



Deconstructing sustainable rubber production: contesting narratives in rural Sumatra

Fenna Otten, Jonas Hein, Hannah Bondy & Heiko Faust

To cite this article: Fenna Otten, Jonas Hein, Hannah Bondy & Heiko Faust (2020): Deconstructing sustainable rubber production: contesting narratives in rural Sumatra, Journal of Land Use Science, DOI: [10.1080/1747423X.2019.1709225](https://doi.org/10.1080/1747423X.2019.1709225)

To link to this article: <https://doi.org/10.1080/1747423X.2019.1709225>



© 2020 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.



Published online: 15 Jan 2020.



Submit your article to this journal [↗](#)



Article views: 315



View related articles [↗](#)



View Crossmark data [↗](#)



ARTICLE



OPEN ACCESS



Deconstructing sustainable rubber production: contesting narratives in rural Sumatra

Fenna Otten^a, Jonas Hein^b, Hannah Bondy^a and Heiko Faust^{a,c}

^aDepartment of Human Geography, University of Göttingen, Göttingen, Germany; ^bDepartment of Geography, Christian-Albrechts-University Kiel, Kiel, Germany; ^cCentre of Biodiversity and Sustainable Land Use, University of Göttingen, Göttingen, Germany

ABSTRACT

The growing demand for natural rubber is increasingly threatening biodiversity and forest ecosystems. Recently, the French Michelin Group started a cooperation with the World Wide Fund for Nature (WWF) to establish environmentally and socially sustainable 'model' rubber plantations in Sumatra and Kalimantan, Indonesia. The framing of Michelin's tyre production as 'eco-friendly' and their purported 'sustainable' rubber cultivation contradict with statements by villagers living around Michelin's plantation in Jambi Province, Sumatra, who are reporting environmental destruction and land tenure conflicts. Conceptually, we build on political ecology and critical human geography perspectives to identify conflicts and ambiguities related to sustainability claims, deforestation and dispossession. Empirically, we draw on qualitative research in a village affected by the plantation. We confront and deconstruct the discursive framing of sustainable rubber production with our empirical findings. We show how the plantation restricts access to land and instead of providing additional income, is actually limiting development opportunities.

ARTICLE HISTORY

Received 31 March 2019

Accepted 20 December 2019

KEYWORDS

Sustainability narratives; green economy; green grabbing; sustainable rubber; land conflict; Sumatra

Introduction

During the last decades, narratives, in which economic growth is reconciled with 'sustainable', 'green' and 'inclusive' development gained traction. This reconciliation is the credo of the 'green economy' as envisioned in *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication* by the United Nations Environment (UNEP, 2011) and the response to 'growing environmental risks, ecological scarcities and social disparities' (ibid., p. 1). Agriculture and forestry drew more and more criticism, particularly due to the socio-ecological damage of agro-industrial monoculture plantations. In this context, corporate actors and large environmental NGOs such as the World Wide Fund for Nature (WWF) have become increasingly relevant in formulating and establishing voluntary sustainability standards and in the investing in and managing of conservation projects (Chan & Pattberg, 2008; Hein, 2019; Karkkainen, 2004; Klooster, 2010; MacDonald, 2010). Transnational multi-stakeholder initiatives such as the Forest Stewardship Council (FSC), the Roundtable on Sustainable Palm Oil (RSPO) and the New York Declaration on Forests were established with the involvement of NGOs, corporations and state actors in order to foster changes in production systems towards more sustainable and socially inclusive land use practices. In the rubber sector the 'Sustainable Natural Rubber initiative' (SNR-i), an industry initiative under the framework of the International Rubber Study Group, was launched in 2015

CONTACT Fenna Otten ✉ fenna.otten@geo.uni-goettingen.de Department of Human Geography, University of Göttingen, Goldschmidtstrasse 5, Göttingen 37077, Germany

© 2020 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives License (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way.

with the aim to increase sustainability of the entire natural rubber sector and bring benefits to all actors along the value chain (Sustainable Natural Rubber Initiative [SNR-i], 2015).

Natural rubber is a renewable resource, but the sustainability of contemporary production is highly questionable. Within ten years, the global cultivated area has doubled and this trend is expected to continue (Tyson, 2009; Warren-Thomas, Dolman, & Edwards, 2015). Much of the expansion has led to the conversion of areas with high conservation value (Ahrends et al., 2015). Moreover, rubber is mainly cultivated on agro-industrial monoculture plantations; conversion, thus, requires deforestation, which results in carbon emissions, biodiversity losses, and negative impacts on ecosystem functions and services (Clough et al., 2016; Warren-Thomas et al., 2015, 2018). Rubber agroforestry systems, in comparison, conserve a high degree of forest biodiversity (Clough et al., 2016; Feintrenie & Levang, 2009). The vast majority of the world's natural rubber is produced in Southeast Asian countries. Thailand and Indonesia alone are responsible for more than 50% of the global harvest volume (FAOSTAT, 2018). In Indonesia, it is noteworthy to mention, natural rubber is cultivated to a greater extent on smallholdings rather than on large-scale plantations. In Sumatra, the primary growing area of Indonesia, smallholders currently produce roughly 82% of rubber yields (Direktorat Jenderal Perkebunan [DJP], 2016a).

In 2015, the French tyre company Michelin began establishing 'model' rubber plantations in concessions on Sumatra and Kalimantan in order to produce 'eco-friendly' natural rubber tyres (Michelin, 2019). The company is rather vague about particularities regarding the 'social and environmental terms' of these rubber plantations. Half of the entire concession area is designated for monoculture rubber cultivation, where best-management practices shall be applied and 16,000 jobs will be created. The remaining land is to be spared for matters of conservation and smallholder collaboration schemes (Michelin, 2019). This pilot project to produce 'sustainable' natural rubber is the realization of a cooperation with the WWF. Together, Michelin and the WWF defined a sustainable natural rubber sourcing policy released in the *Sustainable Natural Rubber Policy*, wherein Michelin declares its commitment to sustainable development (Michelin, 2016). The commitment is in line with the UN World Commission on Environment and Development, stating: 'Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (ibid., p. 4). The *Sustainable Natural Rubber Policy* expounds on five overarching themes, namely: 'respecting people', 'protecting the environment', 'improving farming practices', 'carefully using natural resources', and 'practicing good governance' (ibid., p. 3). Overall, Michelin clearly addresses economic, ecological, and social aspects of sustainability, both in their sustainability policy and in regard to the investment project in Indonesia.

When visiting the village of Muara Sekalo in the thirty-hill landscape of Jambi Province, Sumatra, an area which is affected by the establishment of plantations, it became apparent that Michelin's statements are highly contestable. First, villagers reported land tenure conflicts. They claim to have been coerced into assigning their land to the local rubber company PT¹ Lestari Asri Jaya (PT LAJ). Second, farmers reported environmental destruction because plantation establishment involved deforestation. Land conflicts and environmental destruction as a result of the expansion of the plantation sector in the thirty-hill landscape, as well as in other parts of Jambi, have a long and violent history involving state authorities, private companies, peasants and indigenous communities. These disruptive frontiers associated with different commodity booms such as timber, rubber and palm oil transformed the landscape and have created a 'transitional place' (Fold & Hirsch, 2009) where the boundaries between sustainable and destructive practices are blurred and where peasants' land-use activities are challenged by plantation estates, protected areas and the formation of land markets (Hein, 2019; Peluso & Lund, 2011).

We argue that the conflicts and ambiguities in the thirty-hill landscape exemplify a new kind of conservation and development controversy associated with the expansion of the 'green' economy. The rather simplistic market logics of consumer-oriented sustainability schemes meet the complex everyday realities of smallholders affected by new enclosures of land and labour in the name of sustainability (Brockington & Duffy, 2010; Fairhead, Leach, & Scoones, 2012). We will show how a huge network of actors from business and finance companies, environmental organisations,

governmental institutions, and supra-national bodies like UNEP have discursively framed a blueprint for *sustainable* development, which deliberately silences local realities. We argue that this new development narrative merely resembles an out-dated 'blueprint for development' (Roe, 1991, p. 288), which relies on interventionist and large-scale land acquisitions for poverty eradication. Through the reframing of the old narrative as 'green', 'inclusive' and 'sustainable' its false promise of development persisted over time – despite failures in the past (McCarthy, Vel, & Afiff, 2012) and evidence to the contrary (Bebbington, 2003; Li, 2011).

In what follows, we first outline our theoretical approach towards the discursive framing and production of current-day 'sustainable', 'green' and 'inclusive' development narratives, which rather often function as legitimization for large-scale land acquisitions and frequently incorporate accumulation processes via dispossession (Igoe, Neves, & Brockington, 2010). Thereafter, we outline our research design, which can be considered complementary to land system sciences (LSS) approaches (Brannstrom & Vadjunec, 2013; Turner & Robbins, 2008) and an enriching contribution to a recent call for more normativity in LSS studies (Nielsen et al., 2019). We go on to describe the particularities of the research site. We then illustrate the actors who are involved in the transnational investment project and their 'sustainability' narrative. Finally, we confront this narrative with empirical findings from Muara Sekalo. In this way, we deconstruct the narrative of 'eco-friendly' natural rubber tyres and unravel the internal contradictions of this product. Thus, we show how the financialisation of agriculture, land and labour unfolds in the thirty-hill landscape in Jambi Province.

Towards a political ecology of sustainable development narratives

Critical human geographers understand themselves as normative, left, progressive, and at times radical scientists (Blomley, 2007) united through a 'shared commitment to emancipatory politics within and beyond the discipline' (Painter, 2000, p. 126). Political ecology grew from the 'largely apolitical forms of explanation [for] environmental problems' and questions the capability of market mechanisms for environmental protection after decades of failure (Peet, Robbins, & Watts, 2011, p. 24). These two disciplines share many theoretical and empirical concerns and have recently been more and more engaged in an intense dialog (Hein, 2019). In light of global environmental change, critical human geography and political ecology perspectives could potentially enrich current debates within the LSS community. Particularly in light of sustainability transformations, there is a call for greater consideration of normative and political dimensions in LSS (Nielsen et al., 2019; Van der Hel, 2018). We argue that in the context of economic globalization the following questions raised by Munroe McSweeney, Olson, & Mansfield (2014) are highly relevant: 'how and for whom access to and dependence on resources is changing, how market interconnections are produced by particular actors in particular contexts, and what these powerful actors stand to gain' (Munroe et al., 2014, p. 14). These relations are vitally important because they decisively influence the conditions and consequences of land use transformations (Messerli, Heinemann, Giger, Breu, & Schönweger, 2013). The process to mutually integrate methods, approaches and knowledge of these two interdisciplinary schools of thought has existed for several years. The continuation of this process, and the debates regarding their integration, is important (Brannstrom & Vadjunec, 2013; Messerli et al., 2013; Rindfuss, Walsh, Turner, Fox, & Mishra, 2004; Turner & Robbins, 2008; Verburg, Erb, Mertz, & Espindola, 2013).

Development narratives

As indicated above, development narratives have gained traction in explaining how our common future could and should look like. Narratives can be considered 'stories' or 'arguments', that 'frame problems in particular ways and in turn suggest particular solutions' (Leach, Mearns, & Scoones, 1999, p. 229). However, they are 'less hortatory and normative than ideologies' and 'explicitly more programmatic than myths' (Roe, 1991, p. 288).

Why do such narratives effectively function as legitimizing a certain development trajectory? Why are they rarely countered? A key feature of narratives as such, and a reason for their explanatory power, is 'causal emplotment' (Somers, 1992). Causal emplotment means to relate singular phenomena to each other, not merely to sort them by category or in chronological order. Narratives, then, suggest a particular relationship of phenomena, which is neither 'true' nor 'false'. As causal emplotment alludes to a broader theme or discourse, it is thus an accounting of a narrative's storyline. A narrative provides a frame for otherwise isolated events, it 'gives significance to independent instances' (Somers, 1992, p. 601). Furthermore, narratives are told from a distinct perspective, they do not necessarily consider different angles. Accordingly, narratives 'are taken by one or more parties to the controversy as underwriting and stabilizing the assumptions for policymaking' (Roe, 1994, p. 3), which are beneficial for some while ignoring others. In this sense, phenomena about the 'destruction' of socio-ecological relations that come along with large-scale land acquisitions are withheld and not related to the narrative. This is a decisive point to comprehend how development narratives function and legitimize interventionist projects.

Escobar (1995, p. 155) discusses how peasants, women, and nature were incorporated in the 'Third World' development discourses: being used to legitimize neoliberalist approaches to poverty eradication that do not benefit them. Until today, it seems common practice that locals are portrayed within development discourses as people in need (Li, 2011). Within global commodity chains, they are conceptualised as 'labour power', which is nothing more than 'an input into production and development processes' (Selwyn, 2016, p. 782). In regard to the land grab debate, Li (2011, p. 281) therefore calls for a labour perspective to retort the World Bank's 'optimistic master-narrative' about large-scale agricultural projects, as presented in *Rising Global Interest in Farmland: Can it Yield Sustainable and Equitable Benefits?* (Deininger & Byerlee, 2011).

Moral investments

Over the last decades, farmland has become a valuable resource. Large tracts of once fertile land have been degraded while the demand for food, feed, and cash crops steadily rises (Deininger, 2011; Molotoks et al., 2018; Reyes & Sandwell, 2016; Zabel et al., 2019). The consequential large-scale investments in farmland revived the financialisation of farming (Ouma, 2016; Sippel, Lawrence, & Burch, 2017). This so-called 'rush for land' drew much normative critique (Ouma, 2014, 2015; Ouma, Johnson, & Bigger, 2018; White, Borras Jr., Hall, Scoones, & Wolford, 2012). Sippel (2018) argues that investments are not criticised randomly but depending on societal norms and values; accordingly, investments are classified as either moral or immoral. For a long time, morality was constituted by 'economic and agricultural productivity', but then social and environmental responsibility of agricultural investment projects gained in importance (Kish & Fairbairn, 2018, p. 569). Taking the perspective of investors, Kish and Fairbairn (2018, p. 569) state that 'moral' narratives have become necessary to 'maintain legitimacy and profitability'. Presently, developmental narratives, which relate to global concerns like, for instance, environmental degradation, resource scarcity and poverty, can be considered moral and thus 'continue to legitimize large-scale land acquisitions' (McCarthy et al., 2012, p. 522). These 'sustainability narratives' legitimize the continuation of a market model, which promises constant growth and development through the conservation and restoration of the environment, although it actually works towards its destruction. Investment in 'sustainable' agro-industrial agriculture proves to be highly profitable (Ouma, 2016), regardless of whether it is actually or virtually sustainable. More than 'selling nature to save it' (McAfee, 1999, p. 133), new enclosures are allegedly 'saving nature to trade it' (Sullivan, 2013, p. 200).

Research design and methods

We regard space as produced through a myriad of social practices and relations (Massey, 2005/2012). Thereby, we understand the local as relative positions constituted by and embedded in socio-spatial practices (Munroe et al., 2014). The global, then, is the spatial dimension, which emerges through the linking of local sites (Marcus, 1995). It is neither a contrast to the local, nor is globalization

a homogenous phenomenon (Massey, 2005/2012). Building on this spatial premise, our research design was inspired by 'strategically situated (single-site) ethnography' (Marcus, 1995, p. 110). We did not literally follow the narrative of 'sustainable' rubber and its actors from the production site in Muara Sekalo (Figure 1) to further sites of investment, valuation, or consumption, but we followed the narrative by means of a comprehensive document analysis. Following fieldwork, intensive qualitative content analysis was carried out, including, inter alia, the investigation of stakeholders' self-presentations, analysis of issued press releases and media coverage about the case.

The case study in the village Muara Sekalo arose out of an explorative research project, which, in total, included nine research villages. This project is itself part of a large German-Indonesian interdisciplinary research project on the transformation of lowland rainforest. Based on our initial empirical findings in the village Muara Sekalo, we decided to deepen our investigations in this particular case. Fieldwork was carried out by the first author in November and December 2017. We applied qualitative research methods, this comprised qualitative interviewing techniques (unstructured explorative interviews, semi-structured guideline interviews, narrative interviews, and a problem-centred focus group discussion) and participatory observations. All interviews were conducted in Indonesian and English with the help of a local assistant. Detailed interview protocols were elaborated shortly after the interviews. In case the interviewees agreed, the interviews were audio-recorded and transcribed verbally in Indonesian. Initial interviews were conducted with village officials, e.g. the head of the village and the village secretary. Themes that were raised during these semi-structured interviews included village history and agricultural development, past and present problems and particularities, and institutional village affairs. Additionally, unstructured and informal interviews were conducted with the hosting family and neighbours. Using this as a starting point, more participants were selected via snowball sampling. Further interviews were mostly problem-centred, with specific topics adjusted to interviewees and updated over the course of fieldwork. The

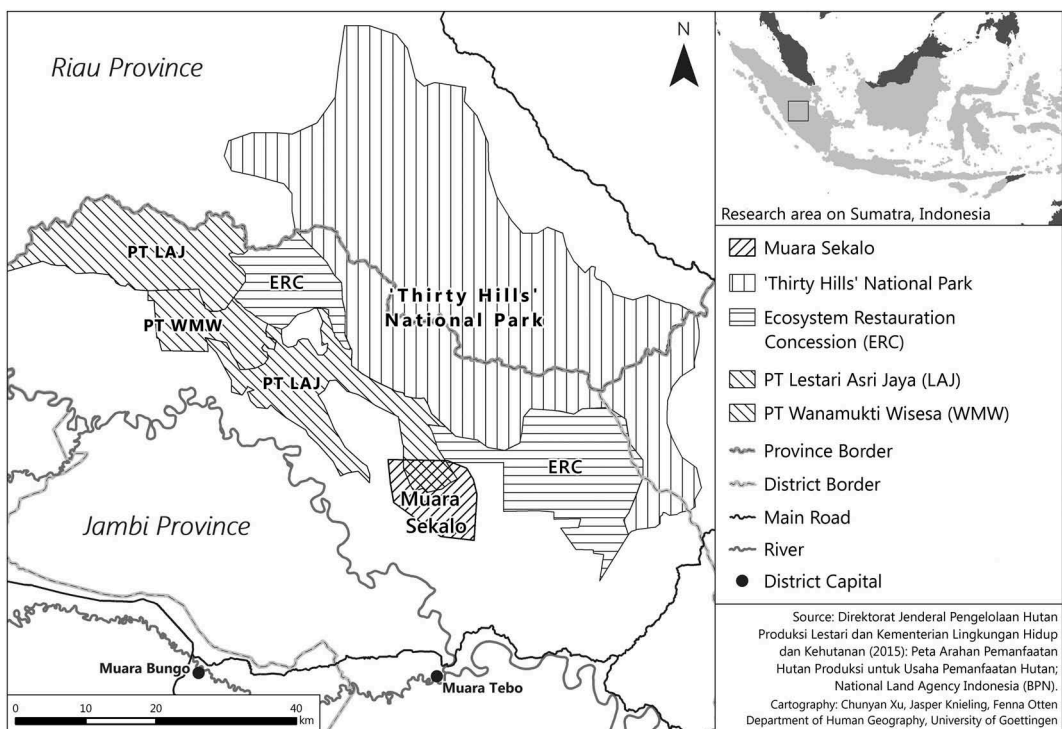


Figure 1. Research area: the thirty-hill landscape.

sampling was closed when data saturation was reached (O'Reilly & Parker, 2013 following Bowen, 2008). More precisely, this point was reached when different perspectives and opinions of interviewees were consistent with one another and altogether formed a complete story. Besides 16 individual interviews, a focus group discussion was conducted with female labourers of the local rubber company PT LAJ. The questions raised related to the women's work at the company, their motivation, tasks and difficulties, as well as implications of the plantation establishment regarding their livelihoods. Interviewing was accompanied by participatory observation, which broadened the perspective and drew attention to important aspects found in this case study. Finally, this triangulation, i.e. the use of different methods and data sources, ensured the credibility of our findings (Bowen, 2008).

Sumatra – case study region

Rubber cultivation in Sumatra

The island of Sumatra is the main cultivating region in Indonesia (DJP, 2016a). Initially, rubber trees (*Palaquium* spp., especially *Palaquium gutta*) were cultivated in agroforestry systems often referred to as 'jungle rubber'. As a result of a persisting high world market demand for natural rubber and correlated over-exploitation of *gutta-percha*, the sap of native species, local farmers reforested these systems with a new variety, the Para rubber tree (*Hevea brasiliensis*) (Feintrenie & Levang, 2009). These farmers adopted the variety from the Dutch, who had been cultivating it on their plantations from the early 20th century onwards (Locher-Scholten, 2004). From the late 20th century onwards, farmers gradually replaced the agroforestry system of production with rubber tree monocultures (Feintrenie & Levang, 2009).

Jambi Province is located on Sumatra, Indonesia. Jambi borders the provinces Riau to the north, West Sumatra and Bengkulu to the west, and South Sumatra to the south. To the east, the South China Sea bounds the province. Large parts of Jambi's landscape are characterised by agricultural use. In 2013, approximately 30% of Jambi's land surface was still covered with forest (1.47 Mha), mainly located in the western highlands, whereas 55% of the land had been transformed into agricultural land (Drescher et al., 2016; Melati, 2017). Land-use change analyses show that from 1990 to 2013, both primary and secondary forest decreased by about one third. Especially secondary forest was converted into oil palm and rubber plantations (Melati, 2017). The main agricultural products are palm oil and rubber. In 2015, the area under oil palm cultivation amounted to 0.74 Mha, while rubber plantations covered 0.38 Mha. Smallholders manage the bulk of oil palm and rubber plantations in Jambi Province. They cultivate 61% of the area under oil palm and 99% under rubber, respectively. However, on the national scale smallholders play a less important role, where they manage only 40% of oil palm and 85% of rubber growing acreage (Direktorat Jenderal Perkebunan, 2016a, 2016b).

Privatized conservation, land use and conflict in Jambi

As a biodiversity hotspot, Indonesia has long been a target region for projects and campaigns of transnational conservation organizations. Conservation NGOs managed community-based conservation projects and were successful in lobbying for national parks and environmentally friendly natural resource management regulations (Hein, 2019; Peluso, Affif, & Rachman, 2008; Wells, Guggenheim, Khan, Wardojo, & Jepson, 1999). However, in contrast to many Latin American countries, NGOs and private companies were not able to establish larger private protected areas because the forest law did not permit a 'non-productive use' of forest concessions (Hein, 2019). In the 2000s, neoliberal concepts such as 'governance through markets' (Peet et al., 2011, p. 7) and multi-stakeholder non-governmental product certification (Klooster, 2010) became more relevant in environmental governance. Neoliberal environmental governance in its Indonesian form included new legislations that permitted NGOs to establish ecosystem restoration concessions (ERC) inside

the state forest estate, corporate sustainability initiatives, private standards and more recently, regulations on environmental offsetting. Today, large companies, such as the palm oil company Wilmar, are members of the Roundtable for Sustainable Palm Oil (RSPO) while the forestry company, Asia Pulp and Paper, along with a number of conservation companies, are investing in ecosystem restoration and forest carbon offsetting (Hein, 2019).

In the Province of Jambi, NGOs and companies became important actors in conservation, ecosystem restoration and sustainability initiatives. The province hosts two privately managed ERCs and three REDD+ projects involving NGOs (Hein, 2019). The RSPO has certified companies and smallholders managing oil palm plantations in the province (Brandi et al., 2015; Kunz et al., 2019). However, recent studies indicate that sustainability certification has not led to significant changes in land management (Kunz et al., 2019) and the privately managed ecosystem restoration initiatives and REDD+ projects are highly contested (Hein, Adiwibowo, Dittrich, Soetarto, & Faust, 2016; Hein, Faust, Kunz, & Mardiana, 2018; Kunz, Hein, Mardiana, & Faust, 2016). In particular, the ERC managed by the conservation company PT Restorasi Ekosistem Indonesia, also known as 'Hutan Harapan', which is located in the province, has experienced violent land conflicts involving peasant movements, indigenous groups, state authorities and organized crime (Beckert, Dittrich, & Adiwibowo, 2014; Gilbert & Afrizal, 2019; Hein, 2019; Hein et al., 2016). Adjacent to Michelins model plantations, the ERC of PT Alam Bukit Tigapuluh (PT ABT), a company founded by WWF and Frankfurt Zoological Society, experienced land conflicts as well (Hein, 2013; Redaksi Dinamika Jambi, 2018).

Land conflicts in Jambi do not only occur in the context of conservation initiatives. Many land conflicts in the province occur in the context of massive expansion of corporate oil palm, pulp and paper estates (Beckert et al., 2014; Steinebach, 2013). The reasons for the highly contested character of land relations in Jambi are manifold. Kunz et al. (2016) refer to complex contradictions between de facto and de jure land tenure. Hein et al. (2018) refer to contested spatial planning and conflicts among different state authorities. A number of authors have pointed towards historically rooted structural inequality and to the fact that approximately 40% of the province is designated as state forest estate (*kawasan hutan*) (Perbatakusuma et al., 2012, p. 1), neglecting customary rights of indigenous and local communities (Brad, 2019; Hein, 2019; Kunz et al., 2017; Steinebach, 2013).

The Ministry of Environment and Forestry controls the forest estate and facilitates access through a concession system. In many cases, state forest allocated to companies is claimed and used by indigenous and local communities that do not have de jure rights to their land. Consequently, whenever a new concession is allocated to a company, as happened in this case study, land tenure conflicts may intensify (Beckert, 2017; Beckert et al., 2014; Mardiana, 2014, 2017). The remaining land outside of the state forest estate is under the authority of the National Land Agency and district governments. However, in many cases, district governments and the National Land Agency prefer to allocate large agribusiness concessions instead of supporting local and indigenous communities (Hein, 2019).

Results

In the following, we will describe key actors who are entangled with Michelin's investment project in Indonesia and summarize their account of rubber production in Jambi (Figure 2). We focus on three entities, first, PT Royal Lestari Utama (PT RLU), a joint-venture of Michelin and subsidiary of the Barito Pacific Group, second, the WWF, active in Jambi since the 1980s and co-founder of PT ABT, a private conservation company, and third, the Tropical Landscape Finance Facility (TLFF), a financial institution. We will illustrate how these institutions discursively co-produce the narrative of sustainable rubber cultivation whilst consolidating the 'global green agenda' (Fairhead et al., 2012, p. 251) of present-day development discourses, thus legitimizing their enclosure of land and labour. Subsequently, we will contrast this narrative dimension with material impacts on the ground. Peasants living adjacent to the model plantations report contradictions, thereby revealing quite a different perspective.

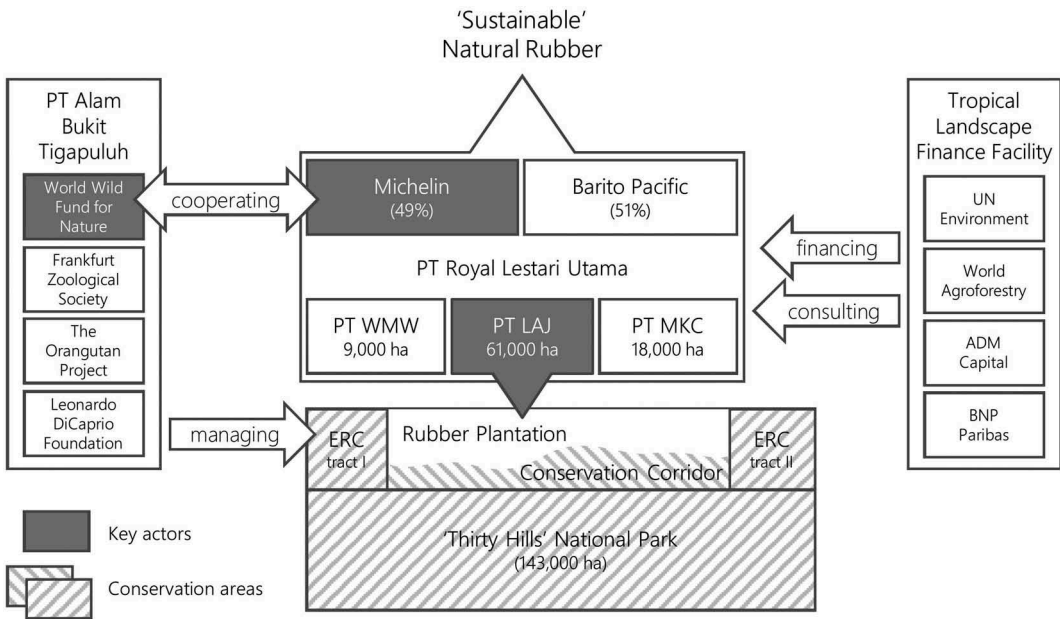


Figure 2. The transnational network of actors.

Envisioning sustainable rubber cultivation in Jambi

To develop model rubber plantations in Indonesia, Michelin founded the joint-venture PT RLU together with the Barito Pacific Group, an Indonesian agribusiness, forestry and petrochemical company. The actual remit of Barito Pacific is unknown to us, but McCarthy et al. (2012) suggest that foreign investors tend to cooperate with domestic actors, because land access requires complex proceedings at different scales with a multitude of stakeholders, ranging from farmers to land brokers and government officials. The whole concession area of PT RLU amounts to roughly 88,000 hectares, 70,000 hectares in Sumatra and 18,000 hectares in Kalimantan. The concessions on Sumatra are managed by two subsidiary companies of PT RLU, namely PT Lestari Asri Jaya and PT Wanamukti Wisesa, while the concession in Kalimantan is managed by PT Multi Kusuma Cemerlan (PT Royal Lestari Utama [PT RLU], 2019a). Michelin has a total production target of 80k tons on 45,000 hectares, equal to a productivity of 1.8t/ha (Michelin, 2019). This is way ahead of the average yields in Sumatra where business estates produce 1.5t/ha and smallholdings produce 1.1t/ha (Direktorat Jenderal Perkebunan, 2016a). The remaining land is spared for conservation issues and community development (Michelin, 2019). In this study, we focus particularly on the plantations of PT LAJ in the thirty-hill landscape. The company received a management concession for more than 61,000 hectares in 2010 (IUPHHK – HTI, SK.141/MENHUT-II/2010 tanggal 31 Mei 2010) (PT Global Resource Sertifikasi, 2018) and started plantation establishment in 2015.

Michelin has developed this pilot project for sustainable rubber production in collaboration with the WWF (World Wide Fund for Nature [WWF], 2019c). According to Michelin, the whole concession area is ‘ravaged by uncontrolled deforestation’ (Michelin, 2015). PT Royal Lestari Utama (2019b) refers to ‘unproductive areas destroyed by illegal logging and “slash-and-burn” practices’. However, by means of the pilot project, ‘primary forests and natural parks bordering the plantations, as well as elephants, tigers, orangutans, etc.’ will be protected (Michelin, 2019). Michelin reports that the WWF aims to support the company and plans to involve ‘protection, conservation and restoration operations for the fauna and flora within and around the concession zones’ (Michelin, 2015). Furthermore, ‘the WWF [has] presence on concessions bordering those of Michelin/Barito in Jambi’ (ibid.). These

statements signify that the WWF pursues activities in the thirty-hill landscape beyond the cooperation with Michelin. Yet, through the fact that Michelin refers to these activities, it implicitly relates its monoculture rubber plantations to environmentalism.

The WWF's activities in Jambi intensified in the 1980s. In the thirty-hill landscape, WWF successfully lobbied for the implementation of the 'Thirty Hills' National Park in 1995 (WWF Deutschland, 2015). Moreover, WWF was in charge of implementing an Integrated Conservation and Development Project (ICDP), funded by the Norwegian government, which targeted the village population living along the park boundaries (Wells et al., 1999, pp. 71–73). The project included, among other things, participatory land use planning, agricultural intensification and the promotion of alternative income sources such as ecotourism (Wells et al., 1999). The program failed when parts of the buffer zone of the park were reclassified by the Ministry of Forestry (today named the Ministry Environment and of Forestry) and converted into agricultural and timber plantations by companies and transmigrants² (Wells et al., 1999, p. 72). Aiming to conserve the thirty-hill landscape, the WWF and the Frankfurt Zoological Society joined forces and started the private conservation company PT ABT. In 2015, PT ABT obtained management rights for an ERC of almost 39,000 hectares adjacent to the national park (PT Alam Bukit Tigapuluh [PT ABT], 2017). The ERC is split in two blocs, with the rubber plantation concession of PT LAJ situated between these two blocs (PT ABT, 2017; World Wide Fund for Nature [WWF], 2018). The project received support for the funding of the concession from such organisations as the International Climate Initiative of the German Federal Ministry of Environment, Nature Conservation and Nuclear Safety, the Disney Worldwide Conservation Fund (Frankfurt Zoological Society [FZS], 2019), The Orangutan Project and the Leonardo DiCaprio Foundation (Leonardo DiCaprio Foundation [LDF], 2018).

Returning to the WWF's cooperation with Michelin, the environmental organisation claims to cooperate to design 'deforestation-free, wildlife-friendly plantations that provide sustainable income for local communities – and show that natural rubber can be produced in a sustainable way' (WWF, 2019a). More specifically, the WWF wants to persuade Michelin to conserve remaining habitat zones of Sumatran elephants, tigers, and orang-utans within the plantation concessions adjacent to protected areas (World Wide Fund for Nature [WWF], 2019b). To date, the WWF identified and set aside high carbon stock (HCS) and high conservation value (HCV) forest and areas critical for wildlife conservation, roughly 2,000 hectares, on Michelin's plantation concessions adjacent to the ERC tracts and the national park (Tropical Landscape Finance Facility [TLFF], 2018; WWF, 2019b). Furthermore, Michelin agreed to establish a so-called Wildlife Conservation Area of 9,700 hectares along the national park connecting the two tracts of the ERC, and though it seems bizarre, this area includes 1,400 hectares of rubber monocultures (WWF, 2019b). The Leonardo DiCaprio Foundation highlights this agreement as 'one of the most significant conservation accomplishments' (LDF, 2018), whereby the foundation names Michelin a partner of PT ABT. Again, this remark creates the impression that Michelin supports nature conservation beyond its rubber concessions, in reality Michelin does not take part in conservation on the ERC.

Financialisation of the sustainable rubber economy

The TLFF was launched in October 2016. Its founding members are UNEP, the World Agroforestry Centre (ICRAF), ADM Capital, an investment manager, and BNP Paribas, a European banking institution (UNEP, 2017, 2018). Following UNEP (2016) the TLFF 'aims to leverage private finance for public good by scaling up investment in renewable energy and landscapes resulting in enhancing the "Gross Domestic Product of the Poor" achieved through sustainable production of agricultural commodities, and improved smallholder productivity with reduced deforestation in Indonesia'. Simons (2016), Director General of the World Agroforestry Centre, states that the financial platform will target 'large scale transformations' in the agriculture and forestry sectors to 'build successful models to better combine commercial finance with development needs'. The total finance volume of

the TLFF amounts to 1.1 billion US\$, consisting of a loan fund (1 billion US\$) and a 100 million US\$ grant fund 'to ensure affordable loans' (Simons, 2016).

The financing of PT RLU is the first project of the TLFF. The objective of the long-term fund is to 'finance a sustainable natural rubber plantation on heavily degraded land in two provinces in Indonesia' (UNEP, 2018). In this way, the fund will contribute to 'fighting deforestation and creating 16,000 fair-wage jobs', which are 'providing a critical source of employment for local communities' (ibid.). The project has a total value amount of 345 million US\$, including an equity of PT RLU amounting to 100 million US\$, a loan fund of 215 million US\$ to be issued in two tranches as 'Sustainability Notes' to private lenders – so-called 'Sustainability Bonds' – and a grant fund of 40 million US\$ for smallholder financing (Tropical Landscape Finance Facility [TLFF], 2018). In February 2018, the first tranche of the Sustainability Bonds worth 95 million US\$ was issued (TLFF & PT RLU, 2018), for which USAID provided a partial credit guarantee' (UNEP, 2018). To name but a few, the Government of Norway, Unilever, and the Global Environment Facility invested 24 million US\$ through the &Green fund in this first tranche (ADM Capital, 2019). The &Green fund is a blended investment fund that 'invests in commercial projects in agricultural production value chains in order to protect and restore tropical forests and peatlands and make agriculture more inclusive and sustainable' (&Green Fund, 2019). However, the &Green fund does not support smallholders directly.

The TLFF, with all its stakeholders, significantly expands the network of relationships surrounding the concessions in Indonesia. In the wake of the incorporation of public funding and private investment, the finance facility introduces a new dimension to the project (Simons, 2016; UNEP, 2016). Simultaneous with this 'financialisation' of the concession, it is then incorporated into financial markets. This process of nature's marketization gives the power of pricing to markets, and not to the people living within this nature (Bakker, 2010). Following Sullivan (2013, p. 207), those 'emerging environmental markets' are prime exemplars for the construction and co-production of values. Fairhead et al. (2012, pp. 246–247) argue that this value is 'constructed and sustained through popular imagery and representations'. Ultimately, this newly created 'green' value of the plantation is not fixed in situ but de-territorialised from its biophysical and social environment. Thus, transnational investors, not the local communities, will realise the margins, as shown in the following section on critical narratives.

Critical narratives regarding the pilot project

Muara sekalo

The research village Muara Sekalo is located in Tebo district in the lowlands of Jambi (Figure 1). According to the village secretary, it evolved during the Dutch colonial era, when people fled political turmoil in their home villages. The official year of formation was 1915. Initially, the informal settlement comprised only a few homes, but the population increased to approximately 230 households (Faust et al., 2013), of which the majority lived from farming. Most farmers are independent smallholders and cultivate both rubber and oil palms on their plots. Livelihoods are based on different sharecropping arrangements and wage labour; workers are employed by local farmers, by nonlocal small investors and traders holding land in the village, or by one of the private estate companies. Subsistence farming, including paddy cultivation, has been almost completely abandoned. Oil palm cultivation only increased after the first private estate was set up in the outskirts of Muara Sekalo in 1993, previously the agricultural landscape was characterised by smallholder rubber cultivation. To date, three private companies have established agro-industrial oil palm plantations in the surroundings of the village, significantly limiting the land available for peasants. PT LAJ is the only company that established an agro-industrial rubber plantation near the village settlement.

Land development and plantation establishment

In 2015, two years prior to our fieldwork, the rubber company PT LAJ started its business and initiated the plantation establishment close to the village of Muara Sekalo. Only a few villagers had rather precise

information about PT LAJ's concession. Villagers reported that the size of its concession was roughly 61,000 hectares, with about half of the concession for a rubber plantation, while the other half was designated for conservation issues, including a buffer zone to the national park and an elephant reserve. Only a few villagers had heard about a cooperation between the rubber company PT LAJ, the WWF, and a French company called Michelin, but none of the villagers knew exactly in which ways they were involved. Nobody mentioned other cooperating partners, nor was any villager aware about 'sustainable' or 'eco-friendly' rubber production at all. Pak Junaidi³ (30.11.2019) commented: 'The company only came to take benefit from the village. It has never gotten in touch with the village community and took account of their interests. Thus, the community barely understands about LAJ's activities.'

PT LAJ and Michelin took over a concession of a once logged-over forest, which they claim to have reforested. A member of the village government (24.11.2017) stated that PT LAJ took over a concession initially allocated to another company, PT Indonesia Perancis Amerika (Indonesia France America). Another interviewee (Ibu Rina, 19.07.2018) confirmed that PT IPA once held a logging concession, which was withdrawn in 1995 because of illegal timber exports. This concession was taken over by Barito Pacific, and finally renamed PT LAJ. Further details regarding PT IPA's concession and relations between Barito Pacific and PT IPA are not known to us. Nonetheless, our findings suggest that even the plantation establishment of PT LAJ, which started in 2015, rather involves deforestation than reforestation. Pak Maridi (25.11.2017), an elderly farmer, told that for plantation establishment 'PT LAJ opened a thousand hectares of land. It was forest, but PT LAJ got a license to open the land.' Similarly, women working for PT LAJ (FGD, 26.11.2017) reported that forested area had to be cleared for plantation establishment. Furthermore, a study by several Indonesian NGOs (Forest Watch Indonesia [FWI], Jikalahari, Wahana Bumi Hijau [WBH], & Walhi Jambi, 2014) yielded information that natural forest is still cut down on the rubber concession of PT LAJ. The study further states that Asia Pulp and Paper purchases wood from PT LAJ. Local NGOs and the local press confirmed this (Jahingan Pemantau Independen Kehutanan [JPIK], 2013; Lang, 2016).

Several villagers reported that the logging activities on the concession destroyed the habitat of elephants. They elucidated in their statements how, after plantation establishment, more and more elephants had approached the village and could not be easily frightened away anymore. The elephants were also more aggressive, and they destroyed the farmers' plantations in search for feed, especially the young plantations. Eventually, the destruction by elephants reached a breaking point and farmers were forced into abandoning their farming activities because they could not afford to re-plant their plots. They were left with little choice but to assign their land to the company (Ibu Tina, 25.11.2017; FGD, 26.11.2017; Ibu Maryami, 01.12.2017).

Land conflicts and compensation payments

Independent of the deforestation activities, land conflicts have occurred between PT LAJ and villagers of Muara Sekalo. Ambiguities between *de jure* and *de facto* tenure cause these conflicts (Kunz et al., 2017); on-site, peasants cultivate land the Ministry of Environment and Forestry has allocated to the rubber company. According to local customary law villagers claimed parts of the concession, but they do not hold a title deed recognized by the National Land Agency. A village elder (Pak Junaidi, 30.11.2017) describes the situation accordingly:

'Many of our ancestor's legacies grew on the land such as durian trees, bedaro, kelengkes trees, cempedak, mangosteen, duku and rambutan ... Once, when it was the duku season, they could harvest tons of duku. I feel like it is not fair to give the land to the company, but then we don't have any proof of the ownership but the trees. The company does not care about the trees anyways.'

A local farmer (Pak Sunarjo, 30.11.2017) explains that 'it was because the community has no written proof, no official or even sporadic certificate ... The villagers cannot process any other document such as a plantation permit because indeed, they don't have anything to prove the ownership.' During the focus group discussion (FGD, 26.11.2017), a woman confirmed this statement:

The community has no power at all since they mostly have no official land certificate or other proof of land ownership. The only fact to justify the occupation of the land is that the community has been living there for such a long time that they feel owning the land. Therefore, when it is brought to a legal case, people would always lose. Not only would they lose their land but also, they would end up in the prison.'

Another woman continued, 'initially, the company did not consider the community's land at all, but after a while, the company noticed that much community land is included in the concession area' so that 'normally, if in the plantation area there was the community's land, it would be compensated by the company.' Not everyone agreed to the compensation payments immediately, though. The women working for PT LAJ (FGD, 26.11.2017) vividly demonstrated that they and many others preferred to stay independent farmers who did not want to abandon their plots. However, they felt as though they had no choice but to comply as they were intimidated by 'particular' persons who were related to the company to give their land to PT LAJ. Pak Sunarjo (30.11.2017) referred to '*premanisme*' (mafia-like activities) regarding the violent practices PT LAJ used to force villagers into accepting the compensation payments and the substantial payments the former village head received for facilitating these transactions. A village elder, Pak Junaidi (30.11.2017) concluded that PT LAJ often had disputes with villagers about land ownership.

The Corporate Social Responsibility (CSR) assistant of PT LAJ (30.11.2017) stated that as a last resort, the company takes legal action. In fact, there was only a single villager who confronted the company with his rights and could keep his plot. Pak Sunarjo (30.11.2017) stated that if needed, he would have even defended himself before the court. He explained that other villagers did not follow suit, because they did not know their rights and it was not in the interest of the former village government to inform them about their rights. The village government, Pak Sunarjo continued to describe accusations of corruption, stating that the village government who negotiated the deal with the company and other political stakeholders on district and regional levels, had their own 'particular' interests in mind. A former member of the village government (26.11.2017) explained the process quite differently though: the village government was merely informed about the final decisions, the MOEF had issued the licence and the district government approved it. It is well possible that the village government negotiated the level of compensations with the company or other political stakeholders, but this is beyond our ken. Indeed, several villagers complained about low compensation payments ranging from IDR 700.000 to 1 million per hectare, which is way below current land prices. Land prices have increased steadily for the last years reaching IDR 10 to 15 million per hectare depending on the access to the plot and its current planting state. An interviewee (Pak Dedi, 24.11.2017) explained how the establishment of the companies' plantations near to the village has resulted in a price increase that restricts access to land for villagers; even housing plots have become too small to expand the houses. For the last years, he argued, PT LAJ has been primarily responsible for triggering the price increase.

Smallholder partnership schemes and employment opportunities

There are plans for a partnership scheme between PT LAJ and local farmers, yet villagers' knowledge about this is vague. It is uncertain when the plans for such a collaboration will be addressed and if the land designated for the collaboration will come from the company's core plantation or from the conservation area inside the concession. Only the CSR assistant of PT LAJ was aware that the company would not build up this partnership scheme until the company acquired all land from the farmers. He concludes that due to the deceleration of land transfers, a partnership scheme will not be realised in the near future.

However, the company already conducted one training for rubber cultivation. About 15 villagers were chosen to participate in the training on best management practices of rubber farming, in particular proper tapping methods, which can influence the quality of the rubber sap. Participants (Pak Dedi, 24.11.2017; Pak Maridi, 25.11.2017) stated that they learned much about proper rubber tapping, specifically, how to carve the bark and how to mix the chemical essence for the rubber sap so that it does not rot after only one day. The training was both theoretical and practical. Yet, Pak

Dedi wondered if this training would be a pre-condition to become a rubber tapper at PT LAJ, or perhaps the company would not hire locals once the rubber trees have grown to be tapped. Current activities of plantation workers include the growing and planting of seedlings and cleaning activities on the plantation as yet planted. The CSR assistant (30.11.2017) explained more explicitly that plantation management followed a defined standard for cultivation. For instance, rubber trees should not show any budding of branches up to a height of 2.7 meters.

Women currently working for the company explained during the focus group discussion (FGD, 26.11.2017) that they appreciated their jobs because they get paid cash in hand. The daily wage is 82,500 IDR reduced by transportation costs of 15,000 IDR. In one month, they normally work 16 to 20 days, thus they earn between 1 and 1.35 million IDR⁴. However, the women are also worried about their future job security as they left school after finishing elementary school and the company might require its staff to have graduated from senior high school (FGD, 26.11.2017). Despite fears for the future, Pak Maridi (25.11.2017) stated that in fact more jobs were available today than before. Pak Hilal (27.11.2017) argued that PT LAJ facilitates life insofar as villagers have simpler jobs at LAJ than they had before; beforehand, farmers worked on their land and had to deal with the elephants all alone. Nonetheless, Pak Hilal (27.11.2017) estimated that 'the village economy did not change significantly, sometimes the situation is better, sometimes it is worse.'

Discussion

The performance of sustainability – visualisation and representation

Against the context of a global 'green' economy and its agenda that makes the case for sustainable development, reified in the United Nations' Sustainable Development Goals (SDGs), it becomes even more difficult to reveal the entanglements below the surface and face what is happening on the ground. In fact, the co-production of the narrative of 'eco-friendly' rubber is powerful and creates an impression of credibility; it might indeed be 'true' in the self-referential media spectacles of private businesses, state actors and environmentalists.

Comprehensively, Michelin, the WWF, the TLFF and other institutions mentioned above visualise and represent their commitment for sustainability in powerful imagery. Their representations of the project co-construct rubber producing forest landscapes that empower local communities and simultaneously provide homes to endangered species (Michelin, 2019; TLFF, 2018; World Wide Fund for Nature [WWNF], 2019a). They respectively address rubber tyre consumers, eco-conscious donors, and financial investors in various ways and for very different ends, so that each of them can cling to the illusion to be a part of the great and exciting challenge of saving earth (Brockington & Duffy, 2010; Debord, 1967/2002). In Tsing's (2005, p. 57) words 'the self-conscious making of a spectacle is a necessary aid to gathering investment funds. [...] The dependence on spectacle [...] is a regular feature of the search for financial capital.'

Voluntary sustainability standards illuminate bright futures, but for one, we need to be aware of the various, vague and normative meanings of sustainability (Mansfield, 2009). Interpretations do not necessarily balance economic, environmental, and social dimensions but give priority to economic performance, unless it results in environmental damage or negative societal consequences (Adams, 2017). For another, we need to consider the material implications of sustainability initiatives. Relating to the 'sustainability' of rubber, Kenney-Lazar, Wong, Baral, and Russell (2018, p. 96) argue that it 'is a challenging and elusive prospect – particularly in resource frontier contexts [where] the most socially and environmentally problematic aspects of cash crop expansion [are not addressed]'.

Precisely, the sustainability standards of the Sustainable Natural Rubber initiative (SNR-i) or Michelin's commitment to a sustainable natural rubber policy are too weak. The zero-deforestation commitment is empty, as it merely refers to primary forests and HCV/HCS areas, but not to secondary or other classifications of forests, which are still of high value for biodiversity: providing habitat for

the ‘critically endangered Sumatran elephants’ (WWF, 2019b, p. 13), carbon sequestration, or community livelihoods. Nevertheless, the ‘model’ rubber plantations contribute to a further expansion of agro-industrial plantations into areas of extensive land use. Roe (1994, x) gets to the heart of this contestation: ‘Unless you are able [...] to treat seriously people’s stories about those situations where facts and values are in dispute, you are not taking the situations seriously’.

Labour and land: entanglements, disarticulation, and de-territorialisation

The stories told in Muara Sekalo clearly illustrate that there is more than one perspective on what Michelin calls ‘model’ plantations producing ‘eco-friendly’ rubber, however, this perspective is not equally articulated in their sustainable development narrative. Most remarkable is the company’s aspiration of social compatibility confronted with local dissatisfaction. Villagers did not experience the plantation establishment as an inclusive project or an opportunity for livelihood improvement, although some interview partners appreciated the job creation. Conceptualising this concrete case study brings up a discussion about entanglements between the local and the global space and raises the controversial question of who benefits from such large-scale investments in land.

‘Cheap labour’ for development

Michelin and its partners declared to create 16,000 jobs for rural development. Michelin specified that the project will create employment ‘direct or indirect’ but ‘long-term and stable’ (Michelin, 2015), whereas TLFF and PT RLU (2018) referred to ‘fair-wage jobs, *providing a critical source of employment* [emphasis added] for local communities’. However, to gain at least as much as the provincial minimum wage of 2,063,000 IDR⁵ per month (as of 2017) (Muzakkir, 2017; Yudie Thirzano, 2016), workers would need to work 25 days a month. Reducing the daily wage by the required transportation costs of 15,000 IDR would result in 30.56 working days a month. Thus, the wage level for locals is miserable, especially considering the financial value created through Michelin’s enclosure. This exemplifies how local peasants often do not have access to benefits realized by transnational corporations. At its worst, once independent smallholders have lost their land and become dependent plantation workers living in poverty. Several other case studies reveal that, in diverse ways, corporations present themselves as ‘sustainable’ to realize profitable investments in agriculture or resources, but ‘the distribution of value is highly skewed, with local beneficiaries receiving often vanishing small benefits from newly commoditised, traded nature’ (Fairhead et al., 2012, p. 247). At its heart, Indonesian development policy is biased towards large-scale and cost-intensive land acquisitions, model plantations being a prime example, ‘rather than privileging labour-intensive initiatives that support smallholder inclusion’ (McCarthy et al., 2012, p. 543).

Financialisation and de-territorialisation of land

The global ‘green’ economy is imagining universal development narratives that blur the locale. The appropriation of land and resources is ultimately justified for the sake of the environment, for more efficient resource use and for socially inclusive growth (Fairhead et al., 2012). Ouma (2016, p. 88) terms the enclosures of farmland as the creation of an ‘alternative asset class’. During this process, resources are not merely de-territorialised from their environments to become part of the global financial system; more profoundly, ‘new modes of inscription reformatted the social relations with which the new resource was entangled and extended the network of actors and devices connected to it’ (Li, 2014, p. 590). Once framed as ‘degraded land’ (UNEP, 2016), ‘heavily degraded landscapes’ (TLFF, 2018), and ‘ravaged by uncontrolled deforestation’ (Michelin, 2015), the concessions are now inscribed with new meaning. They become a composite of a ‘model’ rubber plantation, high carbon stock (HCS) and high conservation value (HCV) forests (Tropical Landscape Finance Facility; PT Royal Lestari Utama, 2018; UNEP, 2016). The whole concession area becomes a resource considered financially useful and valuable as never before (Bridge, 2009). This

sustainability transformation, however, completely ignores the meaning and value of this land for local communities.

Ultimately, the business corporation's investment in 'model' plantations in Jambi largely resembles an interweaving of 'green grabs' (Fairhead et al., 2012) with 'virtual grabs' (McCarthy et al., 2012). While we argue that the project is neither of the two on its own, we consider it to be a 'virtual green grab'. Firstly, we doubt that this process of land acquisition is a green grab because its 'environmental agenda' is not its main purpose but simply a means for its legitimisation (Fairhead et al., 2012, p. 239). Secondly, we do not consider the project a 'virtual grab' insofar as it is actually realized. Beyond this, however, the definition of McCarthy et al. (2012) claim that behind any stated purpose of land acquisition, there is a hidden agenda to attract funding and/or secure land control. Summarising, behind the propagated sustainability narrative, there is a hidden agenda in pursuit of secured access to land and profits. The sustainability narrative effectively increased the value of the land grab, so that this case presents a 'virtual green grab'.

Conclusion

Natural rubber-processing industries are increasingly pressured to minimize the environmental impacts of the massive expansion of rubber cultivation, especially in fragile ecosystems, thus inducing these industries to initiate voluntary sustainability strategies (Kennedy, Leimona, & Yi, 2017). The Michelin Group, the 'world's largest buyer of natural rubber' (WWF, 2016), was the first tyre maker to declare its commitment to a 'zero deforestation policy'. It is part of the group's *Sustainable Natural Rubber Policy* (Michelin, 2016), where Michelin makes additional commitments, inter alia, to 'respecting people'. Recently, Michelin invested in 'model' rubber plantations to demonstrate that it is possible to cultivate rubber in a sustainable way. We have shown, though, that Michelin and entangled actors discursively framed a 'sustainability transformation' in the thirty-hill landscape, where apparently green production merely constitutes the latest of many disruptive frontiers. It is transforming land use, property regimes and labour relations, while producing a transitional place where conservation, forest destruction and dispossession are mixed up. Nevertheless, this virtually 'sustainable' transformation project acquires investments and creates value. This value is not bound to the eco-friendly rubber tyre, but rather, it is created and translated through the 'social relations of nature in the production of the commodity' (Pye, 2019, p. 218). This proceeding stands for a new kind of conservation and development controversy associated with the financialisation of farming, and more broadly, the expansion of the 'green' economy.

Is it possible to change the 'green' economy's framing of nature's conservation as a means for the legitimization of new land grabs? A first step towards such a change is to scrutinize sustainability narratives, despite or exactly because of their wide recognition. Comprehensive reviews of private sector initiatives considering supply chain sustainability standards (Lambin & Thorlakson, 2018) and zero-deforestation pledges in particular (Lambin et al., 2018) already revealed various challenges, such as implementation, transparency, monitoring and effectiveness. Excluded from analysis, however, are local frictions arising from such initiatives. In this regard, we argue for complementary qualitative and empirical enquiry on the ground to scrutinize the aforementioned challenges, uncover sustainability narratives' underlying emplotment and contradictory processes.

The Michelin Group, along with its partners, legitimizes large-scale land deals in the name of sustainability transformations. However, as we have shown, this legitimation process is rather a spectacular imagination far from a realistic representation of the proceedings on the ground. These large-scale land deals have in the past, and will in the future, decisively determine global land use change and landscape transformations. Therefore, we need to be aware of discrepancies in sustainable development narratives.

Through in-depth case studies of the 'green' economy and associated investments in land, the scientific community can contribute to a more vivid visualization of hidden conflicts and attempt to deconstruct the common discourse of a 'green' economy. Enhanced interdisciplinary exchange

amongst political ecologists and the wider land system sciences (LSS) community can be a foundation for and a support to a political debate concerning land transformation towards 'sustainability'. In doing so, we all may become aware of our own positionality within the 'social narratives' surrounding us (Somers, 1992). Finally, we hope this study contributes to the call for normative dimensions in LSS studies.

Notes

1. PT is the acronym for *perseroan terbatas*, i.e. a limited liability company (Ltd.)
2. 'Transmigration' refers to the Indonesian government's resettlement program. During the 1960s-90s, more than 4 million people from densely populated Java and other islands were resettled to sparsely populated outer islands (Sumatra, Kalimantan, Sulawesi, and Papua). For further information see Fearnside (1997).
3. All names are fictitious to ensure privacy of the respondents.
4. By the 26.11.2017 the exchange rate was EUR 1 for IDR 16,178. The daily wage (reduced by transportation) of 67,500 IDR corresponds to EUR 4,17€ (OANDA Corporation, 1996-2018).
5. The minimum wage of IDR 2,063,000 is the equivalent of EUR 127.52 (reference date 26.11.2017; OANDA Corporation, 1996-2018).

Acknowledgments

This article belongs to the forthcoming Special Issue on "Transdisciplinary perspectives on current transformations at extractive and agrarian frontiers in Latin America", edited by Anne Cristina de la Vega-Leinert and Regine Schönenberg. This work was supported by the Deutsche Forschungs-gemeinschaft (DFG, German Research Foundation) under Grant number 192626868 in the framework of the collaborative German - Indonesian research project CRC990. We greatly thank our Indonesian field assistant Amrina who made the extensive field work possible. We want to thank our Indonesian counterparts Endriatmo Soetarto, Soeryo Adiwibowo (both IPB University Bogor) and Ir. Rosyani (University of Jambi) for their precious support before, during and after field work. Finally, we want to thank our anonymous reviewers.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This work was supported by the Deutsche Forschungsgemeinschaft [192626868].

ORCID

Fenna Otten  <http://orcid.org/0000-0002-4454-1453>

Heiko Faust  <http://orcid.org/0000-0003-0307-6943>

References

- &Green Fund. (2019). *The Fund*. Retrieved from <http://www.andgreen.fund/#the-fund>
- Adams, W.M. (2017). Sleeping with the enemy? Biodiversity conservation, corporations, and the green economy. *Journal of Political Ecology*, 24, 243–257.
- ADM Capital. (2019, March 7). &Green Fund makes catalytic investment in natural rubber company in Indonesia through TLFF. [Press release]. Jakarta, Amsterdam. Retrieved from <https://www.admcapital.com/green-fund-makes-catalytic-investment-in-natural-rubber-company-in-indonesia-through-tlff/>
- Ahrends, A., Hollingsworth, P.M., Ziegler, A.D., Fox, J.M., Chen, H., Su, Y., & Xu, J. (2015). Current trends of rubber plantation expansion may threaten biodiversity and livelihoods. *Global Environmental Change*, 34, 48–58.
- Bakker, K. (2010). The limits of 'neoliberal natures': Debating green neoliberalism. *Progress in Human Geography*, 34(6), 715–735.

- Bebbington, A. (2003). Global networks and local developments: Agendas for development geography. *Tijdschrift Voor Economische En Sociale Geografie*, 94(3), 297–309.
- Beckert, B. (2017). *A post-frontier in transformation: Land relations between access, exclusion and resistance in Jambi province, Indonesia* (PhD thesis). Georg-August-Universität Göttingen, Göttingen, Germany.
- Beckert, B., Dittrich, C., & Adiwiwono, S. (2014). Contested land: An analysis of multi-layered conflicts in Jambi Province, Sumatra, Indonesia. *Austrian Journal of South-East Asian Studies*, 7(1), 75–92.
- Blomley, N. (2007). Critical geography: Anger and hope. *Progress in Human Geography*, 31(1), 53–65.
- Bowen, G.A. (2008). Naturalistic inquiry and the saturation concept: A research note. *Qualitative Research*, 8(1), 137–152.
- Brad, A. (2019). *Der Palmölboom in Indonesien: Zur Politischen Ökonomie einer umkämpften Ressource* (1st ed., Vol. 78). Edition Politik. Bielefeld: transcript.
- 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(3), 292–314.
- Brannstrom, C., & Vadjunec, J.M. (Eds.). (2013). *Land change science, political ecology, and sustainability: Synergies and divergences*. London: Routledge.
- Bridge, G. (2009). Material worlds: Natural resources, resource geography and the material economy. *Geography Compass*, 3(3), 1217–1244.
- Brockington, D., & Duffy, R. (2010). Capitalism and conservation: The production and reproduction of biodiversity conservation. *Antipode*, 42(3), 469–484.
- Chan, S., & Pattberg, P. (2008). Private rulemaking and the politics of accountability: Analyzing global forest governance. *Global Environmental Politics*, 8(3), 103–121.
- Clough, Y., Krishna, V., Corre, M.D., Darras, K., Denmead, L.H., Meijide, A., ... Pérez-Cruzado, C. (2016). Land-use choices follow profitability at the expense of ecological functions in Indonesian smallholder landscapes. *Nature Communications*, 7, 13137.
- Debord, G. (1967/2002). *The Society of the Spectacle* (Reprint). Canberra: Treason Press. Retrieved from <http://www.bopsecrets.org>
- Deininger, K. (2011). Challenges posed by the new wave of farmland investment. *The Journal of Peasant Studies*, 38(2), 217–247.
- Deininger, K., & Byerlee, D. (2011). *Rising global interest in farmland: Can it yield sustainable and equitable benefits?* Washington, D.C. Agriculture and rural development. doi:10.1596/978-0-8213-8591-3
- Direktorat Jenderal Perkebunan (2016a). *Statistik Perkebunan Indonesia: 2015-2017 Karet*. Retrieved from <http://ditjenbun.pertanian.go.id/tinymcepuk/gambar/file/statistik/2017/Karet-2015-2017.pdf>
- Direktorat Jenderal Perkebunan. (2016b). *Statistik Perkebunan Indonesia: 2015-2017 Kelapa-Sawit*. Retrieved from <http://ditjenbun.pertanian.go.id/?publikasi=buku-publikasi-statistik-2015-2017>
- Drescher, J., Rembold, K., Allen, K., Beckschäfer, P., Buchori, D., Clough, Y., ... Scheu, S. (2016). Ecological and socio-economic functions across tropical land use systems after rainforest conversion. *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences*, 371, 1694.
- Escobar, A. (1995). *Encountering development: The making and unmaking of the Third World*. Princeton studies in culture/power/history. Princeton, NJ: Princeton University Press.
- Fairhead, J., Leach, M., & Scoones, I. (2012). Green Grabbing: A new appropriation of nature? *Journal of Peasant Studies*, 39(2), 237–261.
- FAOSTAT. (2018). *Crop statistics*. Retrieved from <http://www.fao.org/faostat>
- Faust, H., Schwarze, S., Beckert, B., Brümmer, B., Dittrich, C., Euler, M., ... Wollni, M. (2013). Assessment of socio-economic functions of tropical lowland transformation systems in Indonesia: Sampling framework and methodological approach (EFForTS Discussion Paper Series No. 1). Retrieved from <http://resolver.sub.uni-goettingen.de/purl?webdoc-3901>
- Fearnside, P.M. (1997). Transmigration in Indonesia: Lessons from its environmental and social impacts. *Environmental Management*, 21(4), 553–570.
- Feintrenie, L., & Levang, P. (2009). Sumatra's rubber agroforests: Advent, rise and fall of a sustainable cropping system. *Small-scale Forestry*, 8(3), 323–335.
- Fold, N., & Hirsch, P. (2009). Re-thinking frontiers in Southeast Asia. *Geographical Journal*, 175(2), 95–97.
- Forest Watch Indonesia, Jikalahari, Wahana Bumi Hijau, & Walhi Jambi (2014). *Lembar Fakta. Pengabaian Kelestarian Hutan Alam dan Gambut, serta Gakor Pemicu Konflik Lahan yang Berkelanjutan: Studi Kasus Eksuansi Industri Pulp and Paper di Provinsi Sumatera Selatan, Riau dan Jambi*. Retrieved from <http://fwi.or.id/publikasi/pengabaian-kelestarian-hutan-alam-dan-gambut-serta-faktor-pemicu-konflik-lahan-yang-berkelanjutan/>
- Frankfurt Zoological Society. (2019). *The Bukit Tigapuluh landscape conservation programme: Conserving the rainforest environment for the protection of Sumatran wildlife*. Retrieved from <https://fzs.org/en/projects/bukit-tigapuluh/>
- Gilbert, D.E., & Afrizal. (2019). The land exclusion dilemma and Sumatra's agrarian reactionaries. *The Journal of Peasant Studies*, 46(4), 681–701.
- Hein, J. (2013). *Reducing emissions from deforestation and forest degradation (REDD+), Transnational conservation and access to Land in Jambi, Indonesia* (EFForTS Discussion Paper Series No. 2). Göttingen. 10.2139/ssrn.2421136
- Hein, J. (2019). *Political ecology of REDD+ in Indonesia. Agrarian conflicts and forest carbon*. Routledge studies in political economy. Abingdon, UK; New York, NY: Routledge.

- Hein, J., Adiwibowo, S., Ditttrich, C., Soetarto, E., & Faust, H. (2016). Rescaling of access and property relations in a frontier landscape: Insights from Jambi, Indonesia. *The Professional Geographer*, 68(3), 380–389.
- Hein, J., Faust, H., Kunz, Y., & Mardiana, R. (2018). The transnationalisation of competing state projects: Carbon offsetting and development in Sumatra's coastal peat swamps. *Antipode*, 50(4), 953–975.
- Igoe, J., Neves, K., & Brockington, D. (2010). A spectacular eco-tour around the historic bloc: Theorising the convergence of biodiversity conservation and capitalist expansion. *Antipode*, 42(3), 486–512.
- Jahingan Pemantau Independen Kehutanan. (2013, September 30). *CAPPA Tuntut Sertifikat Legalitas Kayu PT LAJ Dibekukan*. Retrieved from <https://www.jpik.or.id/cappa-tuntut-sertifikat-legalitas-kayu-pt-laj-dibekukan/>
- Karkkainen, B.C. (2004). Post-sovereign environmental governance. *Global Environmental Politics*, 4(1), 72–96.
- Kennedy, S.F., Leimona, B., & Yi, Z.-F. (2017). Making a green rubber stamp: Emerging dynamics of natural rubber eco-certification. *International Journal of Biodiversity Science, Ecosystem Services & Management*, 13(1), 100–115.
- Kenney-Lazar, M., Wong, G., Baral, H., & Russell, A.J.M. (2018). Greening rubber? Political ecologies of plantation sustainability in Laos and Myanmar. *Geoforum*, 92, 96–105.
- Kish, Z., & Fairbairn, M. (2018). Investing for profit, investing for impact: Moral performances in agricultural investment projects. *Environment and Planning A: Economy and Space*, 50(3), 569–588.
- Klooster, D. (2010). Standardizing sustainable development? The Forest Stewardship Council's plantation policy review process as neoliberal environmental governance. *Geoforum*, 41(1), 117–129.
- Kunz, Y., Hein, J., Mardiana, R., & Faust, H. (2016). Mimicry of the legal: Translating de jure land formalization processes into de facto local action in Jambi province, Sumatra. *Advance Online Publication*. doi:10.14764/10.ASEAS-2016.1-8
- Kunz, Y., Otten, F., Mardiana, R., Martens, K., Roedel, I., & Faust, H. (2019). Smallholder telecoupling and climate governance in Jambi Province, Indonesia. *Social Sciences*, 8(4), 115.
- Kunz, Y., Steinebach, S., Ditttrich, C., Hauser-Schäublin, B., Rosyani, I., Soetarto, E., & Faust, H. (2017). 'The fridge in the forest': Historical trajectories of land tenure regulations fostering landscape transformation in Jambi Province, Sumatra, Indonesia. *Forest Policy and Economics*, 81, 1–9.
- Lambin, E.F., Gibbs, H.K., Heilmayr, R., Carlson, K.M., Fleck, L.C., Garrett, R.D., ... Walker, N.F. (2018). The role of supply-chain initiatives in reducing deforestation. *Nature Climate Change*, 8(2), 109–116.
- Lambin, E.F., & Thorlakson, T. (2018). Sustainability standards: Interactions between private actors, civil society, and governments. *Annual Review of Environment and Resources*, 43(1), 369–393.
- Lang, C. (2016, March 14). *REDD in the news: 7-13 March 2016*. Retrieved from <https://redd-monitor.org/2016/03/14/redd-in-the-news-7-13-march-2016/>
- Leach, M., Mearns, R., & Scoones, I. (1999). Environmental entitlements: Dynamics and institutions in community-based natural resource management. *World Development*, 27(2), 225–247.
- Leonardo DiCaprio Foundation. (2018). *Saving '30 Hills' in Sumatra*. Retrieved from <https://www.leonardodicaprio.org/saving-30-hills-in-sumatra/>
- Li, T.M. (2011). Centering labor in the land grab debate. *Journal of Peasant Studies*, 38(2), 281–298.
- Li, T.M. (2014). What is land? Assembling a resource for global investment: Assembling a resource for global investment. *Transactions of the Institute of British Geographers*, 39(4), 589–602.
- Locher-Scholten, E. (2004). *Sumatran sultanate and colonial state: Jambi and the Rise of Dutch Imperialism, 1830-1907. Studies on Southeast Asia: Vol. 37*. Ithaca, NY: Southeast Asia Program; Cornell University Southeast Asia Program Publications.
- MacDonald, K.I. (2010). The devil is in the (bio) diversity: Private sector "engagement" and the restructuring of biodiversity conservation. *Antipode*, 42(3), 513–550.
- Mansfield, B. (2009). Sustainability. In N. Castree, D. Demeritt, D. Liverman, & B. Rhoads (Eds.), *A companion to environmental geography* (pp. 37–49). Oxford, UK: Wiley-Blackwell. <https://doi.org/10.1002/9781444305722.ch3>
- Marcus, G.E. (1995). Ethnography in/of the world system: The emergence of multi-sited ethnography. *Annual Review of Anthropology*, 24, 95–117.
- Mardiana, R. (2014). *Kehendak Merestorasi Ekosistem Tersandera di Pusaran Sengkarut Agraria: Konflik dan Perjuangan Kedaulatan Agraria di Wilayah Restorasi Ekosistem Hutan Harapan Provinsi Jambi* (Sayogyo Institute Working Paper No. 14). Bogor, Indonesia.
- Mardiana, R. (2017). *Contesting knowledge of land access claims in Jambi, Indonesia* (PhD thesis). Georg-August-Universität Göttingen, Göttingen, Germany.
- Massey, D.B. (2005/2012). *For space (Reprinted.)*. Los Angeles, Calif.: SAGE.
- McAfee, K. (1999). Selling nature to save it? Biodiversity and green developmentalism. *Environment and Planning D: Society and Space*, 17(2), 133–154.
- McCarthy, J.F., Vel, J.A.C., & Afiff, S. (2012). Trajectories of land acquisition and enclosure: Development schemes, virtual land grabs, and green acquisitions in Indonesia's Outer Islands. *Journal of Peasant Studies*, 39(2), 521–549.
- Melati, D. (2017). *The use of remote sensing data to monitor land use systems and forest variables of the tropical rainforest landscape under transformation in Jambi Province, Sumatra, Indonesia* (PhD thesis). Georg-August-Universität Göttingen, Göttingen, Germany.

- Messerli, P., Heinimann, A., Giger, M., Breu, T., & Schönweger, O. (2013). From 'land grabbing' to sustainable investments in land: Potential contributions by land change science. *Current Opinion in Environmental Sustainability*, 5(5), 528–534.
- Michelin. (2015, May 18). *Michelin and Barito Pacific Group create a joint-venture to produce natural, eco-friendly rubber, and Michelin stands shoulder to shoulder with the WWF on projects aimed at protecting and restoring the fauna and flora in the regions concerned*. [Press release]. Paris. Retrieved from <https://www.michelin.com/en/press-releases/joint-venture-to-produce-natural-eco-friendly-rubber/>
- Michelin. (2016). *Sustainable natural rubber policy: Reference Document 2016 Edition*. Retrieved from https://c402277.ssl.cf1.rackcdn.com/publications/1062/files/original/SUSTAINABLE_NATURAL_RUBBER_POLICY_VD.pdf?1495831479
- Michelin. (2019). *Responsible management of the natural rubber supply chain*. Retrieved from <https://purchasing.michelin.com/en/responsible-managment-natural-rubber-supply-chain/>
- Molotoks, A., Stehfest, E., Doelman, J., Albanito, F., Fitton, N., Dawson, T.P., & Smith, P. (2018). Global projections of future cropland expansion to 2050 and direct impacts on biodiversity and carbon storage. *Global Change Biology*, 24(12), 5895–5908.
- Munroe, D.K., McSweeney, K., Olson, J.L., & Mansfield, B. (2014). Using economic geography to reinvigorate land-change science. *Geoforum*, 52, 12–21.
- Muzakkir (2017, November 1). *UMP Jambi 2018 Naik 8 Persen: Ini Angka Minimum Provinsi Jambi Mulai Januari*. *Tribun Jambi*. Retrieved from <https://jambi.tribunnews.com/2017/11/01/ump-jambi-2018-naik-8-persen-upah-minimum-propinsi-jambi-2018-jadi-segini>
- Nielsen, J.Ø., de Bremond, A., Roy Chowdhury, R., Friis, C., Metternicht, G., Meyfroidt, P., ... Thomson, A. (2019). Toward a normative land systems science. *Current Opinion in Environmental Sustainability*, 38, 1–6. doi:10.1016/j.cosust.2019.02.003.
- O'Reilly, M., & Parker, N. (2013). 'Unsatisfactory Saturation': A critical exploration of the notion of saturated sample sizes in qualitative research. *Qualitative Research*, 13(2), 190–197.
- OANDA Corporation. (1996–2018). *Exchange rates*. Retrieved from <https://www1.oanda.com/currency/converter/>
- Ouma, S. (2014). Situating global finance in the Land Rush Debate: A critical review. *Geoforum*, 57, 162–166.
- Ouma, S. (2015). Getting in between M and M' or: How farmland further debunks financialization. *Dialogues in Human Geography*, 5(2), 225–228.
- Ouma, S. (2016). From financialization to operations of capital: Historicizing and disentangling the finance–Farmland-nexus. *Geoforum*, 72, 82–93.
- Ouma, S., Johnson, L., & Bigger, P. (2018). Rethinking the financialization of 'nature'. *Environment and Planning A: Economy and Space*, 50(3), 500–511.
- Painter, J. (2000). Critical human geography. In R.J. Johnston, D. Gregory, G. Pratt, & M. Watts (Eds.), *The dictionary of human geography* (4th ed., pp. 126–128). Oxford: Blackwell.
- Peet, R., Robbins, P., & Watts, M. (2011). Global Nature. In R. Peet, P. Robbins, & M.J. Watts (Eds.), *Global political ecology* (pp. 1–47). London: Routledge.
- Peluso, N.L., Affif, S., & Rachman, N.F. (2008). Claiming the grounds for reform: Agrarian and environmental movements in Indonesia. *Journal of Agrarian Change*, 8(2–3), 377–407.
- Peluso, N.L., & Lund, C. (2011). New frontiers of land control: Introduction. *Journal of Peasant Studies*, 38(4), 667–681.
- Perbatakusuma, E.A., Ridwansyah, M., Irfan, A., Akiefnawati, R., Widodo, W., & Kurniawan, D. Alfiansyah. (2012). *Strategi dan Rencana Aksi Provinsi (SRAP) REDD+ Provinsi Jambi 2012-2030: Dokumen Risalah Eksekutif*. Jambi, Indonesia: Komisi Daerah REDD+ Provinsi Jambi.
- PT Alam Bukit Tigapuluh. (2017). *Perusahaan*. Profil mengenai PT Alam Bukit Tigapuluh. Retrieved from <https://alambukit30.com/perusahaan/>
- PT Global Resource Sertifikasi. (2018). *Sertifikat Pengelolaan Hutan Produksi Lestari: PT Lestari Asri Jaya*. Retrieved from <http://global-resource.co.id/rencana-audit-phpl/hasil-audit-penilaian-kerja-phpl/>
- PT Royal Lestari Utama. (2019a). *Plantations and production*. Retrieved from <https://www.rlu.co.id/plantations>
- PT Royal Lestari Utama. (2019b). *Sustainability*. Retrieved from <https://www.rlu.co.id/sustainability>
- Pye, O. (2019). Commodifying sustainability: Development, nature and politics in the palm oil industry. *World Development*, 121, 218–228.
- Redaksi Dinamika Jambi (2018, August 29). *Kasus Pengusuran Lagi, 300 Hektar Lahan Warga Digasak 3 Perusahaan*. Retrieved from <https://dinamikajambi.com/2018/08/29/kasus-pengusuran-lagi-300-hektar-lahan-warga-digasak-3-perusahaan/>
- Reyes, J.D.L., & Sandwell, K. (2016). *Flex crops: A primer* (Think Piece Series on Flex Crops & Commodities No. 6). Amsterdam. Retrieved from Transnational Institute (TNI) <https://www.tni.org/en/publication/flex-crops-a-primer>
- Rindfuss, R.R., Walsh, S.J., Turner, B.L., Fox, J., & Mishra, V. (2004). Developing a science of land change: Challenges and methodological issues. *Proceedings of the National Academy of Sciences of the United States of America*, 101(39), 13976–13981.
- Roe, E.M. (1991). Development narratives, or making the best of blueprint development. *World Development*, 19(4), 287–300.
- Roe, E.M. (1994). *Narrative policy analysis: Theory and practice*. Durham: Duke University Press. doi:10.1215/9780822381891.

- Selwyn, B. (2016). Elite development theory: A labour-centred critique. *Third World Quarterly*, 37(5), 781–799.
- Simons, T. (2016, October 31). *A better deal - Incentivising wise land use with the tropical landscape finance facility*. Retrieved from <http://blog.worldagroforestry.org/index.php/2016/10/31/better-deal-incentivising-wise-land-use-tropical-landscape-finance-facility/>
- Sippel, S.R. (2018). Financialising farming as a moral imperative? Renegotiating the legitimacy of land investments in Australia. *Environment and Planning A: Economy and Space*, 50(3), 549–568.
- Sippel, S. R., Lawrence, G., & Burch, D. (2017). The financialization of farming: The hancock company of Canada and its embedding in rural Australia. In M. Miele, V. Higgins, H. Bjørkhaug, & M. Truninger (Eds.), *Research in Rural Sociology and Development: Transforming the rural: Global processes and local futures* (1st ed., Vol. 24, pp. 3–23). Bingley, UK: Emerald. doi:10.1108/S1057-192220170000024001
- Somers, M.R. (1992). Narrativity, narrative identity, and social action: Rethinking english working-class formation. *Social Science History*, 16(4), 591–630.
- Steinebach, S. (2013). “Today we occupy the plantation - tomorrow Jakarta”: Indigeneity, land and Oil Palm plantations in Jambi. In B. Hauser-Schäublin (Ed.), *Adat and indigeneity in Indonesia - Culture and entitlements between heteronomy and self-ascription* (pp. 63–70). Göttingen: University Press Göttingen.
- Sullivan, S. (2013). Banking nature? The spectacular financialisation of environmental conservation. *Antipode*, 45(1), 198–217.
- Sustainable Natural Rubber Initiative. (2015). *Mission and objectives*. Retrieved from http://www.snr-i.org/Mission%20and%20Objectives_4_1.html
- Thirzano, Y. (2016, November 28). *Inilah Daftar UMP Tahun 2017 dari 34 Provinsi, Naik 8,25 Persen*. *Tribun Jambi*. Retrieved from <https://www.tribunnews.com/bisnis/2016/11/28/inilah-daftar-ump-tahun-2017-dari-34-provinsinaik-825-persen>
- Tropical Landscape Finance Facility. (2018). *Indonesia's first sustainable natural rubber plantation*. Retrieved from <http://tlffindonesia.org/rlu-transaction/>
- Tropical Landscape Finance Facility. (2018, February 26). *1st Corporate sustainability bond in Asia issued by TLFF for a Natural Rubber Company in Indonesia*. [Press release]. Jakarta. Retrieved from http://tlffindonesia.org/wp-content/uploads/2018/02/TLFF-1-RLU_FINAL-Press-Release-English-26022018-1.pdf
- Tsing, A.L. (2005). *Friction: An ethnography of global connection*. Princeton, NJ: Princeton University Press. Retrieved from <http://site.ebrary.com/lib/alltitles/docDetail.action?docID=10519756>
- Turner, B.L., & Robbins, P. (2008). Land-change science and political ecology: Similarities, Differences, and implications for sustainability science. *Annual Review of Environment and Resources*, 33(1), 295–316.
- Tyson, A.D. (2009). Still striving for modesty: Land, spirits, and rubber production in Kajang, Indonesia. *The Asia Pacific Journal of Anthropology*, 10(3), 200–215.
- United Nations Environment (UNEP). (2011). *Towards a green economy: Pathways to sustainable development and poverty eradication - A Synthesis for policy makers*. Retrieved from www.unep.org/greeneconomy
- United Nations Environment (UNEP). (2016, October 26). *Tropical landscapes finance facility unlocks private sector finance for climate, biodiversity and jobs* [Press release]. Jakarta. Retrieved from <https://www.unenvironment.org/news-and-stories/press-release/tropical-landscapes-finance-facility-unlocks-private-sector-finance>
- United Nations Environment (UNEP). (2017, December 14). *New financial mechanism helps people, environment in Indonesia* [Press release]. Retrieved from <https://www.unenvironment.org/news-and-stories/story/new-financial-mechanism-helps-people-environment-indonesia>
- United Nations Environment (UNEP). (2018, January 26). *Financing a natural rubber plantation in Indonesia, promoting sustainable development and green jobs*. [Press release]. Jakarta. Retrieved from <https://www.unenvironment.org/news-and-stories/press-release/financing-natural-rubber-plantation-indonesia-promoting-sustainable>
- Van der Hel, S. (2018). Science for change: A survey on the normative and political dimensions of global sustainability research. *Global Environmental Change*, 52, 248–258.
- Verburg, P.H., Erb, K.-H., Mertz, O., & Espindola, G. (2013). Land system science: Between global challenges and local realities. *Current Opinion in Environmental Sustainability*, 5(5), 433–437.
- Warren-Thomas, E.M., Dolman, P.M., & Edwards, D.P. (2015). Increasing demand for natural rubber necessitates a robust sustainability initiative to mitigate impacts on tropical biodiversity. *Conservation Letters*, 8(4), 230–241.
- Warren-Thomas, E.M., Edwards, D.P., Bebber, D.P., Chhang, P., Diment, A.N., Evans, T.D., ... Dolman, P.M. (2018). Protecting tropical forests from the rapid expansion of rubber using carbon payments. *Nature Communications*, 9(1), 911.
- Wells, M., Guggenheim, S., Khan, A., Wardojo, W., & Jepson, P. (1999). *Investing in biodiversity: A review of Indonesian integrated conservation and development projects. Directions in development*. Washington, D.C: The World Bank. Retrieved from <http://documents.worldbank.org/curated/en/289311468771710756/Investing-in-biodiversity-a-review-of-Indonesias-integrated-conservation-and-development-projects>
- White, B., Borras Jr., S.M., Jr., Hall, R., Scoones, I., & Wolford, W. (2012). The new enclosures: Critical perspectives on corporate land deals. *The Journal of Peasant Studies*, 39(3–4), 619–647.

- World Wide Fund for Nature (2016, June 17). *WWF statement on New Zero Deforestation policy from Michelin* [Press release]. Retrieved from <https://www.worldwildlife.org/press-releases/wwf-statement-on-new-zero-deforestation-policy-from-michelin>
- World Wide Fund for Nature. (2018). *Sumatra: Wettlauf um die letzten Wälder*. Retrieved from <https://www.wwf.de/themen-projekte/projektregionen/borneo-und-sumatra/sumatra-wettlauf-um-die-letzten-waelder/>
- World Wide Fund for Nature. (2019a). *Transforming the global rubber market*. Retrieved from <https://www.worldwildlife.org/projects/transforming-the-global-rubber-market>
- World Wide Fund for Nature. (2019b). *WWF & Michelin Partnership Progress Report 2014/2018*. Retrieved from https://www.wwf.fr/sites/default/files/doc-2019-07/20190726_Partnership_Progress_Report_Michelin_WWF-min.pdf
- World Wide Fund for Nature (2019c, July 26). *Le WWF France et le Groupe Michelin renouvellent leur partenariat pour un caoutchouc naturel responsable et pour une mobilité durable* [Press release]. Retrieved from <https://www.wwf.fr/vous-informer/actualites/le-wwf-france-et-le-groupe-michelin-renouvellent-leur-partenariat-pour-un-caoutchouc-naturel>
- WWF Deutschland. (2015, December 30). *Bukit Tigapuluh: Tigerwald statt Akazien-Monokultur*. Retrieved from <https://www.wwf.de/themen-projekte/projektregionen/borneo-und-sumatra/bukit-tigapuluh-tigerwald-statt-akazien-monokultur/>
- Zabel, F., Delzeit, R., Schneider, J.M., Seppelt, R., Mauser, W., & Václavík, T. (2019). Global impacts of future cropland expansion and intensification on agricultural markets and biodiversity. *Nature Communications*, 10(1), 2844.