



Synthesis

## Beyond sustainability criteria and principles in palm oil production: addressing consumer concerns through insetting

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**ABSTRACT.** Palm oil is one of the most controversial agricultural commodities of our time. To its supporters, it is the golden crop that catalyzes smallholders out of poverty and brings salvation to the global food and energy crisis. For its critics, it is the single biggest threat driving the wholesale destruction of peatlands and rainforests as well as adding to greenhouse gas emissions. Hailed as a turning point in 2004, the Roundtable on Sustainable Palm Oil (RSPO) has been widely criticized as being unable to change the industry fast enough. We argue that certification, although certainly important, will not be able to deliver expected environmental and social benefits because of (1) an uneven distribution of incentives along the value chain, (2) traceability issues, (3) difficulties associated with an expanding market, and (4) alternative low standard markets to the standard large Organisation for Economic Co-operation and Development (OECD) markets. We argue that the sustainability debate has actually failed to address the fact that oil palm landscape as a whole would be more sustainable if smallholders for whom palm oil is not an economic viable avenue would engage in other forms of land use. An important starting point for change is to move beyond narrow business interests of satisfying customers and shareholders interests only and tackle the implicit contract between palm oil marketers and importers and the smallholder agricultural communities in palm oil producing areas. We introduce the concept of livelihood “insetting” that goes beyond the pure sustainability aspect by also addressing the issue of mutuality along the global value chain.

**Key Words:** *certification; cooperate social responsibility; palm oil; smallholder; sustainability*

### INTRODUCTION

We review and comment on the current status of the international debate over the sustainability of palm oil production. We discuss the effectiveness and insufficiencies of market-based incentives for palm oil actors to adopt sustainable management practices, the biases of the debate toward environmental outcomes rather than livelihood outcomes for growers, and the effectiveness of current certification schemes to moderate the industry and improve sustainability. Our synthesis points to the current status of small-scale oil palm farmers, many of whom have benefitted from growing oil palm, but are highly susceptible to price instability and the effects of consumer preferences, especially in developed country markets. The high up-front costs and the need for increasingly expensive fertilizers limit the suitability of oil palm as a poverty elimination measure for the bottom segment of rural households (Ismail et al. 2003, Rahman et al. 2008, McCarthy 2010; M. N. Mohd Noor, *personal observation*). At the same time, it is these small holdings that determine the tipping points of the ecological integrity of these highly fragmented oil palm landscapes (Fitzherbert et al. 2008, Dawson et al. 2013, Clough et al. 2016). We conclude that the benefits of certification are insufficient to affect the behavior of growers, so oil palm landscapes need direct investment in the development of social capital of rural households to facilitate the development of alternative and improved livelihood opportunities with concurrent improved biodiversity outcomes. The process recommended by the authors has been described as “insetting” (Tipper et al. 2009). Our conclusions are based on over 15 years of experience in the palm oil business in Malaysia and Indonesia, discussions with industry leaders in insetting, and a thorough review of the literature on smallholder oil palm growers.

Since the publication of *Our Common Future* (often known as the Brundlandt Report) by the World Commission on Environment and Development (Brundlandt and WCED 1987), the concept of what is “sustainable” is based on the anthropocentric value judgment that future generations must have the same range of options concerning the use of the world’s resources as the current generation (Izac and Swift 1994). It is based on a concept of inter- and intra-generational justice (Grunwald et al. 2001). Sustainable development (IUCN 1980), the term that was meant to bridge the ecological centric interpretation of the developed North and the social and economic needs of the developing South, is perhaps the most challenging policy concept ever developed (Omann and Spannenberg 2002). In a globalized world that is connected by trade, there is a huge disconnect between the value judgment of consumers living in largely saturated OECD (Organisation for Economic Co-operation and Development) markets and of producers in low and middle income countries (Dolan 2010). This is especially true for immediate, local sustainability needs of the approximately three million farming households that grow an estimated two fifths of the world’s oil palm (Balch 2013), but also for the needs of indigenous forest dwelling communities that depend on intact tropical forest ecosystems to maintain their cultures and livelihoods.

The debate about the production and consumption of palm oil typifies the ambiguity of the sustainable development concept. To its supporters, oil palm is the golden crop that catalyzes smallholders out of poverty and brings salvation to the global food and energy crisis (Basiron 2007, de Vries et al. 2010). For its critics it is the single biggest threat driving the wholesale destruction of peatlands and rainforests, as well as increasing greenhouse gas emissions (Fitzherbert et al. 2008, Island 2015,

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Clough et al. 2016, Linder and Palkovitz 2016). In addition, the expansion of oil palm plantations has had considerable impacts on indigenous communities, affecting their rights to land, territories, and natural resources, they have traditionally owned, occupied, or otherwise used (Colchester et al. 2011, Majid Cooke 2012). Ethically concerned consumers and activists have tried to remedy the situation through the introduction of regulations meant to encourage sustainable and socially equitable production (Auld et al. 2008, Balch 2013, Kell 2014). However, these regulations and accompanying certification schemes have had limited effectiveness (Laurance et al. 2010, Levin et al. 2012, Carlson et al. 2013, Butler 2015), especially because there are abundant options for palm oil to be sold into markets in which there are fewer obstacles (Hucal 2015). At the same time, more stringent market standards often shift the burden of compliance to the three million smallholders that depend on oil palm cultivation for their livelihood (Giovannucci and Purcell 2008, Dolan 2010, Blackman and Rivera 2011, Hidayat et al. 2015).

We agree with Omann and Spannenberg (2002) that the socioeconomic and political dimensions of sustainable development have often been neglected. In agricultural production especially, sustainability is often synonymous with increased efficiency of the production, which implies intensification of yield production with less consumption of land, water, and fertilizer (Tilman et al. 2011), rather than sustainability in the economic or social senses. Oil palm, although one of the most efficient oil bearing crops, has also seen the largest expansion in the last decade and is thus often regarded as unsustainable (Fitzherbert et al. 2008, Island 2015, Clough et al. 2016). We build the argument that taking the social and institutional dimensions of the commodity production into account is a necessary precondition for obtaining the desired environmental sustainable outcomes (Omann and Spannenberg 2002, Roche and Jakub 2014).

The process we propose is known as *insetting* (Tipper et al. 2009), a new term derived as an option to *offsetting*. *Offsetting* is the process of providing incentives to communities to take actions that compensate for the damage caused by other parties in different places (Lehmann 2007). The best-known example occurs when communities grow and manage trees that absorb carbon from the atmosphere under a contractual arrangement with parties who wish to compensate for their activities that cause emissions of carbon dioxide elsewhere (Bäckstrand and Lövbrand 2006, Roshetko et al. 2007). *Insetting* occurs when an interested party, such as a producer of commodities, sets out to bring social benefits directly to a community. It has been shown that investment in community capital can greatly improve people's ability to manage their own lives better, including becoming better managers of their resources, and to be better and more efficient managers of their commodity production while learning how to diversify their income generating opportunities and improve community livelihoods (Roche and Jakub 2014).

We argue that changing the relationship between the poorer communities in oil palm landscapes and the marketers and consumers of the product is a precondition for improving implicit social contracts and then more systematically resolving the considerable sustainability challenges that the world's demand for agricultural commodities create, in particular in developing

producer countries and smallholder-dominated landscapes of production.

#### **PALM OIL INDUSTRY AND SUSTAINABILITY ISSUES**

In May 2015, the Roundtable on Sustainable Palm Oil (RSPO) announced a new set of voluntary guidelines, "RSPO+", "aimed at further enhancing the existing standard's requirements on issues such as deforestation, peatland development and indigenous peoples rights" (Butler 2015). This announcement comes in the midst of two other high-profile initiatives, namely the deforestation-free (or zero-deforestation) movement, pledging a commitment from more than 240 vegetable oil buyers, traders, and producers to decouple deforestation from their commodity chains, and the recent "Indonesian palm oil pledge," a high-profile sustainability pact between the Indonesian government and leading oil palm giants operating in Indonesia (Jacobson 2015). These initiatives are the latest developments in an almost 10-year-old dispute about the environmental, social, and local economic impacts of the palm oil industry.

Oil palm is the most productive oil crop in the world with yields per hectare about nine times that of soybean, seven and a half times that of rape seed, and six times that of sunflower oil (Basiron 2007, de Vries et al. 2010). Oil palm's global footprint in terms of total land use is relatively small when compared to other major commodities (Table 1, last column). Although oil palm plantations cover an area only one sixth of the size, for example, of soybean plantations, they have a strong localized effect on unique habitats with more than 80% produced in only two tropical countries: Indonesia and Malaysia (Levin et al. 2012). Although the key environmental and social concerns associated with palm oil, i.e., deforestation, greenhouse gas emissions, loss of biodiversity, water pollution, and soil erosion, are problems common to most large-scale monocultures, oil palm has had an exceptional high area expansion rate, particularly since the 1990s (Table 1), an era that has seen the manifestation of socially and environmentally concerned standards in largely saturated OECD markets (Peattie 2001, Nikoloyuk et al. 2010).

Originally cultivated in colonial Nigeria in the early 1900s, oil palm was first introduced by the Dutch to South East Asia, where the industry underwent rapid industrialization. Ironically, its cultivation was promoted by the Malaysian government as a means to diversify from rubber, another plantation crop that had expanded into primary forest areas (Voon 1981). With the crash of the rubber industry in the late 1950s, oil palm involuntarily became the dominant cash crop in Malaysia and subsequently in Indonesia. The sector employs 3.7 million people in Indonesia and around 600,000 people in Malaysia. The oil palm industry contributed US\$16.8 billion to Malaysia's gross national income (GNI) in 2011, and Indonesia exported over US\$14.5 billion of palm oil related products in 2008 (World Growth 2011, Sime Darby 2014).

An estimated two-fifths of the world's palm oil derives from plantations of fewer than 50 hectares (Balch 2013), which although comparatively large in terms of arable farming, classifies as a smallholding for oil palm. Smallholdings can range from 5-50 hectares. In Africa and Latin America, the majority of producers are smallholders but even in the main producing countries, Indonesia and Malaysia, that are characterized by a large private plantation sector, more than 40% of the area under oil palm

**Table 1.** Decadal area expansion for a number of plantation commodities (rates expressed as decadal percentage increase). FAOstat (<http://www.fao.org/faostat/en/#home>).

	1961–1971	1971–1981	1981–1991	1991–2001	2001–2011	Total area harvested [ha]
Soybean	26.1	68.1	8.1	39.8	34.1	103,000,000
Seed cotton	9.4	-1.0	1.3	-0.5	1.2	35,000,000
Rapeseed	47.3	30.2	39.7	13.0	49.1	34,000,000
Sugar cane	24.1	23.8	23.0	10.2	29.8	25,500,000
Oil palm	-8.5	23.1	37.3	63.2	53.3	16,000,000
Coffee	-7.0	14.7	4.4	-2.7	-1.0	10,500,000
Cocoa	0.5	9.6	14.7	25.8	39.8	10,000,000
Rubber	26.9	9.5	18.7	14.3	29.7	10,000,000
Bananas	32.8	3.5	18.5	22.5	23.5	5,000,000
Tobacco	9.4	10.8	15.5	-21.2	10.7	4,000,000
Tea	27.2	37.3	-5.2	5.8	35.9	3,000,000

cultivation is managed and owned by smallholders. Smallholders participate in the oil palm value chain in various ways: as independent smallholders, as outgrowers, as associated or schemed smallholders, as well as participants in profit sharing models, with various contractual arrangements, either through governmental agencies or private palm oil companies (Rahman et al. 2008).

Similar to many other cash crops, palm oil is traded at international stock exchanges, in particular the London Stock Exchange. It is for this reason that palm oil has attracted interest from the financial sector as a product for speculative investment (M. A. Teo, *personal communication*). Palm oil is used in 50% of all consumer goods, from lipstick and packaged food to body lotion and biofuels (Economist 2010). The edible oil market is strongly linked to population and income growth. Over recent years, the growing middle class in large emerging economies, most notably China, boosted the overall demand for palm oil through a stronger demand for consumer goods (Corley 2009, Obidzinski et al. 2013). The market share of palm oil depends on its price difference with other vegetable oils (Basiron and Weng 2004, Corley 2009). At present, oil palm represents the largest share of worldwide edible oil production at more than 30%, followed by soybean and rapeseed oil at 28% and 15%, respectively (Abdullah and Wahid 2011). The biofuel feedstock market is closely linked to the price of mineral oil. Its use is essentially driven by policy measures, including tax exemptions, investment subsidies, and obligatory blending mandates for biofuels with mineral fuels (Banse et al. 2008). During the 1990s, the production and use of biofuels grew in several European countries, initially encouraged by the *German Renewable Energy Sources Act* (EEG 2000), and expanded rapidly during the years that followed (Büsgen and Dürrschmidt 2009). The bulk of biofuel mandates continue to come from the EU-27, in which the *Renewables Directive* (2009/28/EC) required a 20% renewable content by 2020 (European Parliament 2009). This target has been scaled back to the 5-7.5% range in recent months (Lane 2016). Along similar lines, 13 countries in the Americas have mandates or targets in place or under consideration, as do 12 countries in the Asia-Pacific, 11 in Africa and the Indian Ocean, as well as 2 from non-EU countries in Europe (Lane 2016). Demand for palm oil is predicted to double by 2030 and to triple by 2050 (Corley 2009).

The international dimension of production and consumption patterns of globally traded commodities, such as palm oil, can

often be a challenge to national governments in producer countries who are often overburdened with balancing local demands for economic growth with global concerns of protecting vital landscapes and cultural spaces (Basiron and Weng 2004, Von Geibler 2013). As a result of weak governance and clashes of vested interests, half of the world's orangutans, which are endemic to the islands of Borneo and Sumatra, have disappeared in the last 20 years (Sandker et al. 2007, Linder and Palkovitz 2016). Likewise, peat swamp forests are being obliterated, and the disappearing forests are endangering the habitat of the pygmy elephant, the clouded leopard, the long-nosed tapir, and many rare birds (Koh and Wilcove 2008, Fitzherbert et al. 2008, Carlson et al. 2013, Butler 2015). Most haze and smog conditions in Indonesia, which have posed severe health threats to Indonesia itself and neighboring countries, have been attributed to the illegal clearing of forested land for oil palm plantations (Varkkey 2013, Gaveau et al. 2014).

Oil palm, despite the often-cited claim that it is the golden crop that lifts people out of poverty (Simeh and Ahmad 2001), is not a very suitable smallholder crop because of its high upfront investment paired with high demands for fertilizer input and intensive labor requirements during the immature stages of the plantation (Ismail et al. 2003, Rahman et al. 2008, McCarthy 2010). In the context of oil palm, the term smallholder can also be misleading because in both Indonesia as well as Malaysia the term is used to describe a private farm that does not need a plantation permit. In Malaysia, the threshold for a smallholder is set at 50 ha and in Indonesia at 25 ha (Kwan 1980, Suryadi 2011). Although smallholders in the context of oil palm are a very mixed group in an economic sense, the majority of smallholders tend to have very small land sizes, below 5 ha (Table 2), poor planting material, low exposure to and understanding of best management practices, and restricted access to cash flow (Ismail et al. 2003, Molenaar et al. 2013). Small land sizes of these farmers combined with low yields and their inability to reinvest in land, trap these farmers into reinforcing cycles of unsustainable management and incomes (Koczberski and Curry 2005, McCarthy 2010, Molenaar et al. 2013). The recent plunge in palm oil prices is having a particularly severe effect on the livelihoods of these farmers and their ability to maintain minimum standards on their fields (M. N. Mohd Noor, *personal observation*). At the same time, it is these small holdings that determine the tipping points of the ecological integrity of these highly fragmented oil palm landscapes (Fitzherbert et al. 2008, Dawson et al. 2013).

**Table 2.** Overview of average land holding sizes (hectare) of smallholder oil palm growers in Indonesia and Malaysia.

Average size of holding (hectare)	Type of smallholder	Region	Country	Reference
2	Nucleus estate and smallholder schemes	Indonesia	Indonesia	Rist et al. 2010
4	Nucleus estate and smallholder schemes	West New Britain Province	Papua New Guinea	Koczberski and Curry 2005
5.4	Nucleus estate and smallholder schemes	Sabah	Malaysia	M. F. Mohd Noor, <i>unpublished manuscript</i>
5.7	Nucleus estate and smallholder schemes	Sabah	Malaysia	Sutton 2001
5.1	Independent	Pennisular Malaysia	Malaysia	Rahman et al. 2008
6.5	Independent	Sabah and Sarawak	Malaysia	Rahman et al. 2008
1.8	independent	Sumatra	Indonesia	Lee et al. 2014
2.5	Nucleus Estate and Smallholder schemes	Sumatra and Kalimantan	Indonesia	Molenaar et al. 2013
2.9	independent	Sumatra and Kalimantan	Indonesia	Molenaar et al. 2013
2.0	Nucleus estate and smallholder schemes	Sumatra	Indonesia	Lee et al. 2014

## STANDARDS AND REGULATIONS

Malaysia and Indonesia have been widely criticized for their alleged failure to manage and control the expansion of oil palm plantations (McCarthy and Zen 2010). In 2004, the establishment of the RSPO, a multistakeholder council that developed the first global voluntary standards for the sustainable production of palm oil, was hailed as a turning point (Schouten and Glasbergen 2011). It has almost 1300 members, including environmental NGOs, social organizations, and banks, as well as various businesses involved in the palm oil trade, including growers, processors, traders, and retailers. The RSPO is regarded as far more successful than similar roundtables on other commodities, such as soybean, sugarcane, cotton, seafood, and beef (Balch 2013). Nevertheless, it has been widely criticized in recent years for not being able to change the industry fast enough and not being effective enough to halt deforestation (Laurance et al 2010, Linder and Palkovitz 2016).

Other than the RSPO standard, there are four additional certification schemes that all have different principles and criteria, namely RSB, ISCC, ISPO, and MSPO (<http://www.sustainablepalmoil.org/standards/>).

The initial focus of principles and practices of standards (public, private, and global standards alike) were on national regulations regarding consumer health and safety, as well as private standards to coordinate the organization of production along global value chains (Parrilli et al. 2013). Starting in the 1970s, social and ecological impacts of ever increasing global dimensions of production led to a widening of these standards. Global standards, such as voluntary certification schemes and codes of conduct introduced by nongovernmental organizations, gained prominence and were often adopted by private firms (Von Geibler 2013). Voluntary certification schemes are based on two assumptions: (1) that there are sufficient socially and environmentally concerned consumers who will not buy a product from a retailer known to violate the accepted norm or cannot fully account for its palm oil certified traceability or supply chains, and (2) that there are enough consumers who are willing to pay a premium for a product that is produced according to that norm

(Auld et al. 2008). It has been argued that national regulatory governance has decreased in importance as a result of growing global interests in a range of ecological and social issues (Büthe 2010).

Regulations of food ingredients, which are part of internationally traded food products, are subjected to several nonbinding and binding agreements, such as the Hazard Analysis Critical Control Point system (HACCP) and the Food Hygiene Standards of the Codex Alimentarius Commission (CAC) of FAO and WHO (<http://www.fao.org/fao-who-codexalimentarius/en/>). The World Trade Organization (WTO) regulates food safety matters through the *Agreement on the Application of Sanitary and Phytosanitary Measures* (SPS Agreement) and the *Agreement on Technical Barriers to Trade* (TBT Agreement). The WTO agreements complement each other and mainly focus on removing obstacles to trade, disguised as health and safety regulations that are not based on scientific evidence. Although the TBT agreement permits mandatory labeling requirements, the regulations are based only on differences in product characteristics and not upon process or production methods (Sheargold and Mitchell 2011).

For biofuels, the WTO does not currently have specific agreements, neither is there any adequate regulation for national biofuel subsidies under the *Subsidies and Countervailing Measures Agreement* (SCM) or the *Agreement on Agriculture* (FAO 2008). Hence, existing regulatory instruments are country specific or stipulated in regional bodies. For the EU, the main regulatory instrument is the *Renewables Directive* (Directive 2009/28/EC). Only biofuels that comply with the current 35% greenhouse gas reduction and the 50% greenhouse gas reduction criterion from 1 January 2017 as compared to mineral oil are allowed. Palm oil biodiesel and hydro-treated vegetable oil from palm oil, currently only fulfill the 35% reduction criteria if methane is captured at palm oil mills through recycling of palm oil mill effluent and empty fruit bundles. In November 2012, the European Commission ruled that a *Renewables Directive*-compliant version of RSPO (i.e., with a greenhouse gas component) would be recognized as a *Renewables Directive* voluntary certification scheme.

International public standards like the SPS and TBT agreement or the directives of the European Union can have a direct influence on the palm oil industry. For example, the inclusion of sustainability criteria in the *Renewables Directive* on the promotion of the use of energy from renewable sources (Directive 2009/28/EC) had severe effects on the use of palm oil in the European biofuel market. The long-disputed concerns about possible adverse health effects of processed palm oil on diets unleashed debates within the EU, leading to various reactions and commitments from both the industry itself as well as national governments (Lam et al. 2009). Environmental lobby groups like Friends of the Earth and Greenpeace have led successful campaigns to influence policy makers and final consumers alike. Western concerns over deforestation and the destruction of the habitat of popular animals, including the orangutan, were the initial focus of these campaigns, but eventually the scope broadened to the impacts on biodiversity, land use, and social conflicts related to palm oil production.

The most recent response to consumer concerns in Europe is the new *Food Information Regulation* (No 1169/2011) that came into force in December 2014, which requires explicit listing on the label of all types of vegetable oil used in food products. Given the negative image of palm oil products in a number of EU countries, the industry is cautiously awaiting the implications of this new law. This is coming amid depressed soybean oil prices, prompting some users to shift to soybean oil and lowering palm oil demand. As a response, the Malaysian government has announced in October 2015 its intention to expand palm oil exports to smaller markets, such as Iran, Kazakhstan, Turkey, and Turkmenistan to reduce dependence on its traditional markets, especially the European market (Tan 2015).

### SUCCESS AND LIMITATIONS OF CERTIFICATION SCHEMES

Consumer concerns and activist campaigns have led to a rethinking within the palm oil industry itself. Since 2004, the RSPO certified palm oil (CSPO) accounted for 8.2 million tones (15%) from a total of 150 million tonnes from global production (RSPO 2015a). Many retailers made voluntary, time-bound commitments to source 100% certified sustainable palm oil (CSPO) by 2015 (Economist 2010). Some have reached this target, whereas others are using GreenPalm certificates as an interim measure while they work toward sourcing CSPO (RSPO 2015b). GreenPalm is a certificate trading program that allows the holder to purchase certificates (but not the actual certified palm oil) from certified growers. The governments of Indonesia and Malaysia have introduced their own sustainability standards. The Indonesian Sustainable Palm Oil (ISPO) is mandatory and aims to ensure that all Indonesian growers conform to higher agricultural standards through a minimum set of best management practices (Obidzinski et al. 2013). It was the first national standard of its kind and other countries have now begun to consider implementing similar standards to ensure sustainable practices among all palm oil producers. Malaysia has launched its own voluntary certification standard MSPO, to overcome growers concerns with the RSPO about differing views of auditors, costly certification charges, and evolving criteria (Sharma 2013).

Despite the above-described efforts by governments and roundtable groups, the European market and consumers are still

pushing for better transparency of palm oil source especially in food (Economist 2010). However, one of the biggest problems of the certification process is the one of traceability (Levin et al. 2012). The value chain for palm oil is notoriously complex, and it is technically difficult to trace individual palm oil back to its sources. It is common practice to mix palm oil supplies from different sources at various stages along the value chain (M. A. Teo, *personal communication*). This is the case particularly where oil palm mills rely on outgrower schemes, which consist of independent smallholder farmers. Therefore, it is largely impossible to trace the oil purchased back to a single source by the end user. As of December 2014, only 14% of the 1821 RSPO-certified supply chain certificate holders can sufficiently document their entire value chain to be linked to sustainable palm oil sources (RSPO 2015b).

Compliance with certification standards is also easier for old plantations as opposed to newly established ones. With land becoming scarce, both in Indonesia and Malaysia, new value chain actors are forced to expand into areas that are problematic, not only environmentally but also socially (Andersen et al. 2016). Between 1990 and 2010, Kalimantan (Indonesia) has seen a massive expansion of oil palm areas into forests. According to Carlson et al. (2013), 47% of the new plantations are established on primary forests, 22% on logged over forests, and 21% on agroforests. Expansions in Sarawak (Malaysia) have shown that between 2005 and 2010 alone just under two-thirds of the 350,000 ha of peat swamp were opened up (SarVision 2011).

Given the complexity of the palm oil value chain it is easier and more cost effective for companies that own and control their own value chain, from plantations to refineries, to adhere to palm oil standards. Although these vertically integrated companies have the largest market share in the European market and thus the largest incentive to be RSPO compliant, globally they are the exception rather than the norm. In producer countries, very few oil palm plantations actually invest in downstream processing because of the high operational costs and the relatively small profit margins of refinery mills compared to the crude palm oil processing mill. In 2011, Malaysia counted a total of 426 palm oil mills but only 56 refineries (Malaysia Productivity Corporation 2014). Companies that concentrate on the production of crude palm oil need to offset the additional costs required to meet the stringent requirements of the RSPO through a price premium. According to Mongabay (Butler 2014), growers could expect an average of 1.2% premiums since 2008, but this is far short of the expected 10% sought when the first certified palm oil began shipping. This creates an uneven distribution of the associated certification costs and benefits along the value chain. Although retailers can market their cooperative efforts in environmental sustainability and use it to gain higher market shares, the low premiums paid to the growers do not necessarily offset the higher production costs that are associated with certification schemes (Levin et al. 2012). Small farm operators in particular lack both capital and technical expertise and suffer from insufficient economies of scale to make certification economically viable to them (Colchester et al. 2011).

Already in 2008, Giovannucci and Purcell warned that the new market requirements for certification of sustainable palm oil could effectively lead to eliminating smallholders and the poor from the value chain. Aware that the standards and procedures

**Table 3.** Roundtable on Sustainable Palm Oil members by country and sector (RSPO 2014).

Sector	China	France	Germany	India	Indonesia	Italy	Malaysia	Pakistan	UK	USA
Banks/Investors		1					1		2	2
Consumer Goods Manufacturers	4	32	65	4	3	4	1	2	50	22
Environmental/ Conservation NGOs					4		4		5	10
Individuals		1					2			
Oil Palm Growers Organizations		1	1		55		24		3	
Palm Oil Processors/ Traders	4	43	69	14	16	11	31		51	20
Retailers	6	5	20	32	28	4	43	1	16	17
Social/Developmental NGOs		10	6		3		2		12	2
<b>Grand Total</b>	<b>14</b>	<b>93</b>	<b>161</b>	<b>50</b>	<b>109</b>	<b>19</b>	<b>108</b>	<b>3</b>	<b>139</b>	<b>73</b>

of the RSPO were ill-suited to smallholders, the RSPO set up a task force on smallholders, which through several years of consultation has allowed the RSPO to elaborate on revised standards designed for both smallholders in schemes contractually linked to specific mills and for the group certification of independent smallholders (Colchester et al. 2011). As of September 2015, six initiatives globally comprising more than 9000 smallholders have achieved group certification, supported by approximately one million Euro funded through the RSPO Smallholders Support Fund (RSPO 2015c). Although it is a great achievement, it remains a drop in the bucket considering that approximately 3 million smallholders grow oil palm worldwide (Balch 2013). It also demonstrates the substantial investments smallholders need to implement certification standards (Levin et al. 2012). The actual benefits of certification to smallholder livelihoods have been widely disputed (Bacon 2008, Giovannucci and Purcell 2008, Dolan 2010, Blackman and Rivera 2011, Hidayat et al. 2015). Although the RSPO does have a specific criteria for “growers and millers to contribute to local sustainable development where appropriate,” unlike Fairtrade it is mainly concerned with issues of sustainability and not of growers livelihood (RSPO 2013).

Moreover, growers and retailers that are targeting markets with little interest in sustainably sourced palm oil have very few reasons to change their production systems given alternative low-standard markets to the standard intensive OECD markets (Hucal 2015). This is well reflected in the uneven distribution of RSPO members across consumer countries in which most manufacturers are largely from the EU or the USA (Table 3). Ethically concerned consumers prevail in OECD markets with high GDP per capita incomes, whereas emerging markets in China and India with far lower per capita incomes are yet to see the formation of equally concerned consumers (Nikoloyuk et al. 2010). It has yet to be seen whether and in what form an impact due to emerging markets with less standard intensive value chains might be on the palm oil industry. Evidence from the timber and cassava industries in Gabon and Thailand, respectively, shows that Chinese-driven value chains were less concerned about standards (i.e., product, process, and environmental standards) than value chains driven by European lead firms (Kaplinsky et al. 2010).

### LIVELIHOOD INSETTING

Smallholders are an important segment of the global palm oil value chain. They are responsible for two fifths of global palm oil production (Balch 2013). At a local scale many oil palm estates are dependent on smallholders to ensure efficient operation of palm oil mills and diversification of production risks (Rahman et al. 2008). The smallholder segment is quite complex, including in the major palm oil producing states of Malaysia and Indonesia. In simplified terms, there are three kinds of smallholders: those who are directly contracted by large estates, produce for the estates, and might receive investment and management support from them; independent smallholders who sell to mills either directly or through agents; and, smallholders contracted to large estates who keep some independent production. Contract farming provides the smallholder with greater production efficiency, income stability, market security, and access to capital (credit) and technological advances (Echánove and Steffen 2005). Thus from an agronomic perspective, it can be considered more sustainable because it supports intensification. However, it does come at the price of loss of autonomy (Dolan 2010, Echánove and Steffen 2005). Also, a number of studies have pointed out that the livelihood outcomes of contract farming are highly variable and depend strongly on farmers ability to negotiate favorable contract conditions as well as the investors support during planting stage (McCarthy 2010, McCarthy and Zen 2010). In general, investors engage with smallholders simply as a means to access land and labor. Social responsibilities beyond provision of plantation infrastructure are largely absent (Sutton 2001).

Smallholder farmers often give up land to plant oil palm, find the labor requirements onerous, especially in the first years after planting, and find the needs of the trees great in terms of fertilizer and management (M. N. Mohd Noor, *personal observation*). Farmers, who have transformed land to oil palm, find themselves trapped in a monoculture system with few opportunities to shift to other forms of agriculture and inadequate knowledge of how to maximize their income without simply looking for opportunities to expand their plantations further (Ismail et al. 2003, Rahman et al. 2008, McCarthy 2010). Fertilizer prices have already risen sharply since much smallholder oil palm was planted, and further price increases and continued volatility of the oil palm market could quickly make oil palm a much less

attractive smallholder crop (Ghazoul 2015). There is a great need to help smallholders to meet the international and national standards for oil palm production and to develop capacities to diversify their options for livelihood.

A number of forward-thinking companies outside of the oil palm industry have started to explore a new approach to address the sustainability of their production through efforts to bring direct benefits to smallholder producers. The new approach is called insetting. Insetting originated as an alternative to climate change offsetting and describes the process of sourcing opportunities for mitigation activities outside the immediate confines of the company's boundary, by identifying and supporting actions that are of relevance (and benefit) to the company's upstream stakeholders (Tipper et al. 2009). For practical purposes, it can be thought of as partnership with local communities that live in the sourcing landscapes of the companies to jointly achieve a lower ecological footprint.

What makes insetting projects distinctively different from conventional offsetting projects is that in the case of offsetting a company will typically finance an offset project through a different party. There is no interaction between the parties except for the financing arrangement. In the case of insetting, the company itself gets involved by providing incentives to local communities or customers or suppliers to mitigate environmental or social impacts. This way the mitigation activities become internalized into the activities of the company (Tipper et al. 2009, Smedley 2015). Although offsetting can be effective in dealing with issues at a global level with a great environmental homogeneity (such as greenhouse gases and ozone depleting gases in the atmosphere), it does not work for impacts at a local scale: the loss of a specific ecosystem service or livelihood option cannot be mitigated by restoring it somewhere else.

Currently the majority of insetting initiatives are aimed at delivering environmental benefits, such as carbon sequestration, protecting and restored natural ecosystems, and improving water quality (Smedley 2015). In the light of the current oil palm debate, we would like to introduce a different angle to insetting: livelihood insetting, in which the aim is to strengthen social and human capital. Here, the company sets out to bring social benefits directly to the community by investing in both social and human capital, either directly through its policies and rewarding practices or through partnerships with other stakeholders in that landscape. Livelihood insetting is based on the concept of mutuality. To give an example, the founder of Mars Incorporated, Forrest E. Mars, Sr. included mutuality as one of the business principles of his company. He prioritized the promotion of a mutuality of service and benefits across every stakeholder that comes into contact with the business: from farmers and suppliers to consumers, commercial partners, and even to competitors over the need to serve shareholders (Badger 2014). There have been a number of companies following suit including IKEA and Danone. It has been demonstrated that investment in community capital can greatly improve people's ability to manage their own lives better, which includes becoming better managers of their resources and better and more efficient managers of their commodity production while learning how to diversify their income generating opportunities and improve community livelihoods (Roche and Jakub 2014).

Although opportunity costs have often been cited as the main obstacle for land-use diversification in the oil palm growing landscapes (Clough et al. 2016), more nuanced analysis that take into account the limitations of smallholder-managed fields do not support this argument (Ismail et al. 2003; M. N. Mohd Noor, *personal observation*). Land-use diversification in oil palm landscapes is mainly hampered by the lack of access to adequate physical and institutional infrastructure (M. N. Mohd Noor, *personal observation*). Whereby oil palm growers are directly linked to a network of densely distributed and easily accessible palm oil mills, without any statutory body involved, landowners that produce other crops often rely on themselves for marketing their produce (Voon 1981). Additional barriers to new agribusiness ventures are limited options for financing these agricultural investments. Generally, banks and finance companies are less inclined to the financing of small-scale agricultural food production mainly because of the higher risk and the longer payback period of such projects (Molenaar et al. 2013).

Identifying attractive livelihood options for smallholders, for whom oil palm is not a pathway out of poverty, and developing market structures that support the economic viability of these options, demands new forms of landscape governance. It requires both integration and intersectoral approaches with oil palm actors playing an instrumental part. The processes are difficult, time-consuming, and require new relationships to be built among very different policy networks, academic disciplines, and administrative agencies (Shannon and Schmidt 2002). Although agricultural diversification is stated as one of the pillars of the agricultural master plan for Malaysia, there is a disconnect in the institutional reality, with cash crops, food crops, and natural resources located within relatively autonomous policy sectors supported by separate government bureaus, organizational mandates, and territoriality (M. N. Mohd Noor, *personal observation*). Arbitrary grouping of administrative functions under different departments and ministries further accentuates structural barriers (Jantarasami et al. 2010).

Although the international palm oil industry and the big producers should be able to deliver insetting services to the smallholders contracted to big estates, a variety of commercial, NGO, and government activities will be needed to bring services to the independent smallholders. The Sabah Forestry Department has been promoting the cultivation of fast growing, indigenous timber species, such as Laran (*Neolamarckia cadamba*) and Binuang (*Octomeles sumatrana*) on private land. Preliminary growth trials have been very promising, with profitability being comparable to that of palm oil (Lee et al. 2005). Despite a very attractive market prospect for these trees, their wood is used for veneer and pencils, the lack of market structures and financial support systems during the long gestation periods of about 12 years, make these trees not a viable option for most smallholders. In Brazil, NATURA, a major Brazilian cosmetics company that relies heavily on palm oil, in collaboration with Embrapa, the Brazilian national agricultural research agency, and CAMTA, a farmer's cooperative, have started to integrate oil palm with cacao, despite the general perception that palm oil is not suitable for intercropping. Oil palm yields are reported to be higher than in same-aged conventional monoculture systems, while cacao yields are promising as well (Miccolis et al. 2014). Since 2005, global cacao prices have increased on average by 27% (ICCO 2015).

Over-reliance on West Africa beans, which is notorious for severe structural problems, is putting the coca and chocolate industry at a potential risk (Squicciarini and Swinnen 2016).

It could be argued that insetting is nothing new. Sustainability and social activism has been spreading to supply-chain management for some time, and many business corporate social responsibility (CSR) activities could be described as insetting. However, livelihood insetting describes a form of CSR that has matured from a narrowly defined CSR whereby activities were add-ons to the business as usual, to an actual shift in the business model itself aiming to create values for all the participants in its business ecosystems (Tencati and Zsolnai 2009).

### Discussion and Conclusion

The RSPO has been instrumental in catalyzing a global dialogue between oil palm producers, traders, and consumers about environmental and social issues along the oil palm value chain (Kell 2014, Butler 2015). Its success can be counted by the number of RSPO members, the volumes of CSPO produced, and the number of certified supply chains, but in an ever-expanding market that is rapidly spreading its production into new areas and new forested countries, these successes seem to be little more than a Red Queen's race. Despite commitments to zero deforestation and sourcing of 100% certified sustainable palm oil certification, roundtable initiatives have yet to achieve industry-wide adoption rates in light of small price premiums, commodity characteristics (nondifferentiation), and political challenges within the main producing countries (Butler 2014, Ghazoul 2015, Jacobson 2015). Although consumer concerns and activist campaigns have been successful in constraining the use and access of conventionally produced palm oil to the European market, sustainability issues still emerge as a factor for market access in India and China, the main markets driving the global demand for oil (Hucal 2015).

Unlike other major oil commodities, palm oil is grown by more than 3 million smallholders living in middle or lower income countries, contributing to an estimated two-fifths of the world's palm oil (Balch 2013). Despite the often cited claim that oil palm is the golden crop that lifts people out of poverty (Simeh and Ahmad 2001), small land sizes paired with unsustainable management and resulting low yields keep a significant number of farmers at low profit margins (Ismail et al. 2003, Rahman et al. 2008, McCarthy 2010). Unfavorable farming contracts and loss of autonomy over their land restricts a large number of smallholders to oil palm only, making them vulnerable to production and price shocks (McCarthy 2010, McCarthy and Zen 2010, Cahyadi and Waibel 2016).

Effectiveness of nonstate governance of natural resources in the form of public-private partnership or self-regulatory approaches through volunteer commitments of the agro-industrial sector have been widely discussed (Nikoloyuk et al. 2010). There is no doubt that certification schemes are one of the most innovative policy designs of the last half century (Cashore et al. 2005), but because their legitimacy is built on an ethically conscious demand side of global value chains, critics argue that their effectiveness to modify on-the-ground practices are highly limited because the environmental and social outcomes of a value chain are strongly driven by locally embedded strategic coalitions reflecting regime interests, state capacities, and business agendas (McCarthy et al. 2012).

Although oil palm certification standards have been criticized for not being inclusive enough for smallholder oil palm growers (Giovannucci and Purcell 2008), we argue that the sustainability debate has actually failed to address the fact that oil palm landscape on a whole would be more sustainable if smallholders, for whom palm oil is not an economic viable avenue, would engage in other forms of land use. An important starting point for change is to move beyond narrow business interests of satisfying customers and shareholders interests only and to tackle the implicit contract between palm oil marketers and importers on the one hand and the smallholder agricultural communities in oil palm producing areas on the other hand. The palm oil industry has to internalize what has become common knowledge to the worlds' leading companies: that long-term financial success goes hand in hand with social responsibility, environmental stewardship, and corporate ethics (Kell 2014). In 2007, Mars Incorporated launched a research program called the "Economics of Mutuality" to recognize that value creation is more effective and sustainable when all parts of the value chain are considered. The research program reflects Mars' understanding that investing in the human capital of communities in their sourcing landscapes leads to higher productivity and profit for themselves (Roche and Jacob 2014).

Insetting is not simply a different packaging of CSR, it is a new way of doing business directly linked to the industry's core interest: increasing productivity. The livelihood insetting approach we propose aims at improving smallholders' livelihoods and welfare while increasing and diversifying their options for income generation. This will result in the diversification of farming systems, with concomitant benefits in terms of ecosystems services. Farmers with diverse livelihoods are more resilient in terms of fluctuating global prices as well as climate shocks (Kremen and Miles 2012). Farmers who are happier and better off are more likely to produce high palm oil yields than farmers who eke out a marginal existence (Reardon and Vosti 1995). There have been a number of recent studies that have shown that investing in on-farm productivity alone will not support social mobility, but that in fact a diverse livelihood portfolio is needed to drive agricultural productivity (Ellis 2009, Wanjala and Muradian 2013).

Investing directly into the human capital of oil palm landscapes, the farmers that grow one of the most successful and one of the most demanded ingredients of human diets today, goes beyond the interest of individual companies. Malaysia and Indonesia are both middle-income countries with an impressive track record of economic gains and poverty reduction. However, the rural poor still account for two thirds of poor households and the Gini coefficient has not substantially improved over the last two decades (EPU 2014). Although both governments have made substantial investments into a variety of agricultural schemes to improve the livelihood of rural people, the only crop that has succeeded is oil palm (Voon 1981). The oil palm industry has proven that they are uniquely effective in making human effort productive through effectively linking smallholders into global value chains. Capitalizing on their expertise to develop value chains for alternative land-based products would make oil palm truly the "golden" crop.

A new initiative on insetting will not solve all of the challenges in the oil palm industry. We have thoroughly explored the issues



involved and argue that a well-established industry has the capacity and capital to tackle them. The smallholders, including people who have recently moved into a rapidly changing and evolving industry require greater attention from the industry overall and from the international community if they are to play their part in ensuring that a truly environmentally, economically, and socially sustainable oil palm industry emerges from this time of turbulent change.

Responses to this article can be read online at:  
<http://www.ecologyandsociety.org/issues/responses.php/9172>

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