Oil palm farms in Africa

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CHAPTER 9

The palm oil sector in Africa: The dynamics, challenges and pathways to sustainability

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Key highlights

- Oil palm is native to West Africa with local ('artisanal') processing of palm oil, from where it spread and expanded globally as an essential commodity for several industries.
- In Africa, oil palm production systems include agro-industrial plantations, contract plantations, and independent production systems, the latter either as monoculture or mixed agroforestry.
- Along with the positive economic impacts and livelihood support related to oil palm expansion, there is a growing concern about deforestation and land clearance rates in Africa.
- In response to consumer concerns and boycotts, the Roundtable on Sustainable Palm Oil (RSPO) has agreed on principles, criteria, and indicators to facilitate sustainable palm oil certification, with smallholder certification still problematic.
- Rules for land acquisition for foreign investment in oil palm supply chains are tightening, while integrating oil palm in agroforestry can reduce environmental tradeoffs.

1. Introduction

Palm oil is the world's most consumed edible oil (Boyce 2017), produced by oil palms with high productivity per unit area compared with other oil crops such as soybean, rapeseed, sunflower, and olive (Moreno-Peñaranda et al 2018). On a per hectare basis, it yields 5-7 times more oil than groundnuts or soybeans (Verheye 2010). Oil palm accounts for nearly 36% of the global oil market based on just 6% of croplands (Ritchie and Roser 2020), confirming the factor 6 productivity difference. Apart from being a major ingredient for large parts of the food

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industry (Lin 2011), palm oil is also used in candles, soap, and high-end industrial lubricants. The global palm oil market is dominated by Malaysia and Indonesia, accounting for more than 86% of the total production (Potter 2015; van Noordwijk et al 2021). According to FAOSTAT (online), in 2009-2019, the global production of oil palm increased from 220M to 410M ton fresh fruit bunches, and the area from 16.0M to 28.3M ha, with 89% in Asia. Although it has African roots and the Asian-style monocultural plantations are expanding in Africa, interacting with traditional ways of growing the palms and extracting the oil. Processing palm oil in African countries is either through industrial or artisanal (traditional) milling (Carrere 2010, Nchanji et al 2013).

The first industrial plantation was established around 1917 in Malaysia under British management, connected to eastern Nigeria. Two main factors boosted production and allowed oil palm expansion in the 1960s and 1970s. The first factor is the unraveling of the genetics of the *tenera* hybrids that are most productive and are produced by hybridizing *dura* and *pisifera* types with different fruit properties, based on research in Yangambi in the Democratic Republic of Congo in the 1950s. The second reason is the release of an effective pollinating beetle that has since spread in SE Asia and increased yields (Woittiez et al 2017).

The rapid expansion in Malaysia and Indonesia gave palm oil a bad name, and there has been an ongoing battle for the hearts and minds of Northern consumers between opponents and a defending industry (Sheil et al 2009, van Noordwijk et al 2017). In the critique, environmental concerns over palm oil expansion into the tropical rainforest (Curtis et al 2018, Vijay et al 2016, Koh et al 2011) aligned with a social critique of the way companies obtained land by the state, but without free and prior informed consent by local people who had prior claims on the forests (Colchester 2011) were not recognized (until a constitutional court case in Indonesia in 2013) by governments. The whole supply and value chain will need to be re-assessed in the current search for socially inclusive and environmentally responsible oil palm production (Jezeer and Pasiecznik 2019, Purwanto et al 2020).

As one of the potential expansion zones of oil palm, Africa faced numerous challenges accommodating the commodity despite being native to the continent. The growing concerns about the environmental tradeoffs and its overall global impacts generated a mixed mindset, that is, those economic benefits pushing for its promotion and those concerned about the environment pushing for a mechanism to stop its expansion. However, there is limited understanding of the African palm sector from its production to the export stages and the underlying challenges and opportunities within the sector. This chapter aims to give an in-depth look at the nature of the current palm oil sector in Africa and the growing concerns and challenges coming with this native commodity tree crop that has been a major part of rural livelihoods for centuries.

2. Oil palm: its origin, distribution and emergence as a commodity crop in Africa

Oil palm (*Elaeis guineensis*) naturally occurs in a 200 to 300-kilometer-wide belt parallel to the Atlantic coast in West and Central Africa, from Cape Verde to Angola, delimited by the 1600 mm isohyet (Zeven 1967, 1972). It occurs at sites that are too wet for rain forest vegetation and in the forest-savannah fringe where light is available at the forest floor. Domestication probably started with the extraction of fruit (and sap) from wild forest resources. Still, pollen records show that 5000 years ago, oil palm already accompanied human settlements in the Congo forests (Oslisly et al 2013) and may have been a staple food in Egypt (Harding and Danya-Zee, 2019). When forests were cleared for swiddens, oil palms were retained, and in the fallow phase, oil palm seedlings could contribute to semi-wild palm groves. Thinning such groves gave rose to semi-permanent or permanent intercropping systems of palms and food crops (Gerritsma and Wessel 1997), in which internal regeneration could maintain the stands.

Oil palms have been distributed to East Africa in Kenya, Tanzania (between the Tana River and Dar-es-salaam, Zanzibar and in the western part of Madagascar) probably in connection with the early slave trade (Gerritsma and Wessel 1997). Botanically, it was first described from Guinea and moved to Asian countries by European explorers and traders as a commodity crop.

Oil palm is a multifunctional crop in Benin, well-embedded in the everyday life of the local people, with uses that include food consumption (local dishes, palm wine), traditional soap making and customary ceremonial practices (Akpo et al 2012). Benin became a net importer of palm oil in the 1990s after having palm oil as its main export commodity in the 1970s. However, a government programme initiated in 1995 for the development of the oil palm sector had little impact. A diagnostic study of oil palm seed systems in Benin (Akpo et al 2012) documented poor geographic distribution of authorized nurseries, poor genetic quality of the planting material, high cost of hybrid planting material, and poor seedling care in nurseries. While *Dura* type seedlings are obtained without financial cost through uprooting volunteer seedlings in existing plantations or in wild groves, the *Tenera* hybrid seeds are costly and hard to obtain from trusted sources. Tenurial arrangements need to be understood for any improvement programs of local oil palm to work. A study in Benin (Yemadje et al 2012) documented an area where landowners use oil palm sap to produce *sodabi* (a local spirit), tenants are allowed to grow food crops between the palms, but not plant oil palm (as this would establish ownership claims).

The traditional industry in West Africa was based on semi-spontaneous village groves (partly controlled by local elites; with a 1990 estimate of 2.8 M ha of semi-wild oil palm groves in Nigeria: Gerritsma and Wessel 1997) and a small plantation sector (Potter 2015). The main

problem for the traditional oil palm sector has been in the processing stage, rather than the way of growing the trees. A large percentage of the palm oil produced by small-scale ('artisanal') processors in West Africa cannot be utilized by the larger scale industries because of its high levels of free fatty acids (Osei-Amponsah et al 2012, 2014), as loosened fruits are stored for long periods (1–3 weeks, possibly allowing some fermentation) before boiling, to increase extractability and reduce labour costs. Innovation in small-scale oil palm fruit processing was revealed as a multi-stakeholder, multiple-scale, and interdisciplinary process – and not much progress appears to have been made. Rather, the Asian model of large-scale production, logistical management and modern mills is replacing the local systems, as it matches international product quality standards.

After the transfer of oil palm (via Guinean-sourced palms in Mauritius; Hayati et al 2004) to the Botanical Garden in Bogor (Indonesia) in the mid-19th century, palms were first planted as road-side ornamentals in Deli (N. Sumatra) tobacco fields, before commercial exploitation started (Gerritsma and Wessel 1997). The Deli *Dura* varieties still are part of the heritage of current palms with subsequent introductions from Africa much less successful than those at the lucky start (Rajanaidu et al 2000). Research in the Yangambi research station in the Democratic Republic of the Congo in the 1950s clarified the hybrid nature of the preferred *Tenera* palms (as *Dura* x *Pisifera* hybrids) and became the global standard (Fairhurst and Härdter 2003), in a monocultural plantation model with a rotation length of about 25 years. The success of oil palm in South-East Asia was based on three main factors: 1) transfer to a favorable environment, 2) superior genetic quality of the small founding population, and 3) improved cultivation and processing methods (Gerritsma and Wessel 1997).

In the 'home-coming' of oil palm to Africa in its new reincarnation as an 'industrial' crop, it may well be that the improved processing methods were indispensable, while cultivation as rotational monocultures represents just one of the multiple options. Effective re-emergence of oil palm in Africa as an industrial crop should consider various principal drivers and bottlenecks affecting its expansion and the prevailing contexts. A study by Cheyns and Rafflegeau (2005) points out some of these essential considerations. They include cross-cutting policies on improving productivity, yield, employment, and sustainability. The heterogeneity of different stakeholders and their modes of production, such as the large-scale producers who are profits driven, small-scale producers who are driven by their cultural heritage, and other players along the value chains, should also be considered in oil palm re-emergence Africa to promote environmental and livelihoods sustainability. For example, setting uniform standardization for all producers may disadvantage small-scale producers in meeting the associated costs.

3. Typology of oil palm production systems in Africa

Current palm oil production in Africa is concentrated mainly in Central and West Africa in different climatic areas, with Cameroon among the leaders in accelerating palm oil production primarily driven by profitability and increased edible oil consumption within and outside the region. In the Congo Basin, oil palms are replacing the tropical rainforests, posing a significant challenge to climate change management in Africa and beyond (Ordway et al 2019). Different studies have established different typologies of oil palm production, including agro-industrial plantations/estates, contract small and medium private plantations/growers, independent palm oil producers, plantation blocs, and joint venture models. These types are summarized in Table 9.1 below based on a different context.

Table 9.1: *Types of oil palm farming systems and their characteristics*

Type of oil palm farming	Description	The scale of operations (ha) or households	Total production (in tons of crude palm oil)
Agro-industrial plantations/estates (Nkongho et al 2014) [Cameroon]	Plantation regimes involved in producing, marketing, and distributing palm oil products at large-scale	58,860	120,000
Under-contract small and medium private plantations/growers (Nkongho et al 2014) [Cameroon]	A production model where companies support farmers in the oil palm production process and deliver the products based on production agreement on quality, price and mode of delivery	35,000	30,000
Independent palm oil producers (Nkongho et al 2014) [Cameroon]	These are self-funded palm oil growers who manage their production privately	100,000	80,000
Plantation blocs (World Rainforest Movement 2011) [Benin]	The blocs were created in Benin between 1960 and 1974, where land was taken from peasant farmers for oil palm plantation in return for an annual rent as compensation.	About 17,000 farmers	No specific data is available.
Joint venture model (Carrere 2013) [Angola, Central Africa Republic, Ivory Coast, Liberia, Gabon, Sierra Leone]	Involves international organizations collaborating with local millers through funding and technical support to boost production	Diverse and not generalizable.	No specific data is available.

Further, the three types of oil palm farming systems have different characteristics based on the status of the producers, past and present activity level, place of origin, levels of income and social status in Cameroon. These include: (i) villagers/natives who are original inhabitants and depend on oil palm for livelihood, (ii) migrants/non-natives who are oil palm producers in a locality that they didn't originate from, (iii) company workers who are presently or in the past worked in palm oil production companies/industries (iv) elites – internal elites who are high ranking individuals in the palm oil sectors within their locality of origin and external elites who live outside the locality but are involved in the production process.

4. Expansion of oil palm plantations in Africa

Since the 1980s, oil palm plantations have expanded significantly in Africa – from around 3 M ha in the early 1980s to over 5 M ha around 2018 (Figure 9.1; Plate 9.1). This implies close to 2 M ha of land cover or land use has been converted into oil palm fields. Oil palm groves in Africa arise on abandoned compounds, during the occupation and at times planted where they are insufficient and are common in parts of West and Central Africa. Most palm groves currently occur along riverbanks due to favorable environmental conditions, with a significant reduction in other landscapes due to human influences (Zeven 1967). Unfortunately, most of the growing regions of oil palm fields in the continent overlapped with high forest density areas with immense contribution to carbon stock and biodiversity conservation globally. Two-thirds of the oil palm fields area increment between 1981 and 2018 occurred in Nigeria (with 1.76 M ha new farms added) with Côte d'Ivoire and Ghana each adding additional harvest areas of 0.24 M ha during the same period. Notably, Nigeria's oil palm production is largely small-scale, accounting for 80% and using 1.6 million hectares of land, while established plantations account for 20% of the total output. The extensification may have been due to increasing demand for oil palm-based products until the last ten years when the call for decreasing the deforestation consequences of oil palm farms has grown globally. Gao et al (2011) analyzed the global deforestation attributed to biofuel development, noting that expansion of oil palm plantations is primarily driven by the worldwide demand for edible oil and biofuel, which has consequently led to deforestation in tropical countries. The report suggests that biodiesel from oil palm has contributed up to 2.8% and 6.5% of direct deforestation in Indonesia and Malaysia. Globally, the use of palm oil for biodiesel is on the increase across many sectors, moving from 8% to 48% between 2010 and 2016 respectively, varying across the countries depending on prevailing political, institutional, and socio-economic settings, and consequently causing deforestation and forests degradation at different levels.

Plate 9.1: *Stretches of oil palm plantation fields in Cameroon*

Irrespective of this global concern, the rising demand for palm oil in sub-Sahara Africa may contribute to the ongoing expansion, as Ordway et al (2019) argued. Ordway et al (2017) reported that about 73% of oil palm producers confirmed clearing forest land to create their oil palm fields. This generally agrees with the IUCN (2018), which concluded that almost half of the global oil palm area is created by clearing forests, though the conversion extent varies from country to country.

Despite the global concerns about the deforestation issues associated with oil palm, it seems the expansion of oil palm fields has not slowed down. For example, 32% and 28% of the 1981-2018 area expansion of oil palm fields in Nigeria and Côte d'Ivoire, respectively, occurred between 2011-2018. This in absolute terms is about 0.56 M ha in Nigeria and 0.07 M ha in Côte d'Ivoire. Ordway et al (2019) illustrated that 67% of the oil palms in southern Cameroon were created by clearing forests. However, the data on 'areas harvested' lag 3-4 years behind areas planted, and changes in planting policies may not be visible yet.

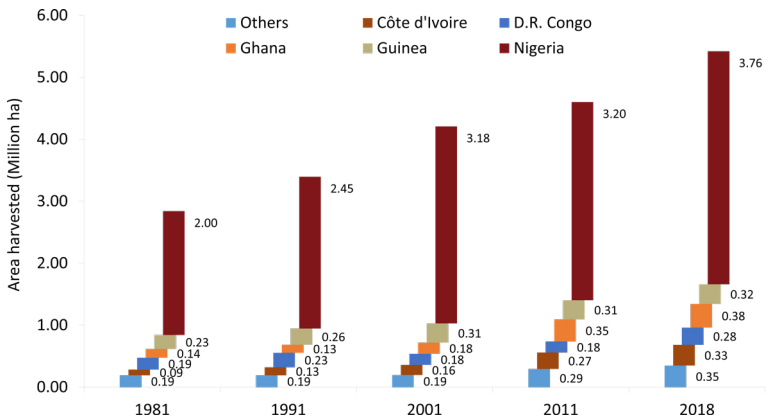

Figure 9.1: *Areas (million ha) of oil palm fields harvested in Africa*

The growing expansion of oil palm fields in Africa is associated with land deals in the Congo Basin and the Guinea forest ecosystem, where several land acquisition deals for palm oil production by multinationals have been reported (see The Land Matrix 2021). While several of the acquisitions remain undeveloped due to local community resistance and land claims, where developments of the allocated lands have proceeded as planned, the employment opportunities envisaged and the high revenues anticipated were not as expected. Most jobs created are lowly paid ones and often short-lived. Tax exemptions limited local financing opportunities and poor infrastructure sometimes limited the economic gains envisaged by national governments (Cotula 2016). Friis and Reenberg (2010) discussed the growing scrutiny on plantation expansion in Africa and its link with oil palm farms. It is hoped that such scrutiny will boost the adoption of sustainable production schemes in which farmers have a larger share and better bargaining position.

5. The productivity challenges in Africa's palm oil sector

The average long-term productivity of the oil palm farms in Africa has remained around 4 tons of Fresh Fruit Bunches (FFB) per ha (Figure 9.2). It has never crossed that line for a long time and has remained almost stable at this low productivity for over three decades, while in Asia, 15-20 ton FFB per ha is expected and the potential yield level is 30-40 (Woittiez et al 2017). The conventional farming system could be blamed for this low productivity, though government agencies' support to improve it has also remained low largely due to the poor extension and technical support services to oil palm farmers and cooperatives. However, some countries (e.g., Cameroon and Benin) maintained high productivity rates, 3-4 times the continental average and catching up with Asian averages (Figure 9.3). Several factors may justify the high productivity in Cameroon. According to a study conducted in 2011 and reported in Nkongho et al (2014), more than 65% of the oil palm fields in Cameroon are owned by elites (local government employees, or businesspersons and urban residents). They owned about 41 ha of oil palm field on average, with some having as high as 300 ha. If the oil palm field that is not yet developed is included, it goes as high as 56 ha per household. Some of these elites also emerged during the economic collapse in the 1990s, when several urban elites and the upcoming middle class began acquiring pieces of land in the rural areas to invest in commodity crops, among which oil palm is the most preferred one due to its need for low tending costs and the potential to produce fruits over a long period of time – sometimes over 15 years. This urban-rural exodus of resources led to better-managed oil palm fields, even using improved varieties that bore high volumes of fresh fruit bunches (FFB).

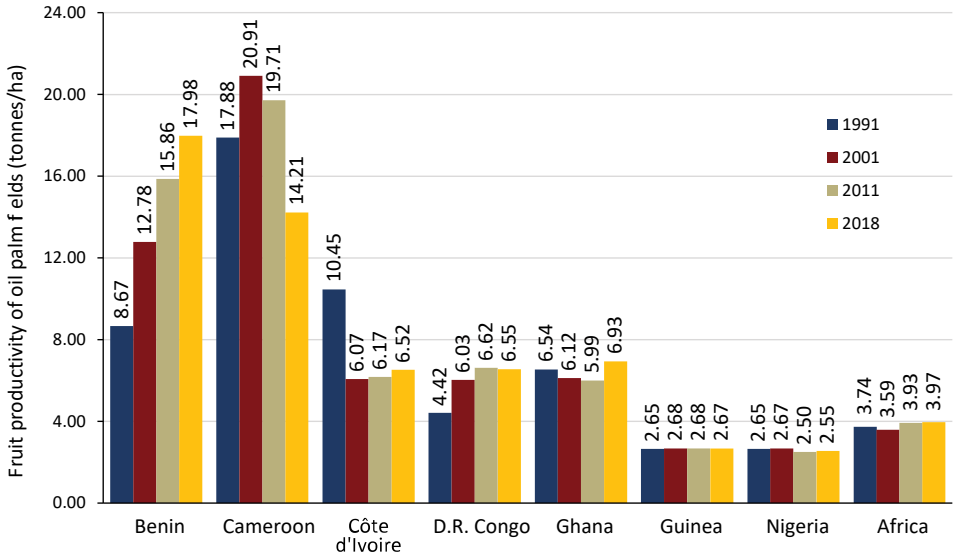

Figure 9.2: *Oil palm fields productivity variation in major oil palm fruit-producing countries*

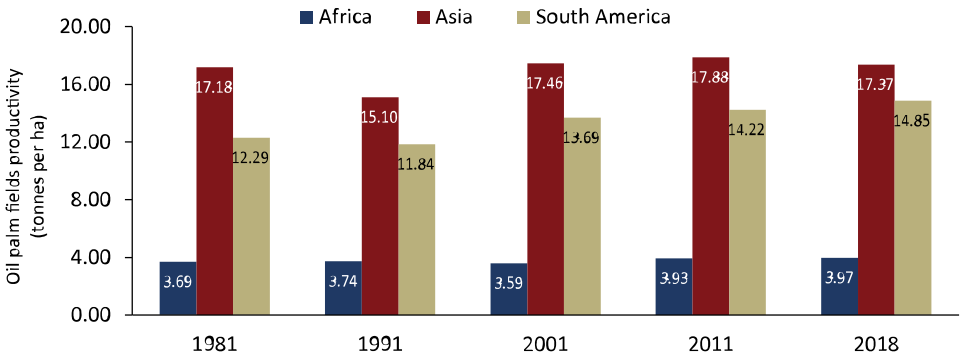

Figure 9.3: *A comparative look at how Africa's oil palm productivity is in relation to other continents*

6. Africa struggling to meet its own palm oil products demands

Unlike other major producer countries in Asia and Latin America that aim for the export market, Africa's oil palm sector predominately targets domestic food consumption. In the major producer countries such as Nigeria, Ghana, Guinea, and DR Congo, what is consumed in food form is even much higher than the current production. Hence, most of these countries are becoming targets of other palm oil exporting countries (Table 9.2). 87% of Africa's oil palm fields are located in these net importing countries to satisfy their local food use of oil palm

products. This supply gap may have widened because of the poor productivity of oil palm fields in the continents, which is very low compared to countries from other continents (Figure 9.3). On the other hand, major producers from Asia and Latin America aim for the export market as they produce a surplus amount above what is locally consumed. The net exporter attribute of Africa is making the continent the target of land deals for oil palm production, as described in the later sections of this chapter.

The prominence of domestic consumption may explain a low interest in sustainability standards that may incur additional costs and not expect premium prices to compensate for that. Regulatory measures are often stricter on export than on domestic consumption. It is also important that the framings of the RSPO kind of mechanism are inherent to curb export-oriented production. The push was largely from developed countries that are blamed for outsourcing deforestation through the perverse incentive of creating a market for forest unfriendly production (van Noordwijk et al 2017).

Table 9.2: *A comparative look at the share of local consumption of oil palm in 2020*

	Top continental producers	Domestic Food use (million MT)*	Production (Million MT)*	Local food use to production ratio	Potentially exportable share of production (%)
Africa	Nigeria	1.43	1.28	111%	-11%
	Ghana	0.55	0.37	151%	-51%
	Ivory Coast	0.28	0.52	53%	47%
	Guinea	0.16	0.05	310%	-210%
	D.R.Congo	0.38	0.30	125%	-25%
Asia	Indonesia	6.18	43.50	14%	86%
	Malaysia	0.78	19.00	4%	96%
	Thailand	1.28	2.40	53%	47%
Latin America	Colombia	0.50	1.56	32%	68%
	Guatemala	0.07	0.87	8%	92%
	Honduras	0.15	0.45	32%	68%

Note: Values in bold for the potentially exportable share of production (%) imply that the country is net importer to supply its local food use needs of palm oil. MT stands for metric tons. * Source: https://www.indexmundi.com/agriculture/

7. RSPO in Africa and the buy-in challenges

Concerns over massive land clearance for palm oil and its potential effects on climate change have been a subject of major international debates over the past few decades (Danielsen et al 2009, Vijay et al 2016). These growing concerns inspired the establishment in 2004 of the Roundtable on Sustainable Palm Oil (RSPO), an industry and NGO driven non-profit trade organization that seeks to promote the growth and use of certified sustainable palm oil (CSPO). RSPO had nearly 4.34 million ha of certified area under cultivation as of 30th June 2021 in over 101 countries (RSPO, 30 June 2021) and has become the globally recognized standard for sustainable palm oil. It has defined eight principles (Akande et al 2013) and associated criteria, with supporting indicators related to social, environmental, and economic good practice in the oil palm subsector, and certification is based on compliance at various levels of the value chain. Indonesia and Malaysia have set up their national standards and certification schemes (van Noordwijk et al 2021). The Africa Palm Oil Initiative (APOI), championed by the Tropical Forest Alliance, seeks to promote the design and development of palm oil while respecting some guiding principles that reduce deforestation, favor smallholder plantations and enhance livelihoods while increasing socio-economic growth (TFA 2017). So far, only Ghana managed to have about 16 of its entities engaged in the oil palm sector (either as growers or supply chain actors) registered in the RSPO, with a range of difficulties reported (Table 9.3).

Table 9.3 *Main challenges encountered by the RSPO registered companies in Ghana*

Name of company	Oil palm cultivation (ha) as at 2018	Key challenges highlighted
Volta Red Limited**	3,650	Difficulties in the certification process; Certification of smallholders
Twifo Oil Palm Plantations Limited**	5,829	Certification of out-growers; High costs in achieving or adhering to certification; The attitudinal change of farmers to adopt certification standards
Tarkwa Area Oil Palm Growers Association*	283	Difficulties in the certification process; Certification of smallholders
Nyame Bekyere Oil Palm Growers Association*	148	Difficulties in the certification process; Certification of smallholders

Name of company	Oil palm cultivation (ha) as at 2018	Key challenges highlighted
Norpalm Ghana Limited*	4,653	Difficulties in the certification process; Certification of smallholders; Competition with non-RSPO members; High costs in achieving or adhering to certification; Insufficient demand for RSPO-certified palm oil; Traceability issues
Nkwantanang Oil Palm Growers Association*	141	Difficulties in the certification process; Certification of smallholders
Nankese Zonal Oil Palm Farmers Association*	48	Difficulties in the certification process; Certification of smallholders
Kusi Oil Palm Farmers Association*	370	Difficulties in the certification process; Certification of smallholders
Juaben Oil Mills Ltd***		Awareness of RSPO in the market; Certification of smallholders; High costs in achieving or adhering to certification
Golden Oil Industries Limited***	12,000	Awareness of RSPO in the market
Dufil Prima Food Plc****	168,548	Awareness of RSPO in the market; Difficulties in the certification process; Insufficient demand for RSPO-certified palm oil; Supply issues; Traceability issues
Assin Juaso Oil Palm Growers Association*	62	Difficulties in the certification process; Certification of smallholders
Ashanti Mampong Oil Palm Growers Association*	369	Difficulties in the certification process; Certification of smallholders
Aseda Oil Palm Farmers' Association	189	Difficulties in the certification process; Certification of smallholders
Adum Trebuom Oil Palm Growers Association*	47	Difficulties in the certification process; Certification of smallholders
Adum Banso Oil Palm Plantation Farmers Association*	64	Difficulties in the certification process; Certification of smallholders

Note: * Oil palm grower; **Oil palm grower with palm oil mill; ***Refiner of CPO and PKO; **** Refiner of CPO and PKO; Trader with physical possession; Food and non-food ingredients producer. Source of data: https://rspo.org/members

From the review of the significant economic, social and environmental obstacles related to production, procurement, use and/or promotion of CSPO in the 16 companies studied, the top challenges identified are difficulties in the certification process and smallholder certification,

with 81% mentioning each. This challenge is more prominent in Ghana, with over 95% of the studied companies citing the two challenges as their major impediments to sustainable oil palm production. Difficulties in the certification process largely involve the details requirement, bureaucracies, process, and policies in securing the certification. On the other hand, smallholder's certification involves getting information from farmers who form a palm oil production group. Most individual farmers and groups are dropped from the oil palm production group due to the complexities involved in the certification process.

We also identified high costs in achieving and/or adhering to the certification and awareness of RSPO in the market at 19% each. In agreement, a study by Rietberg and Slingerland (2016) points out that RSPO certification of smallholders is costly, time-consuming, and more complex if the smallholder farmers do not hold legal documents. There is also a major gap in the required skills and knowledge to achieve and adhere to the set certification standards, which includes applying best practices, records keeping, High Conservation Value (HCV) approaches assessments and digital mapping among independent smallholder oil palm producers in Ghana. To manage the challenges of certification processes, the companies were targeting to use new standards set for independent smallholders to be certified in Ghana. There is also a need for awareness creation on the RSPO certification process and increased financial and technical support to small farmer groups to achieve certification (Rietberg and Slingerland 2016).

Oil palm production is inherently labor-intensive and largely manual, thus relying on outsourced labor, particularly during harvesting. As part of efforts to ensure that the development of the oil palm sector is inclusive and sustainable, Brazil launched a Sustainable Palm Oil Production Programme (SPOPP) in 2010 (Brandão et al 2021), which sought to provide a contract farming model for participating farmers. The findings revealed that household availability of land and labour resources strongly influences patterns of inclusion and exclusion. Essentially, labour-oriented contract farming needs to be carefully looked into, particularly for labour and land poor households.

8. Oil palm related land acquisition deals and their status

Like many other continents, Africa has also experienced a boom in oil palm production investments fueled by the rising demand for palm oil, i.e., food and other products. This led to the acquisition of land from the countries that are suitable for oil palm production. This was done in the form of deals in either of the following forms - outright purchase, concessions, lease, contract farming, etc. According to our analysis, using data extracted from the Land Matrix Initiative (www.landmatrix.com), between 2000 and 2021, the total land area with

completed land deals amount to 1.34 million ha (36% of global oil palm land deals of 3.68 million ha captured in the matrix with specific years of deal initiation) of which only 66% is currently in the production phase (Table 9.4).

Table 9.4 *Oil palm land deals concluded in Africa between 2000 and 2021 and their status*

Status of the land allocated for oil palm field development	Area (ha)
In production phase	864,673
Startup phase	152,166
Not started yet	71,211
Abandoned	249,459

The top 10 countries (Figure 9.4) account for almost 96% of the concluded transnational land deals for palm oil production within Africa. Though not very well known for palm oil production, Ethiopia has a 22% share of the transnational land deals concluded for palm oil production. Many of the other dominating countries are popularly known to grow the commodity crop even in the past.

Figure 9.4: *Concluded transnational land deals (ha) for oil palm production between 2000-2021 in Africa. Only deals >100 ha are captured.*

Globally, 5% of concluded transnational oil palm production land deals (0.25 million ha) were abandoned and 94% are from Africa. The abandonment rate is very high for Africa, at 18% (Figure 3). Though the underlying reasons for the abandonment cannot be ascertained, thus needing further research, the pressure from the international community that is bedeviling any

form of forest land conversion for oil palm may have played a role. Numerous studies have indicated the forest losses resulting from oil palm concessions and expansion (Pirker et al 2016, Ordway et al 2019, Qaim et al 2020). To illustrate, Yemefack (2005) and Yemefack et al (2019) reported that six local elites cleared over 425ha of forest land in Southern Cameroon to pave the way for oil palm plantation within three years. The studies established that the agricultural involvement of these elites was speculative and temporary aimed to obtain land rights based on three grounds: (i) their capital investment was not from the conventional bank loans, (ii) the project didn't involve technical assistance and, (iii) change in forests laws to promote sustainable forest management could potentially prevent the elites from accessing the virgin lands. With these grounds, the elites could easily abandon the farms after acquiring their right of usage.

The Congo River basin is viewed as the next oil palm producing frontier, taking over from Southeast Asia where land is becoming scarcer, and regulatory framework is getting stricter, pushing some producers out of business (Ordway et al 2019). D.R. Congo has the highest potential land for expansion, estimated at 60%, followed by Cameroon and Congo, 11% and 10% respectively. The expansion process to increase production is likely to contribute to deforestation, thus jeopardizing the natural functioning of the Congo Forest, which is ranked among the top global carbon sinks and replacing food crops farming that may lead to food shortage and hunger in the region. To illustrate, Ordway et al (2019) estimate that 2 million ha of global forest was lost in 2000-2010 period for oil palm expansion, with Cameroon losing 67% of its forests to the expansion process where informal producers using informal mills are the key drivers of the expansion process. This calls for a strong need for sustainable expansion and intensification strategies within the Congo River basin that are multi-stakeholder in nature to balance the livelihoods and ecosystems needs, policy and institutional development, and capacity development for the actors to achieve this balance.

The growing urge for oil palm expansion in Africa is motivated by various factors. The central reason being the economic benefit and livelihood support through poverty alleviation, food and energy independence, income generation, and employment creation (Pirker et al 2016, Qaim et al 2020). The demand for vegetable oil has also increased globally, creating new demand for palm oil.

Despite the growing demand for palm oil, there is a declining trend in transnational land deals for palm oil production over time. This probably is due to the global outcry about palm oil production's impact on ecosystems if a proper land use plan is not put in place. Figure 5 below demonstrates that transnational land deals sharply declined all over the globe but at a slower pace in Africa. This decline could be explained by the fact that companies and investors may have become worried about the repercussion of investing in areas that will have negative environmental and social tradeoffs, such as in Africa.

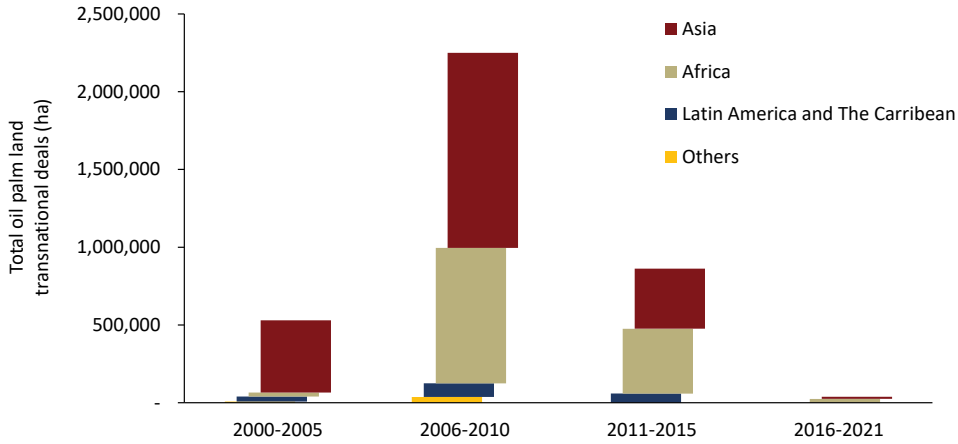

Figure 9.5: *Temporal dynamics of transnational oil palm land deals initiated and concluded between 2000 and 2021. Note: Only deals >100 ha are included.*

9. Pathways to sustainable oil palm production

Sustainable practice choices (agroforestry): Addressing the looming environmental crises and meeting the multiple livelihood benefits of oil palm demands more sustainable practice choices. One of the sustainable pathways is through agroforestry, which entails combining oil palm trees with agricultural crops, fruits, and soil fertilizing trees – as used to be common in oil palm groves. A study by the Brazilian Agricultural Research Corporation (2021) established that systems produced through agroforestry systems have a higher average yield per plant at 180kgs bunches than oil palm monoculture systems with an average yield of 139 kg bunches. Oil palms grown in agroforestry systems have higher oil content per bunch at 24.7% compared to 18%-22% in monoculture systems. This translates to increased productivity and profitability, which can increase through improved agroecological systems such as organic manuring and green fertilization. Among the associated ecosystem benefits included better nourishment of soils (e.g., increased soil organic matter), higher carbon storage ability (with an average storage volume rising from 31 to 47.5 tons per hectare), and enhanced microorganisms' diversity (Brazilian Agricultural Research Corporation 2021). Bhagwat and Willis (2008) argued that oil palm plantations managed under agroforestry systems could enhance local economies and enhance biodiversity conservation compared to monoculture systems. Intercropping oil palm and cocoa could be an interesting option to consider (Noordwijk et al 2021).

Scaling up inclusive oil palm agroforestry systems is influenced by different factors. A study by Miccolis et al (2020) established knowledge gaps, high start-up cost, labor access, market access, and credit access among the major hurdles to successful scale oil palm agroforestry systems. To address these challenges, measures such as including more crops, value chain development, and strengthening oil palm processing at local levels maximize profits.

Land use planning (minimizing conversion of forests to oil palm fields): There are efforts by the producing companies to minimize forest conversions for oil palm production. Most companies have voluntarily pledged to the Zero-deforestation commitments indicating their intention to reduce or eliminate deforestation associated with commodities. Also, the Tropical Forest Alliance (TFA), a multi-stakeholder partnership platform in the oil palm, soy, beef, and paper and pulp supply chains, ensures sustainable value chains by improving planning and management related to tropical forest conservation, agricultural land use and land tenure (TFA 2020). However, company supply chain efforts can only succeed if complemented by aligned public sector measures that improve land sector governance, enable sustainable rural development, and create incentives to conserve forests (Taylor and Streck 2018). Hence, the need for integrated land use planning involving both the private and public actors.

Compliance and regulatory measures, especially on land deals associated with commodity production: Most of the foreign investments in oil palm by high-net-worth individuals are driven by a financial logic; the companies only seek to maximize their profits at the expense of the environment and the local communities' livelihoods (Ceddia 2020). African countries have put in place regulatory measures, particularly regarding land acquisitions and leasing for oil palm. However, compliance with these measures is still a challenge due to corruption in the respective countries. For example, in the case of land concessions in Liberia, on paper at least, the process of securing, negotiating, and implementing concessionary land agreements is very rigorous, transparent, and follows many of the internationally accepted best practices. The agreements include provisions for business performance requirements, consultations with the population living in the areas covered by the concession and significant financial contributions by companies towards improving the health and welfare of the communities affected (Paczynska 2016). However, in practice, the process of negotiating and implementing land lease agreements has been deeply flawed, and many provisions set up to ensure transparency and accountability are sidestepped (Paczynska 2016). Also, ensuring compliance with global guidelines and standards such as the RSPO and the Free, Prior and Informed Consent (FPIC) is necessary for sustainable and equitable land deals between companies and the host companies.

10. Concluding insights: what way forward for the palm oil sector in Africa?

Africa's smallholder farmers play crucial roles in palm oil production, although their inclusion in the sustainable supply chain is still minimal. If Africa's oil palm sector follows a more sustainable path forward, issues governing land rights and smallholder inclusion need to be addressed. This is because they face multiple challenges related to low yields, ranging from general lack of best management practices, sub-optimal climate, lack of access to key resources and facilities and poor soil fertility. There are growing efforts by the RSPO for yield intensification and increased export production of the commodity crop in Africa. Recently, the advent of large-scale oil palm plantations in certain tropical rainforest areas in Africa has prompted the need to establish certification standards and sustainability initiatives, such as the RSPO, aiming to ensure that palm oil is produced without causing environmental and societal harm. Hence RSPO certification prioritizes the intensified production of export quality palm oil to increase yields and profits without further deforestation. To improve government, buy-in, awareness, and support, alignment of HCV framework and the RSPO guidelines to existing national and regional sustainability standards and guidelines can be a pacesetter. It also entails proper contextualization of guidelines and tools to the smallholder farming systems which are dominant in the tropical rainforest of the Congo-Basin. Extensive capacity building of all actors, including civil society organizations, government officials and smallholders on these guidelines will improve knowledge and adoption. Also, a set of sustainability metrics needs to be established to have smallholder farmers on board with the initiative.

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