, UK.
- Paoli G, Palmer B, Schweithelm J, Limberg G, Green L (2016) *Jurisdictional Approaches to Reducing Palm Oil Driven Deforestation in Indonesia: A Scoping Study of Design Considerations and Geographic Priorities*. Daemeter, Bogor, Indonesia.
- Perez O (2011) Private Environmental Governance as Ensemble Regulation: A Critical Exploration of Sustainability Indexes and the New Ensemble Politics. *Theoretical Enquiries in Law* 12, 543–579.
- Perez O (2013) International Environmental Law as a Field of Multi-polar Governance: The Case of Private Transnational Environmental Regulation. *Santa Clara Journal of International Law* 10, 285–296.
- Pirard R, Fishman A, Gnych S, Obidzinski K, Pacheco P (2015) Deforestation-free Commitments: The Challenge of Implementation: An Application to Indonesia. CIFOR Working Paper No. 181. Center for International Forestry Research, Bogor, Indonesia.
- Pirker J, Mosnier A (2015) Global Oil Palm Suitability Assessment. Interim Report IR-15-006. IIASA, Laxenburg, Austria.
- Pirker J, Mosnier A, Kraxner F, Havlík P, Obersteiner M (2016) What are the Limits to Oil Palm Expansion? *Global Environmental Change* 40, 73–81.
- Potter L (2008) *The Oil Palm Question in Borneo. Tropenbos Series No. 24*, pp. 69–89. The Tropenbos Foundation, Wageningen.
- Potter L (2012) New Transmigration “Paradigm” in Indonesia: Examples from Kalimantan. *Asia Pacific Viewpoint* 53, 272–287.
- Pramudya EP, Hospes O, Termeer CJAM (2017) Governing the Palm Oil Sector through Finance: The Changing Roles of the Indonesian State. *Bulletin of Indonesian Economic Studies* 53, 57–82.
- Purnomo H, Okarda B, Dewayani AA et al. (2018) Reducing Forest and Land Fires through Good Palm Oil Value Chain Governance. *Forest Policy and Economics* 91, 94–106.
- Ravikumar A, Larson AM, Duchelle AE, Myers R, Tovar JG (2015) Multilevel Governance Challenges in Transitioning towards a National Approach for REDD+: Evidence from 23 Subnational REDD+ Initiatives. *International Journal of the Commons* 9, 909–931.
- Rietberg P, Slingerland M (2016) Costs and Benefits of RSPO Certification for Independent Smallholders: A Science-for-Policy Paper for the RSPO. Wageningen University, Wageningen, the Netherlands.
- Rival A, Levang P (2014) *Palms of Controversies: Oil Palm and Development Challenges*. CIFOR, Bogor, Indonesia.
- RSPO (Round Table on Sustainable Palm Oil) (2016) *Impacts*. Round Table on Sustainable Palm Oil, Kuala Lumpur, Malaysia. [Last accessed 30 Nov 2016.] Available from URL: <http://www.rspo.org/about/impacts>
- RSPO (2017) *RSPO Next*, Round Table on Sustainable Palm Oil, Kuala Lumpur, Malaysia. [Last accessed 20 Dec 2017.] Available from URL: <https://rspo.org/certification/rspo-next>
- Sabel CF, Zeitlin J (2011) Experimentalist Governance. In: Levi-Faur D (ed) *The Oxford Handbook of Governance*. OUP, Oxford, pp. 169–86.
- Sachs J, Schmidt-Traub G, Kroll C, Durand-Delacré D, Teksoz K. (2017) *SDG Index and Dashboards Report 2017*. Bertelsmann Stiftung and Sustainable Development Solutions Network (SDSN), New York.
- Savilaakso S, Garcia C, Garcia-Ulloa J et al. (2014) Systematic Review of Effects on Biodiversity from Oil Palm Production. *Environmental Evidence* 3, 4.
- Sayer J, Ghazoul J, Nelson P, Klintuni Boedhihartono A (2012) Oil Palm Expansion Transforms Tropical Landscapes and Livelihoods. *Global Food Security* 1, 114–119.
- Schmitz-Hoffmann C, Schmidt M, Hansmann B, Palekhov D (2014) *Voluntary Standard Systems: A Contribution to Sustainable Development*. Springer, New York.
- Schoneveld GC, Jelsma I, Komarudin H, Andrianto A, Okarda B, Ekowati D (2017) *Public and Private Sustainability Standards in the Oil Palm Sector: Compliance Barriers Facing Indonesia's Independent Oil Palm Smallholders*. CIFOR, Bogor, Indonesia.
- Schouten G, Bitzer V (2015) The Emergence of Southern Standards in Agricultural Value Chains: A New Trend in Sustainability Governance? *Ecological Economics* 120, 175–184.
- Smit H (2014) Balancing Palm Oil production and Forest Conservation. SNV REDD+ Energy and Agriculture Programme, The Hague, the Netherlands.

- Stampe J, McCarron B (2015) *Sustainable Finance in Singapore, Malaysia and Indonesia : A Review of Financiers' ESG Practices, Disclosure Standards, and Regulations*. WWF, Gland.
- Suharno I, Dehen YA, Barbara B, Ottay JB (2015) *Opportunities For Increasing Productivity & Profitability of Oil Palm Smallholder Farmers in Central Kalimantan*. CPI, GreenWorks Asia, PILAR, Palangkaraya, Indonesia.
- Suharto R, Husein K, Sartono KD, Darussamin A, Hariyadi *et al.* (2015) *Joint Study on the Similarities and Differences on the ISPO and the RSPO Certification Systems*. ISPO RSPO, UNDP, Bogor, Indonesia. Available from URL: http://www.undp.org/content/dam/gp-commodities/docs/ISPO-RSPO%20Joint%20Study_English_N%208%20for%20screen.pdf
- Suwarno A, van Noordwijk M, Weikard H-P, Suyamto D (2018) Indonesia's Forest Conversion Moratorium Assessed with an Agent-based Model of Land-use Change and Ecosystem Services (LUCES). *Mitigation and Adaptation Strategies for Global Change* 23, 211–229.
- Tacconi L (2016) Preventing Fires and Haze in Southeast Asia. *Nature Climate Change* 6, 640–643.
- Thorlakson T, de Zegher JF, Lambin EF (2018) Companies' Contribution to Sustainability through Global Supply Chains. *Proceedings of the National Academy of Sciences of the United States of America* 115, 2072–2077.
- Torring J, Peters BG, Pierre J, Sorensen E (2012) *Interactive Governance: Advancing the Paradigm*. OUP, Oxford.
- Transport & Environment (2016) *Cars and Trucks Burn Almost Half of all Palm Oil Used in Europe*. European Federation for Transport and Environment, Brussels, Belgium.
- University of Cambridge (2016) The Banking Environment Initiative (BEI) and Consumer Goods Forum (CGF)'s "Soft Commodities" Compact. [Last accessed 4 Dec 2016.] Available from URL: <http://www.cisl.cam.ac.uk/business-action/sustainable-finance/banking-environment-initiative/pdfs/the-bei-and-cgfs-soft-commodities-compact.pdf>
- USDA (United States Department of Agriculture) (2015) New Indonesian Palm Oil Export Levy - GAIN Report Number: ID1520. USDA Foreign Agricultural Service, Jakarta, Indonesia.
- USDA (2016) Indonesia Biofuels Annual 2016 - GAIN Report Number: ID1619. USDA Foreign Agricultural Service, Jakarta, Indonesia.
- van Noordwijk M, Pacheco P, Slingerland M, Dewi S, Khasanah N (2017) Palm Oil Expansion in Tropical Forest Margins or Sustainability of Production? Focal Issues of Regulations and Private Standards. World Agroforestry Centre (ICRAF) Southeast Asia Regional Program, Bogor, Indonesia.
- Vijay V, Pimm SL, Jenkins CN, Smith SJ (2016) The Impacts of Oil Palm on Recent Deforestation and Biodiversity Loss. *PLoS ONE* 11, e0159668.
- Vit J (2016) *Under Government Pressure, Palm Oil Giants Disband Green Pledge*. Mongabay, 1 Jul. [Last accessed 1 Jul 2016.] Available from URL: <https://news.mongabay.com/2016/07/under-government-pressure-palm-oil-giants-disband-green-pledge/>
- Watts JD, Irawan S (2016) *A Profile of Oil Palm Smallholders and their Challenges of Farming Independently: The Case of Seruyan and Kotawaringin Barat Districts in Central Kalimantan, Indonesia*. INOBU, Jakarta.
- Wijaya A, Glasbergen P (2016) Toward a New Scenario in Agricultural Sustainability Certification? The Response of the Indonesian National Government to Private Certification. *The Journal of Environment & Development* 25, 219–246.
- Wilmar (2016) *Oilseeds & Grains Manufacturing*. Wilmar, Singapore. [Last accessed 20 Dec 2016.] Available from URL: <http://www.wilmar-international.com/our-business/og/manufacturing/oilseeds-processing/refining-crude-soybean-oil-into-refined-oil/>
- Wolosin M (2016) *Jurisdictional Approaches to Zero Deforestation Commodities*. WWF, Washington, DC.
- World Bank (2015) *Indonesia Economic Quarterly*. The World Bank, Jakarta, Indonesia.
- Zeitlin J (e) (2015) *Extending Experimentalist Governance? The European Union and Transnational Regulation*. OUP, Oxford.

APPENDIX I

Main government regulations influencing the palm oil sector in Indonesia

Policy realm	Type of regulation	Number	Scope	Type of interactions		
				Disconnects	Complementarities	Antagonisms
Finance	Central government law	Law No. 39/2014 on plantations, which revokes Plantation Law No.18/2004 ¹	Relating to both direct and foreign plantation development investment, this law sets requirements for the establishment and financing of oil palm plantations.	Lack of mechanisms to align the use of collected funds to encourage the uptake of more sustainable production practices by oil palm growers.	Complements land-use regulations for plantation development, and requirement to develop 20% of total plantation area as community plantations.	Farmers are forced to get commercial loans to meet the standard costs of replanting, as set by the authorities.
	Presidential regulation, ministerial regulation	Presidential Regulation No. 61/2015 on the collection and use of CPO funds ²	The regulations specify how plantation funds, primarily those deriving from levied CPO exports, are collected, managed, and used.	Lack of performance indicators and mechanisms to evaluate the use of funds against expected objectives.	Different company-initiated schemes are emerging that create scope for synergy with CPO funding for smallholder replanting and assisting farmers during grace period.	In practice, a large proportion of funds flows to subsidize large-scale corporations in their production of biofuels.
		Presidential Regulation No. 24/2016 on the collection of plantation funds ³	The regulations stipulate the use of funds to support human resource development, research and development, replanting, and biofuel production incentives.			
		Minister of Finance's Regulation No. 84/PMK.05/2017 on the use of CPO Fund for replanting ⁴	Defines the scope of fund use for replanting, and how standard costs for replanting are determined.			
	Bank of Indonesia regulation	Bank of Indonesia Regulation No. 14/15/PBI/2012 on the	Provides guidelines for financial service providers to adopt ESG principles.	Financial institutions have adopted diverse definitions	Increased adoption of sustainability policies embodying environmental	

APPENDIX I (Continued)

	assessment of commercial bank asset quality ⁵	Mandates banks to adopt prudent principles and to base credit assessments on business prospects, including debtor's performance in controlling and managing environmental impacts.	of sustainability principles and criteria.	and social responsibility by financial institutions and oil palm companies.
OJK regulation	Regulation of Financial Services Authority No. 51/POJK.03/2017 on the application of sustainable finance for financial services institutions, issuers, and publicly listed companies ⁶	The regulation was formed to accommodate the Roadmap for Financial Sustainability in Indonesia 2015–2019. The regulation introduces guidelines for implementing sustainable financing, and OJK mandates each implementer to submit and implement financial sustainability action plans.		Sustainability action plan should contain policies and procedures in accordance with international financial sustainability principles.
Trade	Ministerial regulation Finance Minister's Regulation No. 133/PMK.05/2015 on tariff and levies on exported CPO and derivatives ⁷	The regulation sets out the 24 palm oil and/or crude palm oil derivative products, and the export tariff per ton in USD for each product.	Lack of efficient mechanisms to redistribute export taxes and levies to oil palm producing regions, based on performance.	Complements fiscal policies aimed at incentivizing intensification and biodiesel production.
Ministerial regulation	The Minister of Trade's Regulation No. 54/M-DAG/PER/7/2015 on verification ⁸ The Minister of Agriculture's Regulation No. 11/Permentan/OT.140/3/2015 on the Indonesian Sustainable	Provides guidelines for verification and traceability of palm oil and its derivatives. Sets a procedure for verifying or tracing how the exported CPO is meeting administrative, physical, and technical requirements.	Neither regulation provides detail on how to ensure CPO products are derived from sustainable sources, which some importing countries check against traceability aspects.	Importing countries adopt import policies that primarily rely on international standards (i.e. RSPO, ISCC) to verify that the palm oil and its derivatives have originated from a sustainable supply source. Consumer goods companies set market constraints that do not recognize ISPO as a reliable system to ensure sustainable sourcing and zero deforestation.

APPENDIX I (Continued)

Fiscal	Law and presidential regulation	Palm Oil (ISPO) certification system ⁹ Law No. 33/2004 on fiscal balance between central and regional governments ¹⁰	Stipulates three different ways in which CPO and its derivatives can be traded, through segregation, mass balance, and book claim. Provides the legal basis for a mechanism for revenue sharing between central and regional governments.	No inclusion of environmental criteria in revenue sharing mechanism.	No mechanisms are in place to provide oil palm producing regions with fiscal incentives, based on environmental performance and adoption of sustainable palm oil practices.
Production	Law and government regulation	Presidential Regulation No. 24/2016 on the collection of plantation funds ³ Law No. 23/2014 on regional autonomy ¹¹ Government Regulation No. 18/2016 on local government organization ¹²	Through the presidential regulation, funds derived from CPO exports are collected and distributed to support various programs promoting oil palm plantation development. Local governments are granted power to manage natural resource sectors. Governors are granted more power to coordinate forestry affairs, including licensing, forestry management, and spatial plans. Heads of districts continue to issue licenses for estate crops, including oil palm plantations. Defines, among other things, sustainability principles in the plantation sector and the role of the authorities in issuing licenses. Companies are obliged to develop plantations over entire	Compliance with sustainability practices is not a condition for fund disbursement.	Power to affect forest conversion and oil palm development is shared between provincial and district governments, improving checks and balances.
	Law and government regulation	Law No. 39/2014 on Plantations ¹	Management performance is not judged in accordance with how growers perform in adopting sustainability practices, but rather the extent to which their established plantations		The regulation contradicts private sector attempts to set aside areas for conservation using international recognized methods and criteria (e.g. HCV and HCS).

APPENDIX I (Continued)

<p>Government Regulation No. 11/2010 on control and authority over abandoned land¹³</p>	<p>concessions, within six years of receiving their license, otherwise, the land is returned to the state.</p>	<p>respect the boundaries of their granted concession.</p>
<p>Ministerial regulation</p>	<p>This regulation states that lands not used as stipulated in the license become abandoned lands, which the state has the authority to take back.</p>	<p>Sustainability is mainly defined based on the extent to which growers or mills comply with regulations on plantation management, land, environment, labor, and community empowerment.</p>
<p>Ministry of Agriculture's Regulation No. 11/2015 on Indonesian sustainable palm oil (ISPO) certification systems⁹</p>	<p>The regulation outlines a procedure for certification under ISPO and specifies principles and criteria for sustainable production of palm oil, processes for certification, assessment, and decisionmaking, and mechanisms for conflict resolution. Sanctions are applied to those failing to become ISPO certified, including downgrading of plantation classification and revoking of licenses.</p>	<p>Major gaps with RSPO standards, relating to setting aside HCV areas, conducting FPIC for plantation development and adopting independent monitoring and verification systems.</p>
<p>Ministerial regulation</p>	<p>Provides guidance for smallholder replanting, human resource development, and establishment of means and infrastructure, with support from the CPO Fund. The Fund can be used to support various farmer empowerment programs, in line with local government development plans.</p>	<p>The regulation sets indiscriminate eligibility criteria, which most independent smallholders are unlikely to meet. It also fails to fully consider the diversity of growers.</p>
<p>Ministry of Agriculture's Regulation No. 29/Kpts/KB.120/3/2017 on the guidance on smallholder oil palm replanting with support from CPO Fund¹⁴</p>	<p>Complements company efforts to provide support to independent smallholders. Local governments can also make use of the CPO Fund to facilitate replanting by smallholders.</p>	<p>While the criterion of "unproductive land" is adopted in the regulation, oil palm plantations with HCV/HCS continue to be ISPO certified. The regulation is not in line with zero deforestation commitments.</p>
<p>Ministry of Agriculture's Regulation No. 29/Kpts/KB.120/3/2017 on the guidance on smallholder oil palm replanting with support from CPO Fund¹⁴</p>	<p>Complements company efforts to provide support to independent smallholders. Local governments can also make use of the CPO Fund to facilitate replanting by smallholders.</p>	<p>CPO Fund targets smallholder plantations without adequately distinguishing independent and schemed smallholders.</p>

APPENDIX I (Continued)

Land use	Law, government regulation, ministry regulations	Government Regulation No. 10/2010, ¹⁵ Government Regulation No. 104/2015, ¹⁶ and the Minister of Forestry's Regulation No. P.51/Menlhk/Setjen/KUM.1/6/2016 on the procedure for forest conversion and changes in forest area functions ¹⁷	The first set of regulations legalizes the use of forests and the conversion of forestland for other non-forestry purposes. They specify that production forests that can be converted into plantations or oil palm may include forested or non-forested areas. While “non-productive” is mentioned as a criterion for forests that can be converted, there is no detailed elaboration of how exactly this is defined, vis-à-vis the type of vegetative cover, nor the amount of carbon and biodiversity stored within an area of land.	Internationally recognized certification standards, including zero deforestation commitments, rely on forest areas with high carbon and biodiversity values being maintained within concession areas.	There is increased attention within public policy on the development of criteria for lands suitable for conversion to plantations, and essential ecosystem areas to be protected from conversion. This complements private sector attempts to use HCV and HCS instruments when managing their plantations and lands.	During spatial planning processes, district decisions to allocate lands for plantations are not fully in accordance with the criteria set to protect high carbon stock and biodiversity values. The criteria for determining which forests can be converted into plantations are not fully in line with the no deforestation commitments of the private sector.
		Law No. 5/1990 regarding the conservation of natural resources; ¹⁸ Law No. 23/1997 regarding environmental management; ¹⁹ Environmental Minister's Regulation No. 29/2009 regarding guidelines for the conservation of biodiversity at local level ²⁰	The second set of regulations provides a legal basis for the setting aside of areas within oil palm plantation concessions. Similar to HCV, those areas with high conservation value, and of ecological, social, and cultural importance—referred to as essential ecosystem areas—are declared as lands where conversion needs to be prevented.			

APPENDIX I (Continued)

Law	Law No. 26/2007 on spatial planning ²¹	The law outlines procedures for allocating lands across various production and conservation zones for use at different levels (national, provincial, and district) of government. In addition, it includes guidelines on spatial planning, implementation, and oversight.	Conversion of forested lands to plantations is allowed, as long as these lands are within allocated lands (e.g. within the convertible production forest category).	Local government bodies are granted power to review their spatial plans and make changes to land use, which may contradict national priorities.
Law, and government regulation	Law 32/2009 on the protection and management of the environment ²² and Government Regulation No. 71/2014 ²³ or No. 57/2016 on the protection and management of peat ecosystems ²⁴	The law and government regulations set procedures for planning and managing peat ecosystems, determining which peatlands are to be protected and which are to be used for plantations (cultivation).	Stricter requirements to protect peatlands from conversion, which complement commitments related to preventing the expansion of plantations into peatlands.	
Law and government regulation	Law No. 18/2013 on the prevention and control of forestland encroachment ²⁵	Provides a basis for preventing and tackling forestland encroachment, such as oil palm expansion into forestland. Forest clearance to make way for oil palm plantations (and other uses) without the Ministry's consent is considered a criminal act, subject to penalties. Provides an opportunity for companies, whose plantations are found to be in forestland, to apply for a retrospective permit from the Ministry, as long as the	Preventing encroachment onto state forestlands is not necessarily linked to institutional mechanisms for ensuring the maintenance of forests within those lands.	Companies that cleared forests for oil palm plantations without a permit may be exempt from punishment by presenting procedural failures during planning processes as their reason.
	Government Regulation No. 104/2015 on procedures for forest conversion and forest function changes ¹⁶			

APPENDIX I (Continued)

<p>Presidential regulation, ministerial regulation</p>	<p>Presidential Regulation No. 88/2017 on the resolution of tenure issues over state forestlands²⁶ Minister of Environment and Forestry's Regulation No. P.83/Memlhk/Setjen/Kum.1/10/2016²⁷</p>	<p>reason for a lack of permit is because of to governmental errors resulting from spatial planning processes. This regulation outlines mechanisms for resolving tenure issues when people, either individually or in a group, illegally control state forestlands and use them for settlements, public and social facilities, and plantations. Mechanisms include land exchange, conversion of forests into lands that can be legally used, resettlement, and granting access rights over lands through social forestry schemes. Lands may be dedicated for agricultural use and can become legally used for non-forest purposes. In such cases, farmers who have been in control of lands for more than 20 years may be granted ownership rights, with access rights granted if control over lands has been less than 20 years.</p>	<p>Improperly implemented, policies for resolving tenure issues will encourage a rise in smallholder illegalities, which makes state and company efforts to regulate illegal supply more difficult.</p>	<p>Legalizing the tenure of lands with existing oil palm plantations complements efforts to grant incentives and financial resources to smallholders to improve production practices. This can also facilitate efforts to put in place more transparent traceability systems in production areas where illegal tenure rights were prevalent.</p>	<p>Securing smallholder tenure through social forestry schemes will contradict private sector attempts to ensure larger volumes of supply from smallholders, as social forestry schemes require smallholders to stop planting oil palm and instead depend more on other forest-based livelihood options.</p>
<p>Presidential instruction</p>	<p>Presidential Instruction No.6/2017 on the postponement and improvement of governance in the issuance</p>	<p>Instructs certain government ministries and local government heads to postpone the granting of new business licenses on</p>	<p>The policy only targets primary forests and peatlands, disregarding secondary forests, which are forests subject to</p>	<p>The instruction puts in place the legal and institutional mechanisms to halt oil palm expansion</p>	<p>Companies working in the moratorium "no-go areas" whose permits have already been granted continue to operate, with</p>

APPENDIX I (Continued)

of new business licenses over primary forests and peatlands ²⁸	primary forests and peatlands. Includes reviewing licenses already granted on moratorium areas, improving policies relating to forest conversion and forest business utilization, and intensifying ecosystem restoration programs, taking actions to reduce emissions from primary forest and peatlands, and issuing relevant environment licenses. Governors and district heads are instructed not to issue new permits on forestlands and peatlands located on moratorium area map.	conversion to agricultural uses.	in primary forests and peatlands.	no legal constraints.
---	---	----------------------------------	-----------------------------------	-----------------------

CPO, crude palm oil; ESG, environmental, social and governance; FPC, free, prior and informed consent; HCS, high carbon stock; HCV, high conservation value; ISCC, International Sustainability and Carbon Certification; ISPO, Indonesian Sustainable Palm Oil; RSPO, Roundtable on Sustainable Palm Oil.

Sources:

- (1) Law No. 39/2014 on plantations (which revokes Plantation Law No.18/2004) issued 17 October 2014, <http://www.jdih.kemenkeu.go.id/fullText/2014/39TAHUN2014UU.pdf>
- (2) Presidential Regulation No. 61/2015 on the collection and use of CPO funds, issued 18 May 2015, <http://peraturan.go.id/inc/view/11e535a0a1a87024b53e313031393332.html>
- (3) Presidential Regulation No. 24/2016 on the collection of CPO funds, issued 15 March 2015, <http://peraturan.go.id/inc/view/11e6c5b9e7db7a10abe6313430383133.html>
- (4) Minister of Finance's Regulation No. 84/PMK.05/2017 on the use of CPO funds for replanting, issued 5 July 2017, <https://oygabusmi.files.wordpress.com/2017/07/84pmk-052017per.pdf>
- (5) Bank of Indonesia Regulation No. 14/15/PBI/2012 on assessment of commercial bank asset quality, issued 24 October 2012, https://www.bi.go.id/en/peraturan/perbankan/Pages/Selasa_19032013-17.aspx
- (6) Regulation of Financial Services Authority No. 51/POJK.03/2017 on application of sustainable finance for financial services institutions, issuers and publicly listed companies, issued 18 July 2017, https://www.ifc.org/wps/wcm/connect/f73fb38f-d33a-4afc-a352-4cb685d3b986/Indonesia+OJK+Sustainable+Finance+Regulation_English.pdf?MOD=AJPERES
- (7) Minister of Finance's Regulation No. 133/PMK.05/2015 on tariffs and levies on exported CPO and its derivatives, issued 14 July 2015, <http://www.jdih.kemenkeu.go.id/fullText/2015/133~PMK.05~2015Per.pdf>

APPENDIX I (Continued)

- (8) Minister of Trade's Regulation No. 54/M-DAG/PER/7/2015 on the verification or technical traceability of palm oil and its derivative products, issued 14 July 2015, <http://peraturan.go.id/permen/kemendag-nomor-54-m-dag-per-7-2015-tahun-2015.html>
- (9) Minister of Agriculture's Regulation No. 11/Permentan/OT.140/3/2015 on Indonesian Sustainable Palm Oil (ISPO) certification system, issued 18 March 2015, <http://peraturan.go.id/inc/view/11e57d3411c49402a2dc313232333439.html>
- (10) Law No. 33/2004 on fiscal balance between central and regional governments, issued 15 October 2004.
- (11) Law No. 23/2014 on regional autonomy, issued on 30 September 2014, <http://peraturan.go.id/uu/nomor-23-tahun-2014.html>
- (12) Government Regulation No. 18/2016 on local government organization, issued 15 June 2016, <http://peraturan.go.id/pp/nomor-18-tahun-2016.html>
- (13) Government Regulation No. 11/2010 on control and authority over abandoned land, issued 22 January 2010, <http://www.jdih.kemenkeu.go.id/fullText/2010/11TAHUN2010PP.HTM>
- (14) Minister of Agriculture's Regulation No. 29/Kpts/KB.120/3/2017 on the guidance on smallholder oil palm replanting with support from CPO Fund, issued 27 March 2017 <http://ditjenbun.pertanian.go.id/tinymcpuk/gambar/file/SK%20Pedoman%20Peremajaan%20Kelapa%20Sawit.pdf>
- (15) Government Regulation No. 10/2010 on procedures for forest conversion and changes in forest area functions, issued 22 January 2010, <http://www.bpn.go.id/PUBLIKASI/Peraturan-Perundangan/Peraturan-Pemerintah/peraturan-pemerintah-nomor-10-tahun-2010-2014>
- (16) Government Regulation No. 104/2015 on procedures for forest conversion and changes in forest area functions, issued 22 December 2015, http://www.forda-mof.org/files/PP_104_2015_tata_cara_perubahan_peruntukan_dan_fungsi_kawasan_hutan.pdf
- (17) Minister of Environment and Forestry's Regulation No. P.51/Menlhk/Setjen/KUM.1/6/2016 on the procedure for release of convertible production forests, issued 15 June 2016, http://www.forda-mof.org/files/P.51_2016.pdf
- (18) Law No. 5/1990 on the conservation of natural resources, issued 10 August 1990, <http://www.dpr.go.id/dokjdih/document/uu/602.pdf>
- (19) Law No. 23/1997 on environmental management, issued 19 September 1997, <http://www.jdih.kemenkeu.go.id/fullText/1997/23TAHUN~1997UU.HTM>
- (20) Minister of Environment's Regulation No. 29/2009 regarding guidelines for the conservation of biodiversity at local level, issued 5 August 2009, <https://dlh.bantulkab.go.id/filestorage/dokumen/2014/05/PerMen%20LH%20No.%2029%20Tahun%202009.pdf>
- (21) Law No. 26/2007 on spatial planning, issued 26 April 2007, <http://www.jdih.kemenkeu.go.id/fullText/2007/26TAHUN2007UU.HTM>
- (22) Law 32/2009 on the protection and management of the environment, issued 3 October 2009, <http://www.jdih.kemenkeu.go.id/fullText/2009/32TAHUN2009UU.HTM>
- (23) Government Regulation No. 71/2014 on the protection and management of peat ecosystems, issued 12 September 2014, <http://www.jdih.kemenkeu.go.id/fullText/2014/71TAHUN2014PP.HTM>
- (24) Government Regulation No. 57/2016 on the protection and management of peat ecosystems, issued 2 December 2016, <http://peraturan.go.id/inc/view/11e6fc8de7f75c10813d303834313439.html>
- (25) Law No. 18/2013 on the prevention and control of forestland encroachment, issued 6 August 2013, http://www.dpr.go.id/dokjdih/document/uu/UU_2013_18.pdf
- (26) Presidential Regulation No. 88/2017 on the resolution of tenure issues over state forestlands, issued 6 September 2017, http://www.forda-mof.org/files/Perpres_Nomor_88_Tahun_2017.pdf
- (27) Minister of Environment and Forestry's Regulation No. P.83/Menlhk/Setjen/Kum.1/10/2016 on social forestry, issued 25 October 2016, <https://drive.google.com/file/d/0B0BIwboOaq30WTJldcyZ1o0V28/view>
- (28) Presidential Instruction No.6/2017 on the postponement and improvement of governance in the issuance of new business licenses over primary forests and peatlands, issued 17 July 2017, [http://perpustakaan.bappenas.go.id/lontar/file?file=digital/170715-\[_Konten_\]_Inpres%20No%206%20Tahun%202017.pdf](http://perpustakaan.bappenas.go.id/lontar/file?file=digital/170715-[_Konten_]_Inpres%20No%206%20Tahun%202017.pdf)

APPENDIX II

Private sector sustainability initiatives influencing the palm oil sector

Policy realm	Type of initiatives	Number	Scope	Type of interactions		
				Disconnects	Complementarities	Antagonisms
Principles	Principles for responsible and sustainable investment	EP, established in 2003, with a third interaction launched in 2013 ¹	The EP is a risk management framework adopted by financial institutions to determine, assess, and manage environmental and social risk in project finance. It is primarily intended to provide a minimum standard for due diligence to support responsible risk decisionmaking. The “Soft Commodities” Compact was developed in partnership with the CGF. It aims to mobilize the banking industry to help corporations to achieve ZND by 2020.	Responsible finance principles adopted by OJK in its regulation on sustainable financing in Indonesia.		
		SCC, some technical guidance was updated in 2015 ²		Complements RSPO. Approaches to implement ZND prioritize avoiding the conversion of HCV/HCS forests.		
Pledges and commitments	Zero deforestation pledges	CGF, net zero deforestation pledge issued in 2010 ³	A private sector platform that brings together approximately 400 member consumer goods manufacturers and retailers in pursuit of business practices for efficiency and positive change. The main environmental sustainability goal is to achieve ZND by 2020 through the responsible sourcing of commodities.	Stimulates compliance with RSPO, protection of HCV and HCS, adoption of FPIC, and no new developments in peatlands.		
		NYDF, issued in 2014 ⁴	A non-legally binding political declaration that grew out of dialog between governments, companies, and civil society, spurred by the Secretary General’s Climate Summit. The goal is to halve natural forest loss by 2020, and to end it by 2030.	Companies’ traceability systems are difficult to apply in areas where illegal land tenure persists.	Complements company-specific policies around NDPE, and the RSPO certification system.	Contradicts plantation regulations that prevent the setting aside of HCV and HCS areas.

APPENDIX II (Continued)

<p>ESPO, established in 2015⁵</p>	<p>Project to promote the uptake of sustainable palm oil in Europe. The ESPO works on sustainable palm oil with national palm oil initiatives, as well as the RSPO and umbrella EU associations. Their commitment is to support 100% sustainable palm oil in Europe, under RSPO, by 2020.</p>	<p>Acknowledges the work done by ISPO and MSPO, but not formally endorsed.</p>	<p>Adopts RSPO certified (or equivalent) as a minimum to advance expected targets.</p>
<p>SPOM, issued in 2014⁶</p>	<p>An initiative of five palm oil producers. SPOM members committed to: (i) no deforestation, (ii) protect peat areas, and (iii) drive positive socio-economic impact for people and communities. This group announced an immediate moratorium on the clearance of HCS forests, subject to a study and harmonization of HCS criteria with HCS+.</p>	<p>The HCS Convergence Process led to a unified approach between HCSA and HCS+ to implement ZD commitments.</p>	<p>Resulted from the NYDF influencing major corporate groups with oil palm plantations in Malaysia.</p>
<p>IPOP, issued in 2014 and disbanded in 2016⁷</p>	<p>Pledge made by five major corporate palm oil groups. IPOP pledged to: (i) improve environmental stewardship, (ii) encourage development of policies and legal and regulatory frameworks to promote zero deforestation, (iii) expand social benefits, and (iv) improve the competitiveness of palm oil.</p>	<p>Resulted from the NYDF influencing major corporate groups with plantations in Indonesia.</p>	<p>Disbanded when the Government of Indonesia accused IPOP of cartel practices.</p>
<p>Codes of conduct</p> <p>Companies' sustainability policies</p> <p>Individual commitments to NDPE adopted by corporate groups since 2013⁸</p>	<p>Major corporate groups (e.g. Wilmar, GAR) have committed individually to support sustainable palm oil supply through a NDPE policy, with implementation approaches that are specific to each corporate group.</p>	<p>Lack of alignment of implementation approaches, cutoff dates and targets across corporate groups.</p>	<p>Commitments to halt developments on HCS and HCV areas, and FPIC.</p>
<p>Voluntary standard systems</p> <p>Certification systems established in 2004⁹</p>	<p>A multistakeholder system that develops and applies a set of environmental and social criteria to comply with CSPO. Engages and</p>	<p>Gaps persist with national mandatory standards (ISPO and MSPO).</p>	<p>Consumer countries adopt import policies that rely on voluntary standard systems (i.e. ISCC, RSPO) in order to verify that supply originates from sustainable sources.</p>

APPENDIX II (Continued)

ISCC, established in 2006 ¹⁰	commits all stakeholders throughout the supply chain. Independent multi-stakeholder organization to engage producers and buyers on the implementation of ecological and social sustainability in supply chains and respond to the monitoring and control of GHG emissions, mainly linked to the EU-RED.
---	---

CGF, Consumer Goods Forum; CSPO, Certified Sustainable Palm Oil; EU-RED, EU Renewable Energy Directive; ESG, environmental, social and governance; FPIC, free, prior and informed consent; GHG, greenhouse gas; HCS, high carbon stock; HCSA, High Carbon Stock Approach; HCV, high conservation value; ISCC, International Sustainability and Carbon Certification; IPOP, Indonesian Palm Oil Pledge; ISPO, Indonesian Sustainable Palm Oil; MSPO, Malaysian Sustainable Palm Oil; NDPE, no deforestation, no peat, and no exploitation; NYDF, New York Declaration on Forests; OJK, Indonesian Financial Service Authority; RSPO, Roundtable on Sustainable Palm Oil; SPOM, Sustainable Palm Oil Manifesto; ZD, zero deforestation; ZND, zero net deforestation.

Sources:

- (1) <http://equator-principles.com/>
- (2) <https://www.cisl.cam.ac.uk/business-action/sustainable-finance/banking-environment-initiative/programme/sustainable-agri-supply-chains/soft-commodities>
- (3) <https://www.theconsumergoodsforum.com/wp-content/uploads/2017/10/20150810-Sustainable-Plam-Oil-Sourcing-Guidelines-Final-Version-1.pdf>
- (4) <https://www.un.org/climatechange/summit/wp-content/uploads/sites/2/2014/07/New-York-Declaration-on-Forest-%E2%80%93-Action-Statement-and-Action-Plan.pdf>
- (5) <https://www.idhsustainabletrade.com/initiative/european-sustainable-palm-oil-espo/>
- (6) http://www.ioigroup.com/Content/S/PDF/Sustainable_Palm_Oil_Manifesto.pdf
- (7) http://awsassets.wwf.or.id/downloads/indonesia_palm_oil_pledge_in_un_climate_summit_ny_240914_final.pdf
- (8) <http://www.wilmar-international.com/wp-content/uploads/2012/11/No-Deforestation-No-Peat-No-Exploitation-Policy.pdf>
- (9) <http://www.rspo.org/>
- (10) https://www.iscc-system.org/wp-content/uploads/2017/02/ISCC_102_Governance_3.0.pdf