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Global sustainability standards and food security: Exploring unintended effects of voluntary certification in palm oil



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ABSTRACT

Voluntary labelling and certification schemes have become increasingly used in global agro-food chains. They primarily aim at enhancing the sustainability of agricultural production processes. The global palm oil supply, the different environmental and social problems related to it, and the Roundtable for Sustainable Palm Oil (RSPO) certification clearly illustrate this. However, global sustainability standards may also have unintended impacts on food security and local development, which are not explicitly taken into account. This article explores the unnoticed effects of voluntary palm oil certification in Indonesia and Ghana and identifies their implications on local and national food provision. As voluntary labels and certification schemes are an emerging category of global governance instruments, their role in food security, as a global public good, should be taken seriously and connected to political and scientific debates on their future involvement in realizing food security.

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1. Introduction

The 2009 World Summit on Food Security defined global food security as the situation when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary requirements and food preferences for an active and healthy life (World Summit on Food Security (WSFS) (2009)). Many consider achieving global food security to be primarily a task for national authorities who are expected to focus on increasing agricultural production to supply food for a growing and wealthier population (FAO, 2009). However, the role of governments in global food provision is changing, as more food is traded internationally (Liapis, 2012; RaboBank, 2010) and large multinational companies become more influential. Likewise, national governments refrain from interference with (agricultural) markets because of their commitments to international trade agreements, such as those under the WTO, and because of a dominant (neoliberal) political discourse. Moreover, most governments are unable to control food trade effectively because contemporary agricultural and food supply chains have become increasingly complex, global and often concentrated (Gibbon and Ponte, 2005), while the human and technical resources of public agencies are limited. Finally, international relations are based on the principle of national sovereignty, which

restricts governmental interference with the domestic affairs of other countries. As a consequence, global food security and sustainability of global agro-food supply systems are interdependent, but global food security remains largely unresolved: there are, for instance, still 842 million undernourished people in the world (FAOSTAT, 2013). Therefore, taking the limitations national governments face and the absence of effective multilateral institutions into consideration, it is timely to assess whether alternative steering instruments exist and how these impact on food security.

One category of alternative steering instruments in global food provision comprises voluntary certification schemes, such as Roundtable for Sustainable Palm Oil (RSPO), MSC and GlobalGAP. This article reviews these schemes, because although they are mostly oriented towards sustainability of primary production of the global commodities, they may have unintended and indirect impacts on global food security. Private certification schemes may entail supplementary costs for producers, exclude smallholders (Bush et al., 2013; Hatanaka, 2010), worsen the position of women, increase food prices, displace local production, or divert agricultural goods from food production to more attractive export markets for processing (German and Schoneveld, 2012). Certification requirements may also positively impact smallholder food production through crossover effects from improvements in knowledge, technology and input markets (Swinnen and Vandemoortele, 2008) and smallholders' access to food through the guarantee of reliable high income for producers who successfully comply to the standards.

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To have a better understanding of possible (unintended) impacts of global sustainability standards on food security, we start by describing the background and emergence of these schemes and then focus in particular on the unintended effects of the RSPO in Indonesia and Ghana to illustrate these. We then discuss whether labelling and certification schemes, more generally, should actively incorporate food security or team up with other actors. We conclude with identifying several implications for research and policy debate on the role of private voluntary certification schemes in the promotion of global food security.

2. Private certification as a global food governance instrument

In contemporary societies, food and agricultural production, processing and use constitute sets of changing networks and flows, crossing multiple international borders (McDonald, 2010; Oosterveer and Sonnenfeld, 2012). Although still the largest proportion of food is consumed domestically, the proportion of traded food is increasing; palm oil and soybean oil are clear examples of expanding global trade, in terms of both volume and exporters involved (Table 1). Today more than in the past, promoting food security is a matter of 'managing the complex feedback between local food insecurity and the entire global food network' (McDonald, 2010, p. 39). These transformations translate into a need to identify appropriate ways of steering these global food networks.

Since the introduction of Fairtrade and organic food labelling in the 1980s, the number of private voluntary sustainability standards and certification schemes has increased rapidly. Today, there are in total 447 labels (www.ecolabelindex.com/ecolabels (accessed 17 March 2014)), addressing different aspects of the production and trade process. Over time, these labels have come to include more substantive issues and become more detailed and stringent (Auld, 2014; Auld et al., 2009; Gibbon and Lazaro, 2010). Table 2 illustrates the rapid growth of some selected certified commodities and their relative share of global production and consumption. Certification has created momentum in both private sector strategies and public policy that radiates beyond the boundaries of the certification schemes per se: in the case of palm oil, lead companies and non-governmental organizations allocate substantial time and resources to RSPO.

Most voluntary private standards claim to have been introduced to support sustainable production and reduce the negative environmental and social impacts of global food trade by involving producers as well as consumers in steering supply chains (Henson and Humphrey, 2010; Ponte et al., 2011). Most certification schemes are 'based on third-party auditing of compliance with performance-based sustainable resource management standards developed by

non-state actors' (Auld et al., 2008, p. 188). This new form of governance has been introduced in response to public pressure by NGOs and growing concerns among citizens, who are confronted with unwilling private corporations and failing governments to address important ecological and social problems in the context of globalization (Boström and Klintman, 2008; Mol et al., 2000; Spaargaren and Mol, 2008; Spaargaren and Oosterveer, 2010).

NGOs are an important driver in the introduction and promotion of standards, because compared to governments, they are more flexible and their policies are less entrenched in formal procedures, while NGOs are often viewed by the public as the 'new civil regulators' (Eden and Bear, 2010; Fuchs et al., 2011; Oosterveer, 2007; Oosterveer and Spaargaren, 2011). The information offered through private voluntary labels and standards is not necessarily limited to product-related characteristics, as is the case in official regulations but can also address the wider production process and producer and consumer concerns.

Concerned consumers may exercise their influence more indirectly through boycotts and buycotts (Micheletti, 2003; Micheletti et al., 2003), and ask for reliable information about how the product is manufactured. Labels assist consumers in selecting products with claims of better health and environmental and social performance because they contain standardized consumer-oriented information about the product and the production process involved.

Labels and certification schemes have become important instruments in steering producer and consumer practices for addressing ecological and social problems. They enable supply chain actors, such as processing and retailing companies, to exercise their power

Table 2

Growth and relative share of certified commodities.

Source: (Potts et al., 2014). Figure for palm oil confirmed at http://www.rspo.org/en/Market_Data_-_as_at_11th_June, accessed July 9, 2014.

Commodity	Certified production as share of global production (%)		Certified sales as share of global production (%)	Certified area (ha)
	2008	2012	2012	2012
Coffee	15	40	12	2,750,891
Cocoa	3	22	7	1,828,216
Palm oil	2	15	8	1,623,168
Tea	6	12	4	466,389
Bananas	2	3	3	148,129
Sugar	< 1	3	< 1	(est) 635,444
Soy beans	2	2	1	595,172

Note: This table contains data from the 16 most important certification schemes.

Table 1

Key indicators for global agricultural trade.

	Quantity trade (million tonnes) ^a		Exports as share of production ^b		Number of exporters ^c	
	1970	2010	1970–1979	1995–2010	1970 s	2000 s
Wheat	57.1	161.1	17.9	18.7	36	91
Rice	8.3	33.0	3.9	6.6	63	114
Maize	29.7	107.8	14.8	11.9	58	102
Beef	2.8	9.8	9.2	11.8	62	109
Soybean oil	12.3 ^d	96.6 ^d	20.3	27.0	32	87
Palm oil ^a	0.9	35.3	46.8	81.0	30	114
Whole milk powder	0.2	2.4	35.2	43.1	48	116

^a (FAOSTAT).

^b (Liapis, 2012, p. 25).

^c (Liapis, 2012, p. 29).

^d Includes all soybean trade.

by imposing certification schemes upon producers to ensure the (environmental) quality and safety of their product (Dolan and Humphrey, 2000; Henson, 2008). Included producer practices are the acquisition of arable land, the protection of biodiversity, the selection of crops and agricultural techniques and the social conditions under which production takes place. Consumer practices are being steered through the selection of products produced with particular technologies (c.f. the case of GMOs in the EU, Loureiro, 2003) and under particular production and trade conditions (c.f. organic and fair trade foods, Oosterveer and Sonnenfeld, 2012).

Food security at local level and in domestic markets is hardly ever part of these schemes although global standards may have consequences for how producers and consumers in developing countries obtain food. We present the RSPO as a case to further explore these unintended consequences.

3. The RSPO as a global food governance instrument

Palm oil certification is an exemplary case of such innovative global food governance instruments because it is among the more recent voluntary certification schemes, initiated by private corporations, NGOs and producers without formal government involvement. Palm oil production is expanding to fulfill the growing worldwide needs for cooking oil, food ingredients, biofuels, soaps, detergents and cosmetics, clearly illustrating the multiple uses of this agricultural commodity. This expansion stimulates economic growth in producing (mostly developing) countries, as the FAO (2009), p. 2, observes 'developing countries' net exports of oilseeds and vegetable oils (including palm oil) would more than triple by 2050'. The growth of oil palm plantations, however also contributes to environmental and social problems, such as destruction of tropical forests, climate change and threats to smallholder livelihoods (Gilbert, 2012; Teoh, 2010). The global character of its production and consumption, the number of different actors involved and its multiple uses makes promoting sustainability of palm oil a complex challenge.

The RSPO was founded in 2004 by processing companies (led by Unilever), banks and investors, and NGOs (led by WWF) with the intention of addressing global palm oil sustainability (Schouten, 2013). The RSPO developed a standard to create a harmonized definition of sustainable palm oil, which integrates the protection of biodiversity and smallholder livelihoods and assures continued palm oil supply for the global market as an input for food and non-food products. In 2013, RSPO certification reached some 15 per cent of global palm oil production (Table 2).

The RSPO certification scheme is focused on certifying palm oil for large-scale processing industries producing items for the European and US markets. Generic standards for defining 'sustainable palm oil' are introduced, and these standards are applied when certifying oil palm plantations. The standard contains eight principles, 44 criteria and 137 indicators and is particularly elaborate on the 'best practices by growers and millers' (Principle 4), the 'environmental responsibility and conservation of natural resources and biodiversity' (Principle 5), the 'responsible consideration of employees and of individuals and communities affected by growers and millers' (Principle 6) and the 'responsible development of new plantings' (Principle 7) (RSPO, 2013). The standard is applied under diverse conditions, and although there is space for local interpretation, the principles remain uniform and the assessment results in one single certification independent from the specific location of the production.

The alliance supporting RSPO orientates the standard strongly towards environmental sustainability. Food security in producing countries is not explicitly included in the RSPO standard; the only potentially relevant criterion we identified was the requirement to

'pay decent living wages to employees' in line with national legal standards (criterion 6.5 in the RSPO P&C (RSPO, 2013)). This is an indirect inclusion, assuming that decent living wages (based on national standards) imply sufficient income to access food and to be food secure. Yet, RSPO attracts much public and private attention in oil palm-producing countries, and the choices made and actions taken because of RSPO also influence other sectors and actors outside its boundaries. The studies of palm oil production in Indonesia and Ghana explore how an exclusive focus on environmental sustainability and the governance of the RSPO standard may have unintended impacts on food security at local and national scale as well as on the viability of other forms of oil palm production and processing, which are vital for rural incomes.

3.1. Case from Indonesia

The first possible consequence of RSPO in Indonesia is related to the interaction between oil palm and rice production; this affects food security at the local level. In Indonesia, smallholders were mainly cultivating oil palm within the configuration of nucleus estate plasma schemes. In 1995, Indonesian policy allowed oil palm mills to install themselves without the obligation of having an estate or plasma of smallholders. This opened up space for farmers (local or migrant) to start plantings and sell their produce to independent mills. Rist et al. (2010) showed that oil palm provided much higher returns to land and labour (US\$2846/ha and 47US\$/man-day) than flooded rice (264US\$/ha and 2US\$/man-day). As a consequence, oil palm farmers had better access to food than rice producers, but the availability of rice in oil palm areas went down when oil palm massively replaced rice production. At the national level, Koh and Wilcove (2008) reported that 44% of oil palm plantings replaced croplands in Indonesia between 1990 and 2005, with oil palm area increasing by three million ha and paddy rice area decreasing by 1.3 million ha. At the provincial level, statistics for Riau Province in Sumatra show that between 2002 and 2009, around 15% of all small-scale wet rice fields were converted into other uses, whereby expanding oil palm plantations was (with 40%) by far the major reason for conversion. In 2010, annual population growth in Riau Province was 4.46%, much higher than the national figure of 1.3% (Susanti and Burgers, 2012). Oil palm expansion was responsible for the in-migration of job seekers and independent planters from Sumatra and Java, increasing local food demand even further. As a result, the provincial government of Riau became a major food importer (Burgers and Susanti, 2011). At the national level, these developments might cause concern as Indonesia aims to be self-sufficient, especially in rice (New Food Law No. 18/2012). Yet, government statistics (BPS, Bulog, MOA, 2012) revealed annual imports between 236 and 1,786 tonnes of rice between 2000 and 2010 (Natawidjaja and Rum (2013)). As the international rice market is very thin (see Table 1), global or regional rice shortages and huge price spikes may occur when the supply to the world market is interrupted because of crop failures. Prices may also rise rapidly when major rice producers put a ban on their rice export to keep domestic consumer prices low (Dawe and Timmer, 2012; Pandey et al., 2010) as happened in 2008. At that time, countries, such as Indonesia, that had adopted a policy to stabilize domestic consumer prices of rice at low levels, failed to provide domestic rice producers with an attractive market price and income and had to heavily subsidize the imported rice (Dawe and Timmer, 2012). These developments are not caused by oil palm expansion alone but may be aggravated by RSPO with its strict regulations aiming to avoid oil palm-related deforestation, which may potentially push new oil palm even more to crop land.

The second consequence of RSPO in Indonesia relates to the exclusive nature of certification; it may work for some groups but

not for others. Recently, RSPO certification has been introduced in Indonesia also for smallholders to promote sustainability. For smallholders to enter RSPO certification, they need to be organized as plasma or by support organizations, such as NGOs. In certification, organizing producers is required to reduce the transaction costs of input supply, training and marketing, and also facilitate peer control (Ton et al., 2007). Furthermore, farmers' organizations need support for capacity building in management competencies for logistics, finances and internal control, technological knowledge and skills, and also to provide financial capital for investment, all resources that independent farmers are often lacking. Within the schemes, mills are generally supposed to provide support to groups of farmers in return for preferred access to the produced fresh fruit bunches (FFB) and certification might enforce this commitment. This implies that although certification might increase yields, revenues, and access to food for organized plasma or independent smallholders, it might exclude non-organized independent smallholders from these impacts. Mills already operate with differentiated market prices: the highest for FFB from their 'own' smallholders and lower prices for FFB from independent smallholders. They may even refuse FFB from the latter when the mill is already saturated (Cramb, 2013; Ende, 2013). Farmers from one of the first RSPO-certified independent smallholders groups in Riau Province, Sumatra, Indonesia, stated that they received a price that was only slightly higher than what non-certified farmers received (interview during a field visit by two of the authors, February 2014 and unpublished PhD research). They also pointed at many problems associated with certification, such as the need to finance the salaries of the obligatory additional committees, the internal control system and the next audit obligatory to keep the certificate, now that the NGO supporting the certification process no longer facilitates access to outside funding or capacity building. To be eligible for RSPO certification, this group had to exclude farmers with their fields in High Conservation Value (HCV) areas, thereby denying them access to the benefits of being organized and certified, potentially decreasing their food security compared to the non-certified situation. More generally, smallholders benefit from long-term assistance to become self-reliant, high-producing farmer groups, certified or not. For instance, in one of the most successful smallholder oil palm-producing schemes of West Sumatra, the Ophir scheme, support was provided by the German international development organization for 13 years. The smallholders in this scheme have been producing for more than 20 years consistently higher yields/ha than the company's plantation (Jelsma et al., 2009). In summary, it seems that NGOs are crucial for reaching RSPO certification, excluding those smallholders that cannot attract NGO support, that are not organized, or that have fields in HCV areas. And when NGOs withdraw from supporting smallholders immediately after initial RSPO certification, this might lead to funding problems and reduce the longer term impact.

The third unintended effect of RSPO can be observed in the way it directs land tenure. Introduction of RSPO certification may shape the way women have access to and make use of land and possibly lead to negative outcomes for women. Firstly, land conversion from forest or food crops into oil palm reduces women's direct access to food, clean water, fuel wood, and medicinal plants (White and White, 2012). Secondly, in different communities where women have customary land use rights, the formal land titles are vested in male heads of households (Colchester, 2011; White and White, 2012; Morgan, 2013). RSPO certification requires formal land titles and may therefore contribute to dispossessing women of their customary land rights, which may seriously affect household food security. Such impacts are highly contextual as it might equally be true that certification leads to legalization of land titles for women, strengthening their position.

3.2. Case from Ghana

A first possible consequence of RSPO in Ghana is its effect on the direction taken by national policy frameworks and R&D policies towards an exclusive reliance on high-yielding oil palm varieties. The government considers the oil palm industry a key sector for sustained economic growth and development. The crop is grown mostly in the wetter parts of the country and in most of these areas, oil palm also occurs on traditional farms and in wild groves (MoFA, 2011 (07-03- 2014)). With increasing demand for palm oil globally, Ghana is looking to expand the oil palm sector, not only to meet its huge domestic demand for quality industrial palm oil (Adjei-Nsiah et al., 2012), but also to increase export. In a bid to assist small-scale oil palm producers who cultivate in total around 250,000 ha mainly with low yielding Dura oil palm variety, representing 80 per cent of total oil palm area in Ghana, a Special Presidential Initiative (PSI, 2003, 2004) for the development of the oil palm industry was launched. This program supports farmers to plant improved oil palm varieties and adopt good agricultural practices that are expected to increase yields.

The direction taken in public policy and the related support program reflects a bias towards the hybrid Tenera oil palm variety preferred for large-scale industrial processing because of its high yields. However, three different types/varieties of oil palm can be identified in Ghana: the indigenous Dura (which has a thick shell and a thinner mesocarp) and Pisifera (which is shell-less) and the commercial variety, Tenera (which has a thicker mesocarp and a thinner shell than the Dura), which is a hybrid developed by crossing the Dura palm with the shell-less Pisifera variety (Purseglove, 1985). The momentum generated by international lead firms reinforces this preference for hybrid oil palm varieties and encourages clearance and expansion into new forest and replacement of low yielding (indigenous) varieties widely used in mixed farming systems by large-scale mono-cropping of high yielding varieties. This trend is not necessarily due to RSPO-certified plantations; it reflects a broader movement towards replacing Dura palm trees with food crops or fruit trees and the gradual decline of cocoa farming mixed with Dura trees (Adjei et al., forthcoming). However, the alignment of the RSPO-certified industry-oriented oil palm production, which consists of medium- and large-scale oil palm plantations and mills with efficient technologies, economies of scale, high yields, with the trajectory oriented towards hybrid-based production systems, may lead to crowding out of the small-scale subsector (Fold et al., (2012)) and ignore the innovative capacity found here (Osei-Amponsah, 2013; Osei-Amponsah et al., 2014). The observed discrimination against the indigenous Dura variety may undermine smallholder oil palm cultivators, selling Dura fruit bunches that are a necessary ingredient for the making of red palm oil by small- and medium-scale processors.

A second consequence is the conceivable reduction of agrobiodiversity linked to the marginalization of a small- and medium-scale food sector that manufactures an important ingredient for local diets. Unintentionally, the orientation and dynamics generated by the certified industry-oriented oil palm production may cause a serious threat to the conservation of the Dura palm despite its preference by Ghanaian consumers for the preparation of food. Dura oil palm is processed into red oil at a small-scale level. This oil is sold on the local markets, the regional West African and some ethnic niche markets in Europe (Adjei, forthcoming 2014; Asante, 2012; MoFA, 2011 (07-03- 2014)). In the diaspora market, red palm oil is highly valued especially by West Africans. Dura palm fruit forms the basis for the red oil with its specific flavor and color (Corley and Tinker 2008), which is mostly used for the preparation of various kinds of soups and a variety of other popular meals prepared at home or in local restaurants. The fruits

of the Dura have lower oil content (between 9 and 11%) compared to Tenera (18 and 22%), but their unique qualities are in demand in local markets. The oil is lighter, highly colored and tastes better (perceived qualities). The hybrid Tenera has more oil but less carotene, and is therefore mostly preferred for industrial purposes (Poku, 2002). Dura is an integral part of mixed farming systems found in different parts of Ghana (Adjei et al., forthcoming). In most areas considered marginal for oil palm cultivation, the local Dura variety forms part of the fallow system. Farmers tend to harvest Dura when the fallowed land is brought into cultivation. When the fallow land is cleared for cropping food crops, the palm trees are heavily pruned to create enough space for planting food crops. Dura is common in cocoa-growing areas, where they are used to provide shade for young cocoa seedlings, while the fruits are harvested for food and/or for sale or felled for the production of local gin. An unintended effect of the dominance of RSPO in policy is that many resources are channelled to production areas supplying the manufacturing industry and that public and private regulation has little connection to other forms of processing, serving other domestic and international markets. From the perspective of the role of palm oil in local food security, this may contribute to a gradual erosion of locally produced food to a higher level of importation of cooking oil, and consequently threatening agro-biodiversity in oil palm.

Third, changing market conditions and regulatory and policy directions strengthened by RSPO may undermine endogenous entrepreneurial strategies and capacities visible in groups of women organized around small-scale palm oil processing and medium-scale mills and enterprises trading oil. Palm oil processing through small- and medium-sized firms offers viable opportunities for local people, particularly women, to improve their livelihoods and to raise incomes from agricultural production and related enterprises. Ghana produces 232,700 MT of crude palm oil (MASDAR, 2010) annually, which is used for food and other industrial purposes, which originates for about 80% from the small-scale processing sector (Adjei-Nsiah, Sakyi-Dawson, & Kuyper, 2012; Adjei-Nsiah, Zu, et al., 2012). A case study of a medium-scale firm in the eastern region of Ghana (Adjei and Vellema, forthcoming), operating since 30 years, demonstrates a combination of processing and trading palm oil and other related products for the domestic market and (mostly) for the ethnic markets in Europe, where the firm competes with producers from other West African and Asian countries. In both the local and the diaspora markets, palm oil quality is translated into specific taste, colour and flavour expectations, and it requires a highly professional capacity to make the right blend. Although the current discussion in the Ghanaian palm oil sector emphasizes RSPO and large-scale industrial production, which is about 20% of total production, the capacities of small- and medium-sized processing firms to respond to challenges in supplying different end-use markets and in linking processing are neglected (Adjei-Nsiah et al., 2012; Angelucci, 2013; MoFA, 2011 (07-03-2014); Osei-Amponsah et al., 2012). The dominant focus on one type of industry in the oil palm sector may induce private and public regulations not fitting to the other forms of processing and trading and, therefore, refrain from creating opportunities to improve food security and quality for consumers in local markets.

4. Private certification schemes and global food security

Obviously, RSPO was initiated to address specific environmental and social issues within the boundaries of the chain or in its direct environment. The RSPO and other private standards are global certification schemes aiming at promoting sustainability in various global supply chains, but food security is hardly ever explicitly included in their goals. For instance, as German and

Schoneveld (2012) observed in the case of biofuels, 'the absence of any food security impact assessment or mitigation requirements within EC-approved schemes that are collectively global in scope and cover all feedstocks is of critical concern' (German & Schoneveld, 2012, p. 776). Still standards have impacts on food security because they steer production practices and create differences among producers and consumers (Auld, 2014; Newton et al., 2013). This article has shown that, in the case of RSPO, private labels and certification schemes can be expected to have impacts on food security, but these are mostly unintended and unnoticed. The case studies expose plausible unintended consequences of the implementation of a global sustainability standard, RSPO, on food security at the local and national levels in two major oil palm-producing countries, that is, Indonesia and Ghana.

First, the unintended exclusion of certain groups, notably independent smallholders, smallholders with fields in HCV areas and women, with unknown effects on the robustness of local food provision or rural incomes, was noted in the study of Indonesia. With the help of RSPO certification, processing firms aim at steering primary production of palm oil, leaving out the role of other stakeholders in the supply chain, such as traders, retailers and consumers, who may also have important impact on sustainability.

Second, the role of innovative small- and medium-scale industries in palm oil-producing countries that manufacture and develop food products demanded in low-income markets and source raw materials from small-scale farmers deserves more attention. These local firms, reflecting endogenous capacity to make food products, may respond in a more flexible and effective manner to specific local challenges of sustainability compared with firms strongly focusing on compliance with a generic global standard. Understanding the consequences of international sustainability standards on small and medium entrepreneurs supplying local food markets or creating new products for an international niche market was brought forward by the study of Ghana. 'Imposing' global standards does not strengthen endogenous capacities to deal with local issues, particularly not those of smallholders (Cheyns, 2011) or of small-scale processors (Osei-Amponsah et al., 2014), as the requirements do not always fit their particular situation and concerns (Hatanaka, 2010).

Third, a cross-case concern is how international standards impact on food security for consumers, for example, when cooking oil prices rise as demand for certified palm oil increases. Like the other indirect consequences of international standards, this may vary, and it is difficult to generalize because systematic evidence is scarce (Hunsberger, et al., 2014). RSPO focuses on palm oil produced for the processing industry, but palm oil is primarily cooking oil and essential part of the diet of many people. The RSPO standard directly influences the availability of cooking oil for consumption as well as its price and indirectly the food security of smallholders by affecting their income opportunities and production practices. This means that, although the RSPO standard aims primarily at ecological goals, it has also impacts on food security.

5. Conclusions

The purpose of this article was not to assess the efficacy of RSPO within the scope of export-oriented oil palm production and processing. Its intention was to draw the attention to an aspect of certification schemes that has not received much attention yet: their relevance for global and local food security. The RSPO and other voluntary certification schemes offer an interesting illustration of innovative instruments introduced to steer global food

supply chains towards more attention for non-economic concerns. These innovative governance instruments are not necessarily replacing existing governance tools but are supplementary tools applicable at the global level contributing to more social and environmental sustainability in global food provision. Each certification scheme addresses particular issues relevant for the upstream primary production of one commodity only, but has wider effects as well. Their consequences for global and local food security have so far hardly been taken into consideration, and although these effects are mostly unintended, they may nevertheless be substantial. Therefore, it is important to analyse and understand how a particular voluntary sustainability governance mechanism is shaped (Auld, 2014; Hunsberger et al., 2014) and what the spillover effects are into food security. More attention to this impact is, therefore, essential, and scientific research should map the unintended consequences of voluntary standards and certification schemes for food security, how the position of women and smallholders in the schemes could be strengthened and how a balance between externally imposed standardized practices and endogenous problem-solving capacity could be reached.

The article opens up the question of evaluating voluntary sustainability certification instruments beyond their own internal objectives (Rogers, 2009; Ton, Vellema (2011), Vellema et al., 2013), an assessment method used by many scholars and inherent to a technical and procedural approach within certification. Additionally, we consider it important to construct a well-balanced articulation between the market-driven momentum of making agricultural practices and food provision sustainable through standards and certification schemes and the dynamics that shape governments' objectives and policies regarding food security as a public good (Vellema and van Wijk, 2014). Governments have little power over supply chains that are essentially agreements between buyers and sellers, but there are examples that private regulation and public policy may mix and complement each other. In Mozambique, the government, fearing negative food security outcomes from international biofuel certification schemes, has developed an additional national legal framework for sustainable biofuels (Schut et al., 2014); for companies, compliance is mandatory to acquire a license to produce (e.g. a land title or tax exemptions). This legal framework obliges international feedstock-producing and feedstock-buying companies operating within Mozambican territory to supply a fixed proportion of the produce to the domestic market. Furthermore, it obliges such companies to comply to a set of concrete output indicators to assure food security at the level of smallholders and workers engaging in producing feedstock for biofuels, compensating for the flaws in existing international schemes as identified by German and Schoneveld (2012). These indicators could also be included in other international certification schemes. In Indonesia, this could translate into a policy limiting the amount of palm oil to be used for biofuel guaranteeing, for instance, cooking oil for the domestic market. In Ghana, a policy based on conservation of agrobiodiversity could encourage buying companies to diversify their product portfolio and appreciate the diversity of agricultural practices and entrepreneurial strategies anchored in dynamic social and agro-ecological environments.

Overall, this research should be an input for a debate on how public goods, such as food security and sustainable development, should be promoted and what the division of responsibility should be between different social actors, such as governments, NGOs and private companies. Different options should be explored when negative food security impacts of certification schemes are identified in more detail, being explicit on the mechanisms and the victims. Should these negative impacts be addressed by revising and completing existing standards and certification schemes, by public authorities engaging to complement private initiatives, or by promoting more diversified and better focused local interventions?

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