



Current practices and innovations in smallholder palm oil finance in Indonesia and Malaysia

Long-term financing solutions to promote sustainable supply chains

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RESEARCH PROGRAM ON
Forests, Trees and
Agroforestry

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A man carrying fertilizer in palm oil plantation at Sentabai village, West Kalimantan, Indonesia.

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Acronyms

ACF	Althelia Climate Fund
BHK	Boustead Holding Berhad
BMP	Better Management Practices
BPDP(-KS)	Badan Pengelola Dana Perkebunan (Kelapa Sawit) (The Indonesian Oil Palm Estate Fund)
BPK	Boustead Pelita Kanowit
CIFOR	Center for International Forestry Research
CPO	Crude Palm Oil
CSPO	Certified Sustainable Palm Oil
ESG	Environmental, Social and Governance
EUR	Euro
DFI	Development Finance Institution
FELDA	Federal Land Development Authority
FELCRA	Federal Land Consolidation and Rehabilitation Authority
FFB	Fresh Fruit Bunch
FMO	Nederlandse Financierings-Maatschappij voor Ontwikkelingslanden N.V. (The Netherlands Development Finance Company)
FSP	Financial Service Provider
GAP	Good Agricultural Practices
GAR	Golden Agri-Resources
ha	Hectare
ICRAF	World Agroforestry Center
IDH	Initiatief Duurzame Handel (Dutch Foundation ‘Sustainable Trade Initiative’)
IDR	Indonesian Rupiah
IFC	International Finance Corporation
ILM	Integrated landscape management
IPODS	Indonesia Palm Oil Development Scheme for Smallholders
ISCC	International Sustainability and Carbon Certification
ISPO	Indonesian Sustainable Palm Oil
KADIN	Kamar Dagang dan Industri (Chambers of Commerce in Indonesia)
KKPA	Kredit Koperasi Primer untuk Anggota (Primary Credit Cooperative for Members)

KPEN(-RP)	Kredit Pengembangan Energi Nabati (- Revitalisasi Perkebunan) (Bioenergy Development Credit (- Plantation Revitalization))
KUD	Koperasi Unit Desa (Village Cooperative System)
KUR	Kredit Usaha Rakyat (People's Business Credit)
LCDA	Land Custody and Development Authority
MSME	Micro, Small and Medium-Sized Enterprises
MYR	Malaysian Ringgit
NCR	Native Customary Rights
OJK	Otoritas Jasa Keuangan (Financial Services Authority of Indonesia)
OPRPISF	Oil Palm Replanting Program for Independent Smallholder Farmers
PISAgro	Partnership for Indonesia's Sustainable Agriculture
PIR(-Trans)	Perkebunan Inti Rakyat (Transmigrasi) (Nucleus Estate-Smallholders for Transmigration)
PKO	Palm Kernel Oil
PTPNXIII	PT Perkebunan Nusantara XIII
RISDA	Rubber Smallholders' Development Authority
RandR	Rehabilitation and Renovation
REDD+	Reducing Emissions from Deforestation and Forest Degradation
RSPO	Roundtable on Sustainable Palm Oil
RSSF	RSPO Smallholders Support Fund
SFF	Smallholder Finance Facility
SNV	Stichting Nederlandse Vrijwilligers (Dutch 'Foundation of Netherlands Volunteers')
TLB	Tropical Landscape Bond
TLFF	Tropical Landscapes Finance Facility
TLGF	Tropical Landscapes Grant Fund
TLLF	Tropical Landscapes Loan Facility
TSSPK	Tanam Semula Sawit Pekebun Kecil (Replanting Subsidy for Oil Palm Smallholders)
USD	United States Dollar

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Summary

With an increasing world population and rising living standards per capita, the production of palm oil is expected to continue to grow in coming decades. Smallholder farmers make up a large share of palm oil production in Indonesia and Malaysia, the world's principal palm oil producing countries (FAOSTAT 2016). Many smallholders experience substantial benefits from the high returns to oil palm cultivation. However, benefits are often unequally distributed within and amongst smallholder communities. Additionally, oil palm plantation development by companies and smallholders is playing a key role in tropical forest cover loss and land use conflicts.

Financing schemes and policies regarding export taxes and subsidies have played a fundamental role in the strong growth of oil palm plantation development we have seen in Indonesia and Malaysia. Financing is urgently needed, because in the next 25 years (2017–2041), around 175,000 ha of oil palm plantation will require replanting every year, generating a long-term financing need of USD 700 million per annum (Directorate General of Estate Crops 2015).

In order to analyze whether it is possible to steer the practices of oil palm smallholders into more sustainable and responsible directions, this study set out with three principal objectives:

1. To evaluate past and current policies and financing schemes that have played a role in the palm oil industry in Indonesia and Malaysia.
2. To evaluate the outcomes of these models for smallholders and the environment, in terms of income security and sustainable practices.
3. To analyze financing schemes that could contribute to sustainable smallholder oil palm development; with a view to stabilize the smallholder supply of Fresh Fruit Bunches (FFBs) and enable smallholders to expand with improved sustainability practices, based on the learning of past and existing partnership schemes.

With these objectives in mind, this report describes and evaluates past and current financing schemes in Indonesia and Malaysia, based on a literature analysis and field assessment. It then proposes potential financing models to improve smallholders' access to finance in the palm oil sector, illustrating a variety of schemes that have been developed to support oil palm smallholders in Malaysia and Indonesia. This includes examples of a number of innovative financing schemes that have recently emerged. Since large-scale replanting of oil palm represents one of the most urgent sustainability issues for Indonesian smallholders, the report then assesses the specific challenges of providing long-term financing to smallholders, offering some potential solutions to these challenges. Finally, the report identifies a number of conditions which will enable innovative financing models to foster sustainable and inclusive development. These include: support and incentives for smallholders to meet sustainability requirements; land tenure security; improved bargaining power for smallholders in their supply chain relationship with mills; support for FSPs to assess and manage risks; and enabling strong and effective smallholder organizations.

1 Introduction

The production of palm oil is expected to rise in the coming decades due to the increasing world population and overall living standard per capita. Smallholder farmers make up a large share of the palm oil production in Indonesia and Malaysia, the world's main palm oil producing countries (FAOSTAT 2016). Palm oil smallholders, farmers with an average of two hectares (ha) of acreage, can be grouped into the following organizational models (Daemeter Consulting 2015):

1. Small-scale independent smallholders linked to the supply chain via local agents.
2. Larger scale independent smallholders linked to the supply chain via local traders or mills.
3. Smallholder groups, or smallholder-managed cooperatives, that trade directly with mills.
4. Smallholders managing plots linked with company plasma schemes.
5. Company-managed smallholder-owned plantations (leased community lands).

Many of these smallholders experience substantial benefits from the higher returns to oil palm cultivation (Rist et al. 2010). However, benefits are often unequally distributed within and amongst smallholder communities (Rist et al. 2010). This is largely due to a lack of comprehensive and inclusive land use planning, free prior and informed consent, knowledge of and experience in best management practices, and access to financial capital to accomplish sustainable farming. As these barriers affect smallholders of any organizational structure type, this report does not distinguish between independent smallholders and those organized in cooperatives or plasma schemes.

The development of oil palm plantations by companies and smallholders is playing a key role in tropical forest cover loss and land use conflicts (Gerber 2011). Palm oil finance is urgently needed, as in the next 25 years (2017–2041), around 175,000 ha of oil palm plantation will require replanting every year, generating a long-term

financing need of USD 700 million per annum (Directorate General of Estate Crops 2015).

Oil palm plantation development in Indonesia and Malaysia has seen strong growth in recent decades, and broadly applied financing schemes and policies regarding export taxes and subsidies have played a fundamental role in this. However, the outcomes of these policies and financing schemes have not always benefited smallholders, local communities or the environment.

The objective of this study was to evaluate past and current policies and financing schemes that have played a role in the palm oil industry in Indonesia and Malaysia. The outcomes of these models for smallholders were also evaluated, with specific attention to impacts on income security, sustainable practices and the environment. Finally, financing schemes that have potential to reach out to independent smallholders, and as a result, contribute to more sustainable smallholder oil palm development, were analyzed and compared to past and existing partnership schemes. This was done with a particular focus on the way that the supply base of smallholders can be stabilized and enabled to expand with improved sustainability practices.

The study focused on oil palm smallholders, who play a crucial role in the palm oil production industry in terms of acreage used for oil palm cultivation, with a geographic focus on policies and financing schemes in Indonesia and Malaysia, the world's principal palm oil producing countries.

The study looked at the following questions:

- What are the main past and current financing models in Indonesia and Malaysia and what role did these play; what are the outcomes of these models for smallholders in terms of income security, sustainable practices and the environment?

- What are potential innovative financing schemes that can benefit oil palm smallholders, especially in the long term?
- What are the enabling conditions for innovative financing models to foster sustainable and inclusive development?

Past and current financing schemes in Indonesia and Malaysia were evaluated, following a literature analysis and field assessment. This enabled the report's authors to propose potential models which could increase long-term finance possibilities for smallholders in the palm oil sector.

Section 2 provides background information and case studies on past and current financing models in Malaysia and Indonesia. Section 3 presents innovative financing schemes for smallholders while Section 4 provides an assessment of the challenges of existing schemes and approaches to resolve these, before outlining potential financing solutions. In Section 5, the report discusses a number of conditions enabling innovative financing schemes to foster sustainable and inclusive development. Finally, the report's conclusions are presented and discussed.

2 Past and current financing models

This section provides an overview of past and current smallholder palm oil production schemes in Malaysia and Indonesia. It describes the financing and support mechanisms in place, as well as the outcomes of these schemes for both smallholders and rural development generally.

In Section 2.1, smallholder financing models in Malaysia are described and illustrated with two case studies. In Section 2.2, smallholder financing models in Indonesia are described. Indonesian case studies are presented in further detail in Section 3.2. A chronological overview of the established institutions and instruments facilitating palm oil production in Malaysia and Indonesia is given in Annex 1.

2.1 Smallholder financing models in Malaysia

Oil palm was first introduced to Malaysia by the British colonial government in the 1870s. In 1912, a French writer imported a few bags of seeds into Malaysia, supported by a Belgian agronomist who had developed the first oil palm plantation in Indonesia. From here, Malaysia's first commercial oil palm plantation was developed in 1917 at Tennamaram Estate, Selangor, replacing an unsuccessful coffee estate (Reuters 2009).

Since the emergence of palm oil in the Malaysian economy in the late 1950s and early 1960s, various institutions and instruments have been developed to support the development of oil palm plantations. The Federal Land Development Authority (FELDA) has been a key vehicle for supporting smallholder oil palm development in the country. Originally tasked with the development of agriculture-based settlements for landless families, FELDA has gradually adopted a more corporatized model, having changed its strategy on numerous occasions. In parallel to

FELDA, various other, albeit less significant, institutions were established to provide smallholder support. The most important ones include the Federal Land Consolidation and Rehabilitation Authority (FELCRA) and the Rubber Smallholders' Development Authority (RISDA). In recent years, various new instruments have been developed, including the *Konsep Baru* model and the Replanting Subsidy for Oil Palm Smallholders (TSSPK), which focuses on incentivizing replanting. These different institutions and instruments and their outcomes for smallholders are discussed in this section.

2.1.1 Federal Land Development Authority

The Federal Land Development Authority (FELDA) was established in 1956 by the Government of Malaysia to support the development of plantation land for landless families, as a strategy to alleviate poverty in rural areas. Initially FELDA developed a resettlement scheme, in which impoverished peasants from across the country were selected and resettled in newly opened areas. Settler families were given land titles under a loan system, being granted ownership of their land once the loan was repaid in full. Typically, each family was allocated a plot of around 4 ha, and a house with a garden, situated within a larger managed complex (Khor et al. 2015). The settler loans initially included development costs of the scheme, agricultural development of 4 ha and costs for infrastructure development. The total loan was approximately MYR 26,600 (equivalent to approximately USD 6200¹) with a tenor of 15 years at 6.25% interest (which was below market rate). However, in 1960 the loan amount was reduced by 30% to MYR 17,700 (USD 4153) because original settler obligation costs had been estimated at too high a

1 The exchange rate underlying all currency conversions is from 7 June 2017.

rate (Khor et al. 2015). The scheme was revised several times because of fluctuating market prices and difficulties settlers face in repaying the loans. FELDA's support in plantation establishment and management was initially focused on the rubber production industry, but later that focus shifted to oil palm (Abazue et al. 2015). This shift occurred because oil palm cultivation requires more collective responsibility (which was a better fit with their schemes) as well as requiring less labor inputs than rubber planting (Khor et al. 2015). Support from FELDA included access to credit, supply of agricultural inputs, and advisory and management services. In addition, FELDA developed transportation infrastructure around the settlements and facilitated access to markets (Abazue et al. 2015). Settlers were obliged to cultivate the land in return for a monthly salary, based on the daily minimum wage. This system was in place until the Block System was introduced in 1970 (Khor et al. 2015).

In a second phase, FELDA introduced a collective production scheme known as the Block System, with the aim of increasing collective responsibility and facilitating linkages between different settlements, at the same time as achieving estate-like efficiency, productivity and product quality. Under this system, settlers were organized into groups of 20, and each group was responsible for the management of a 'block' of roughly 80 ha of oil palm. Profit from the sale of FFBs was equally distributed among the members of each block (Vermeulen and Goad 2006). Uneven income distribution and disparities in work skills meant that the revised system received a lot of negative feedback from the settlers (Simeh and Ahmad 2001).

By 1985, a third phase saw the Block System being replaced by the Share System. In this model, settlers received a fixed wage and dividends from a share equivalent to 4 ha of oil palm. After repaying their debts, the settlers obtained a title to a house, with a small plot for subsistence production, and a share in the plantation (Vermeulen and Goad 2006). Around 81 resettlement schemes, covering 13,234 settlers, were developed under this Share System, which was, however, ended after five years due to further complaints from settlers, who felt they were being turned into wage laborers. With fluctuating market prices but fixed wages, settlers faced difficulties in repaying their loans, which created an exploitative situation. As a result, the

Share System contradicted FELDA's original objectives of creating a self-reliant rural community (Khor et al. 2015).

In the early 1990s, FELDA stopped providing support for the development of new smallholder settlements and instead directed its focus towards the development of commercial plantations to enable their financial independence from the government (Profundo 2012). The emergence of the resulting Agribusiness System reflected a new policy direction for Malaysia, towards increasing privatization and state withdrawal (Bissonnette and De Koninck 2015). FELDA continued to manage settler schemes, but new lands were instead developed into large-scale non-settler plantations owned by its subsidiaries (Abazue et al. 2015). This change in focus is illustrated in the Sahabat resettlement project, which saw production targets prioritized over social objectives (see Box 1).

Box 1. Case study: The Sahabat Resettlement Project in Sabah

The largest of FELDA's schemes is found in the Dent Peninsula of Sabah. FELDA's initial plan was to develop about 90,000 ha of oil palm and resettle up to 12,700 families in Sabah. In support of these objectives, FELDA initiated the Sahabat resettlement project in 1980. A World Bank loan of USD 71.5 million was obtained to fund about a third of the project. By 1993, the project had achieved its agricultural development targets with about 65,000 ha of oil palm planted, exceeding the original target of 61,000 ha. Total FFB production was estimated as 884,000 tons (generating a yield of 185,650 tons of crude palm oil (CPO) and 31,000 tons of palm kernel oil (PKO)). Averaged by the total area, this was equivalent to 13.6 tons FFBs per hectare per month (with 2.85 tons CPO and 0.48 tons PKO). However, the project failed to meet its social objective of rural poverty alleviation. Only 925 families were settled, against a target of 3560 families, although those settlers did receive higher incomes than anticipated (MYR 1450 against a target of MYR 1320, equivalent to USD 340 against a target of USD 310). In reality, around 90% of the Sahabat area was managed by FELDA as a large-scale commercial estate, using hired foreign and Sabahan workers (Khor et al. 2015).

Despite the identified design flaws in some of its programs, FELDA has made significant contributions to eradicating rural poverty in Malaysia since its inception. Mainly through state and self-funding (including large World Bank loans), FELDA resettled 122,000 landless families during 1956–1990, on about 470,000 ha of smallholdings. Its resettlement model succeeded in raising smallholder household income levels considerably above the national poverty line, lifting approximately one million people out of poverty (Khor et al. 2015). By 2008, smallholder families in the settlement areas managed to earn an average monthly income of MYR 1386 (USD 355) from oil palm cultivation (not including other additional income), far above the national poverty line of MYR 529 (USD 139) (Mahat 2012).

2.1.2 Federal Land Consolidation and Rehabilitation Authority

The Federal Land Consolidation and Rehabilitation Authority (FELCRA) was established in 1966 to support productivity, as well as to improve the livelihoods of rural families who were not covered under FELDA (WWF 2000). Rather than opening up new land for agricultural settlements, FELCRA was tasked with rehabilitating unsuccessful state-managed schemes, and consolidating unused ‘idle’ land on the fringes of villages (Vermeulen and Goad 2006). In the scheme, which is still running, local communities surrendered their land to be centrally managed by FELCRA in return for bi-annual dividends over 10–15 years, depending on the costs of development. Communities are encouraged to participate either as laborers or contractors in the plantation (King 2005). In addition to crop management, FELCRA also provides basic infrastructure and assists with processing of crops (Vermeulen and Goad 2006). The acreage managed under FELCRA schemes can vary, from around 100 ha in one village, to several thousand hectares if land from several communities is combined and managed as a large-scale plantation estate (Cramb and McCarthy 2016). In 1997, FELCRA was corporatized, changing its name to FELCRA Berhad. It continues to manage existing community plantations following its method of estate production, while also developing new areas for commercial agricultural development (King 2005). In 2016, approximately 173,000 ha of plantation land was under FELCRA management (Malaysian Palm Oil Board 2016).

2.1.3 The Rubber Industry Smallholders Development Authority

The Rubber Industry Smallholders Development Authority (RISDA) was established in 1989 to support the improvement and expansion of rubber smallholdings throughout Malaysia. The initial focus of RISDA was on agricultural development in the rubber industry, including the replanting of smallholder rubber, agricultural inputs for crops in production, construction and maintenance of access roads, and smallholder training. It continues with this same focus today.

Activities have since expanded to include smallholder oil palm cultivation (WWF 2000). RISDA now provides replanting funds and support to rubber smallholders wishing to switch to oil palm or integrate the cultivation of oil palm into their production systems (Bissonnette and De Koninck 2015). The agency also manages basic infrastructure and crop processing, and supports social development activities through its Smallholder Development Centers (Vermeulen and Goad 2006). In 2000, RISDA supported the development and management of 37,011 ha of oil palm plantations, amounting to 1.1% of the planted area nationwide (WWF 2000).

2.1.4 Konsep Baru

The Government of Malaysia introduced the *Konsep Baru* (New Concept) policy in 1995 to promote a joint venture approach to commercial land development, mainly for oil palm. Under the *Konsep Baru* scheme, landholders (whether customary landholders or the State) are encouraged to assign their land rights to the government, which acts through the Land Custody and Development Authority (LCDA). The LCDA then establishes a joint venture agreement with a private company, issuing a consolidated land title for oil palm development for 60 years. Based on a ground survey of individual landholdings within the lease area, the investor pays the value of the land to the owners at a pegged price per hectare. Of this, 10% is paid in cash, 30% is invested in a government trust unit scheme, and 60% is regarded as the landowners’ equity shares in the company. This results in a 30% share in the company’s equity being given to the community. The private sector partner has 60% equity, with LCDA taking the final 10%. The private company is responsible for managing the estate, and is also required to

pay dividends to the landholders based on their shares. Landholders can be employed on the estate as laborers, but they are not involved in any management decisions (Cramb 2007).

By 2011, a total area of 51,362 ha had been developed for oil palm under the *Konsep Baru* scheme (Cooke et al. 2011). However, this model also received plenty of criticism from landowners and researchers alike. Some of the concerns expressed include: the lack of choice felt by the communities participating in the scheme, who also felt little control over the negotiating process; a lack of adequate information on the terms and conditions of the joint venture; questionable methods used to determine land boundaries; low wages and arduous working conditions for laborers; uncertainty over whether the land will be returned at the end of the project; and failure by companies to pay the dividends (Vermeulen and Goad 2006; Cramb 2007). The Boustead Pelita Kanowit case study illustrates how strong conflicts can emerge when such a project fails to meet the expectations of the host communities (see Box 2).

2.1.5 Replanting Subsidy for Oil Palm Smallholders

Smallholder oil palm development in rural Malaysia has historically been based on the

expansion of agricultural plantation land into forested areas, largely facilitated by FELDA settler schemes. However, potential for further expansion is limited, due to a lack of land and policies which seek to prevent deforestation. To meet palm oil production targets, the Government of Malaysia is taking steps to support yield increases on existing plantations. It is estimated that 365,414 ha of palm oil plantations in Malaysia are planted with low-yielding trees older than 25 years. Smallholders in particular are often reluctant to replant after the 25-year maturity period, to avoid short-term income losses (PEMANDU 2010). To combat this, the government has set up the Replanting Subsidy for Oil Palm Smallholders (TSSPK, *Tanam Semula Sawit Pekebun Kecil*) to incentivize and support farmers to replant ageing plantations. This scheme provides farmers with a grant of MYR 7500 (USD 1760) per hectare in the Peninsula and MYR 9000 (USD 2112) per hectare in Sabah and Sarawak, destined for the clearing of land, supply of high quality seedlings and agricultural inputs. In addition, smallholders with acreage below 2.5 ha are eligible to apply for farm maintenance assistance of MYR 500 (USD 117) per month for two years, to cover the finance gap they face when trees are not yet unproductive (PEMANDU 2011). During 2011–2014, 17,569 smallholders received replanting funding through the TSSPK. In May 2017, Prime Minister Datuk Seri Najib Tun Razak

Box 2. Case study: The Boustead Pelita Kanowit Joint Venture Scheme in Sarawak

Initiated in 1996, Boustead Pelita Kanowit (BPK) was the first *Konsep Baru* project. The joint venture involved Boustead Holding Berhad (BHK) as the investor, Pelita Holdings as Trustee, and 2133 Native Customary Rights (NCR) landowners in Kanowit District. Through the joint venture agreement, the landowners leased a total area of 14,411 ha to BPK for the development of oil palm plantations.

There were high expectations of success for this pioneering project, but an evaluation shows that the project underperformed both in terms of commercial viability and improvements to local livelihoods. A study found that BPK had accumulated a loss of MYR 95 million (USD 25 million) by its ninth year of operation. Some of the financial problems can be attributed to low yields, heavy borrowing at high interest rates, the Asian economic crisis of 1997/98, poor performance of palm oil in the global markets in the early 2000s, large accumulated capital and operational expenditures and poor cost control and financial management.

Due to the poor economic performance of the project, BPK failed to pay dividends, leading to disappointment and discontent among the landowner community. By mid-2008, conflict had broken out, with community members erecting blockades to prevent estate workers from accessing company plantations. Community members have since brought the case to court (Cooke et al. 2011; Oxfam, 2014).

announced an additional allocation of MYR 510 million (USD 119.7 million) towards smallholder oil palm replanting as well as the development of new smallholder plantations, funds which will be made available over a period of three years (The Star 2017).

2.2 Smallholder financing models in Indonesia

In 1848, four oil palm seedlings were imported into Indonesia by the Dutch and planted in the Botanical Gardens in Bogor, and in the 1870s, as ornamental trees on tobacco estates in North Sumatra (Reuters 2009). In the 1870s, Dutch investors were able to acquire lands at nominal rent, while the Industrial Revolution resulted in an increasing demand for palm oil to fuel the production of candles, soap and machinery lubricant (Sanders 1982; Reuters 2009). In this period, the Dutch Government decreased its direct involvement in economic production and instead started to develop incentives to stimulate the private development of oil palm plantations (Budidarsono et al. 2013).

In 1911, the first commercial oil palm plantation of about 2600 ha was developed on the east coast of Sumatra by a Belgian agronomist under Dutch administration (Corley et al. 2003; Budidarsono et al. 2013; ITPC Busan 2016). At that time, the Dutch Government was one of the world's major palm oil suppliers (ITPC Busan 2016). On the east coast of Sumatra, the area used for oil palm plantations increased substantially in 1919–1936, from around 6900 ha to around 75,000 ha (Budidarsono et al. 2013). As a result, palm oil production in the region grew substantially, from 181 tons of palm oil in 1919, to almost 191,000 tons in 1937 (Stoler 1985; Budidarsono et al. 2013). At the time, land was made available through land leases from local indigenous peoples through the colonial administration (Stoler 1985). The increased production of palm oil was equally supported by scientific research, and the development of well-equipped estates and mills (Poku 2002).

In post-war times while the rubber industry experienced difficulties, investors aimed to diversify through oil palm plantation development (Reuters 2009). However, after independence was declared in 1945, the development of plantations stagnated with the termination of financial support from the Dutch colonial government (Reuters 2009).

In 1967, the acreage of oil palm plantations started to increase again, thanks to investments in state-owned plantations from both the Indonesian Government and the World Bank (Reuters 2009). Since the late 1970s, the Indonesian Government has continued to stimulate oil palm expansion in various ways, including through smallholder financing and support. McCarthy distinguishes three phases of recent palm oil sector development in Indonesia (McCarthy 2010). The first phase, from the late 1970s to 1994, sees the development of the smallholder palm oil sector fueled by direct state investments via state-owned companies through the PIR-Trans scheme. The subsequent phase, during 1994–1998, sees the state gradually withdrawing, giving rise to private smallholder lending schemes, most notably the *Kredit Koperasi Primer untuk Anggota* (KKPA, Primary Credit Cooperative for Members), a scheme under which smallholders, organized in cooperatives, were able to access subsidized loans from banks. The final stage, known as the *Reformasi* era from 1998 onwards, sees a more neoliberal, market-driven model being established, with the aim of enhancing smallholders' access to technology and investment capital so they can expand their cultivation area.

Throughout these development phases, the influx of (trans)migrants to oil palm cultivation regions, and the expansion of existing plantations, have transformed Indonesia's rural areas (Pain 1995). This has contributed to the country's rise to being the largest palm oil producer in the world. The key smallholder support schemes of these periods, as well as their outcomes for rural development, are discussed in the following subsections.

2.2.1 PIR-Trans scheme

From the late 1970s to 1994, the Government of Indonesia pursued a development agenda of political and macro-economic stability (McCarthy 2010). For the palm oil sector, this meant the introduction and expansion of the PIR-Trans scheme in 1985–1994, or in Bahasa Indonesia *Perkebunan Inti Rakyat Transmigrasi* (Casson et al. 2014). This was a joint government–private sector development scheme that combined *Transmigrasi*, the government's resettlement program and *Perkebunan Inti Rakyat* (PIR), the Nucleus Estate Scheme. Under *Transmigrasi*, which was financially supported by the World Bank, people were relocated from the densely populated

Java and other islands to settlement areas in the outer islands. The aim was to relieve population pressure and address the inequitable distribution of resources (The World Bank 1994; Fearnside 1997). Under PIR, smallholder oil palm plantations were developed in a 'plasma' area around a 'nucleus' estate that was under the responsibility of a private company (Budidarsono et al. 2013).

Under the PIR-Trans scheme, around 20% of the total area was generally held by the nucleus estate, with the remaining 80% managed by plasma smallholders (Larson 1996; Budidarsono et al. 2013) – often transmigrants from Java (Molenaar et al. 2010). The government provided plasma smallholders with 5–7.5 ha of land in total, including 2–3 ha of land (mostly state forest land) for oil palm cultivation and 0.5–1 ha for housing and subsistence agriculture (Casson et al. 2014). Additionally, smallholders had access to subsidized loans (with an interest rate of 10% over a 5-year period) for developing, replanting or rehabilitating oil palm plantations (Casson et al. 2014). The intention was for farmers to obtain land titles upon settlement of the oil palm plantation development loan. The government supported the smallholders with initial living expenses and housing (Larson 1996). The nucleus estate was responsible for extension services and for collecting, transporting and processing the FFBs (Larson 1996). In return, the smallholders had to abide by the terms and conditions of the state agribusiness model (Budidarsono et al. 2013).

The government facilitated the establishment and widespread expansion of the PIR-Trans scheme by financing infrastructure, providing subsidies and institutional support, as well as by improving access to land and capital for state-owned plantation companies (Humphrey and Schmitz 2000). Contractors were hired for land clearing, often in exchange for logging rights (Larson 1996). Nearly 900,000 ha of oil palm smallholdings were established under this model (Vermeulen and Goad 2006). New transmigrant settlements were established in the areas surrounding the plantations, often alongside existing indigenous communities. This led to widespread conflicts between local people and transmigrants, which only increased during the *Reformasi* era (Casson 2000; Elmhirst 2000).

The scheme has resulted in a substantial shift from mainly public estates to mainly private

estates and smallholder production. Inexpensive credit has equally been effective in providing new capital flows to the palm oil sector (Larson 1996). However, the transmigration program – the basis of the PIR-Trans scheme – has had high environmental, social and financial costs, and did not have the intended effect of decreasing population pressure on Java, the reason for which it was intended (Fearnside 1997). The identification and acquisition of land has been a major challenge in establishing new estates, particularly due to the lack of clear land titles. Likewise, there have been insufficient investments in transportation infrastructure under the program (Larson 1996). The PIR-Trans scheme proved less attractive to transmigrants than the 'old' agricultural transmigration scheme, as PIR transmigrants were responsible for paying off 20 years' worth of debts to cover development costs for oil palm or other plantation crops. Additionally, urban transmigrants lacked prior experience in agriculture, which negatively impacted their success in farming (Fearnside 1997).

2.2.2 Kredit Koperasi Primer untuk Anggota

After almost two decades of strong state intervention in oil palm plantation development, the Government of Indonesia made the political move towards increasing state withdrawal (Casson 2000; Budidarsono et al. 2013). This new direction was in response to ongoing criticism from the World Bank over the government's prior direct subsidizing role in the PIR-Trans schemes, the World Bank's advice being to instead leave oil palm development to the market (Larson 1996). Succumbing to mounting pressure on the state budget, combined with donor advocacy for a more direct social-private partnership model, the government changed its policy to encourage private sector initiatives, facilitate direct foreign investment and accelerate estate crop development (Budidarsono et al. 2013). The four-year transitional period which followed (during 1995–1998) towards more private-community initiatives can be characterized by the introduction and broad implementation of the KKPA scheme (Larson 1996; Casson 2000; Vermeulen and Goad 2006; Budidarsono et al. 2013).

The KKPA involved a more direct private-community scheme, and was introduced in 1995 as a general rural microfinance program to support independent smallholder production (Vermeulen

and Goad 2006; Molenaar et al. 2010). KKPA schemes typically relied on an agreement signed between a company, smallholder cooperatives and banks, and were supervised by the government (Pacheco 2012). Under the KKPA scheme, formalized cooperatives could borrow from banks a maximum of IDR 50 million (USD 3800) for small business development, at a subsidized interest rate of 0% (Vermeulen and Goad 2006). Smallholders were also given the same amount of land (5–7.5 ha) as under the PIR-Trans scheme (Casson et al. 2014). Direct private–community partnerships were established, with a company working directly with participating smallholders to resolve land issues and providing training and extension services (Budidarsono et al. 2013). The scheme was widely applied in the palm oil sector, granting smallholder cooperatives more autonomy than they had under the earlier PIR-Trans model (Vermeulen and Goad 2006).

Under the more favorable KKPA agreement, local indigenous and transmigrant communities which had previously not managed to move beyond the production of rice and subsistence crops were promoted and were now able to transform their plots into profitable oil palm plantations (Casson 2000). A rise in the number of independent smallholder oil palm farmers during the KKPA period also led to increased spontaneous migration into oil palm cultivation areas (Budidarsono et al. 2013).

Different contract conditions exist between plasma smallholders and companies, for example, in terms of the amount of financial credit, or net product shares that are available. The shares of the company versus those of the plasma smallholder can be arranged, for example, as 0%/100% or 60%/40% (Feintrenie 2013). Where credit is involved, the company is responsible for collecting the repayments from plasma smallholders and disbursing to the bank. Local governments often participate as facilitators of discussions between partners (Feintrenie 2013). Companies charge smallholders for services provided as well as for installation and production costs (Feintrenie 2013). These costs are deducted from the monthly payments given to plasma smallholders (Feintrenie 2013). The role of cooperatives and plasma smallholders can vary from one case study to another. For example, a company can manage all

technical operations on plasma plantations, with the cooperative responsible for the distribution of benefits to plasma smallholders (Feintrenie 2013). Other case studies see the cooperative managing the plasma plantations under the technical supervision of the company (Feintrenie 2013). In most cases, plasma smallholders have easier access to inputs and technical advice through the cooperatives.

2.2.3 Market-driven models

During the *Reformasi* era, from 1998 onwards, the Government of Indonesia largely withdrew from direct involvement as a financier, facilitator and guarantor of plantation operations (McCarthy and Cramb 2008), making way for a more neoliberal, decentralized, market-driven model (McCarthy 2010).

A number of new policies were adopted, the Decree of Forestry and Estate Ministry No. 107/Kpts-II/1999 and the Decree of Agricultural Ministry No. 26/2007 (Ministry of Forestry and Estate Crops 1999; Ministry of Agriculture 2007), which enabled the development of community plantations under various partnership models. During this period, existing estates established partnerships with large capital-intensive companies interested in investing in labor-intensive oil palm projects (Zen et al. 2006). Through these partnerships, smallholders who were initially in the PIR-Trans schemes could gain access to technology and improve their incomes. Once they had paid off their debts they obtained their land titles, which could then be used as collateral for borrowing money from banks to expand production. As a result of the favorable combination of rising palm oil prices, the use of improved technology and enhanced access to investment capital, many of these smallholders were able to rapidly expand their land holdings (Budidarsono et al. 2013).

In later years of the oil palm boom, prior to 2008, these new landowners were joined by successful KKPA smallholders, who used palm oil income to invest in upgrading unproductive land into oil palm plantations. The result was a spontaneous expansion of the oil palm frontier around many existing oil palm plantation areas (Budidarsono et al. 2013).

2.2.4 The way forward

In both Malaysia and Indonesia, the development of smallholder oil palm plantations was adopted as part of a strategy to alleviate rural poverty. In the early phases, smallholder support schemes (FELDA and PIR-Trans) were heavily dependent on state funding, as well as on funds from the World Bank. However, over the past two decades the state has gradually withdrawn, resulting in the emergence of more commercially oriented investment models. Focused on large-scale plantation development, these models do not always effectively address the needs of oil palm smallholders.

Smallholders under both the PIR-Trans and the KKPA schemes reported various issues and challenges. These issues were related to implementation, including long delays in receiving

the allocated land and credit, inaccessibility of allocated plots, restrictions on traditional intercropping, and high land reclamation costs (Vermeulen and Goad 2006). Additionally, smallholders experienced poorly maintained infrastructure, low decision-making power, and management issues within cooperatives. Smallholders also reported credit interest rates which were too high, along with high installation costs (Feintrenie 2013). Wider social and environmental impacts, such as deforestation, overexploitation of water resources, and rising costs of living, were also evident (Vermeulen and Goad 2006; Bissonnette and De Koninck 2015). To achieve sustainable and inclusive palm oil supply chains, new financing and support mechanisms will need to be developed in order to both meet smallholder needs and address environmental and social challenges in the sector.

3 Innovative financing schemes

Despite their large numbers and crucial role in meeting global supply, oil palm smallholders generally lack access to formal credit institutions, due to insufficient collateral, ambiguous property rights and tremendous heterogeneity across the smallholder population (InterCAFE 2017). However, such financing is urgently required because in the next 25 years (2017–2041), around 175,000 ha of oil palm land will require replanting every year, with an associated long-term financing need of USD 700 million per annum (Directorate General of Estate Crops 2015). The inability of farmers to gain access to finance, in particular to long-term loans, ultimately impedes growth, negatively impacting smallholders' productivity and ability to meet minimal sustainability standards (IFC 2013). Conversely, sustainable production practices at the smallholder level can be facilitated through: the financing of high-quality inputs (e.g. fertilizers and seeds) required for the adoption or upgrading of sustainable agricultural practices; the financing of replanting and rehabilitation of existing plantations; and through supporting investments in projects that make sustainability commitments related to land use, production practices and other Environmental, Social and Governance (ESG) criteria (Perez et al. 2016).

This section describes emerging innovative financing schemes, while distinguishing between their diverse types of initiators, which include the private sector, commercial banks, impact investors, development finance institutions (DFIs) and governmental initiatives. For each type of initiator at least one case study is provided. Case studies focus exclusively on Indonesia, where collaboration between public and private sectors has led to financing solutions that attempt to rely partially on government aid, while also aiming for commercial sustainability and scale-up. In contrast, the Malaysian financial sector still greatly focuses on large plantation companies, with

initiatives for smallholder financing being in their inception phase. Additionally, the main long-term financing challenges are being addressed by large government-sponsored schemes (with, for example Malaysian Prime Minister, Najib, announcing in May 2017, a MYR 510 million (USD 119 million) allocation for oil palm smallholders (Malaysia Gazette 2017)). As there is less reliance on innovative financing schemes based on supply chain relationships or involvement of the private sector, Malaysia is less relevant for discussion in this paper.

3.1 Innovative financing suppliers

Various innovative financing schemes have emerged recently to fill the gap between supply and demand for large-scale financing that is essential to expand palm oil production levels. Financing schemes currently available to oil palm smallholders in Indonesia can be distinguished as follows.

3.1.1 Private sector

Plantation companies or oil palm mills offer agricultural extension services and replanting financing to farmers who supply their mills. One example of this is GAR's Innovative Financing Scheme, discussed in more detail later in this paper.

3.1.2 Commercial banks

Indonesian commercial banks are heavily involved in palm oil financing with an average of 8% of their lending portfolio dedicated to the sector (Aidenvironment 2017). The majority of clients are large plantation companies, served by corporate departments. Only recently are commercial banking products and services being developed which are specifically tailored to the needs of palm oil smallholders. In Section 3.2.2, examples of

commercial banks active in smallholder financing are presented (Bank CIMB Niaga, Bank Mandiri and BRI Agro). The trend towards increasing interactions with smallholders is a consequence of recent developments in banking regulations put forth by the Indonesian banking regulator OJK (*Otoritas Jasa Keuangan*, Financial Services Authority of Indonesia). Commercial banks are required to increase their lending to micro, small and medium-sized enterprises (MSME) to 20% of their total portfolio by 2018. Although this provides a major stimulus to smallholder lending, commercial banks continue to face several challenges in providing such financing.

In the context of the traditional risk–return relationship, smaller value players like palm oil smallholders are subject to the highest systematic risk. This includes weather and natural disaster-related risks, pest- and disease-related risks, the inability to hedge against price and foreign exchange rate-related risks, as well as idiosyncratic risk perceptions. Smallholders are thus classified as having a high risk profile; they also do not have the means or skills to mitigate risks, let alone have the power to transfer risk along the chain. Coupled with a frequent lack of collateral and adequate financial buffers, this represents a major obstacle to affordable finance, one that can only in part be circumvented by relying on government-sponsored programs (such as low interest rates, as offered by the KUR program (*Kredit Usaha Rakyat*, People’s Business Credit), explained later in this section).

Another reason for banks’ reluctance to finance smallholders is high operational costs. These costs are the result of several factors:

- The infrastructure to maintain a banking network is significantly higher than for other sectors more concentrated around urban areas. Large state-owned banks (Bank Mandiri, BRI and BNI) and regional Indonesian banks (BPDs) have vast branch networks in rural areas, allowing the servicing of large numbers of smallholders, although this comes at the expense of profitability and a lean cost structure.
- It is very expensive for individual banks to differentiate low-risk agribusinesses from high-risk agribusinesses. Creditworthiness of stakeholders in this sector is scarce, so the relative cost for individual risk assessments is high, and the quality of information about agribusinesses is poor.

- Collateral collection costs are high compared to other sectors.

To overcome current obstacles and provide financing to smallholders in a scalable manner, banks will need to develop a cost-efficient infrastructure (for example, agent banking via cooperatives) as well as the capabilities to assess and manage credit risks for individual farmers.

3.1.3 Impact investors

Offering different types of financial products, such as green bonds, guarantees, and investments in sustainable projects, a growing number of international impact investors are targeting smallholder investments that combine a decent economic return with ESG impact. An example of this is the Althelia Climate Fund (ACF), which funds climate change mitigation projects potentially involving large groups of smallholder farmers and, preferably, projects aimed at Reducing Emissions from Deforestation and Forest Degradation (REDD+). ACF includes ESG and certification standards in their investment strategies. Another example is the Tropical Landscape Finance Facility (TLFF), explained in more detail in Section 3.2.3.

3.1.4 Development Finance Institutions

Development Finance Institutions (DFIs) are becoming increasingly active in smallholder finance and have developed several innovative financing schemes which target oil palm smallholders. One example is FMO and IDH’s Smallholder Finance Facility, discussed in more detail in Section 3.2.4.

3.1.5 Government

The Government of Indonesia provides replanting subsidies to smallholder farmers, through the CPO Fund (BPDP, *Badan Pengelola Dana Perkebunan*, Indonesian Oil Palm Estate Fund).

Through this scheme, farmers can apply for a replanting subsidy of IDR 25 million per hectare. The remaining part of the loan must be provided by a bank. One of the requirements is that farmers are ISPO (Indonesian Sustainable Palm Oil) certified; another is that funds are managed by an approved bank. The scheme is operational and has been implemented in Riau, where 135 farmers (with land spanning 270 ha) have received

replanting loans from Mandiri Syariah (41% of the total amount subsidized by the CPO Fund) with a loan tenor of 11 years. AsianAgri provides the replanting extension services.

3.2 Case studies

This section presents case studies of existing innovative financing schemes which aim to enhance the sustainability of smallholders and their livelihoods in the oil palm sector. Due to reasons already discussed, these case studies focus only on Indonesia. A tabulated summary of selected financing schemes is provided in Annex 2.

3.2.1 Case studies: Private sector

3.2.1.1 Golden Agri-Resources' 'Innovative Financing Scheme'

Indonesia's largest palm oil company, Golden Agri-Resources (GAR), initiated its 'Innovative Financing Scheme' (*Skema Inovasi Pembiayaan*) for palm oil smallholders with three aims: to facilitate palm oil farmers' access to finance and corresponding education and training; to ensure Good Agricultural Practices (GAP); and to increase palm oil yields, ultimately promoting palm oil farmers' livelihoods. The Indonesian Government, the Indonesian Economist Association and the Indonesian Chambers of Commerce (KADIN) under the umbrella of Partnership for Indonesia's Sustainable Agriculture (PISAgro) are all partners in the program.

The so-called 'Innovative Financing Scheme' involves government support to legalize land ownership, high quality agronomic practices and seed selection, increased yields due to usage of higher quality crops, ISPO certification, subsidized interest rates, and four years' compensation during the production gap resulting from replantation. So far, 450 farmers in Riau (covering 1200 ha) are participating in this scheme (Tropical Forest Alliance 2020 2017) and GAR is planning to expand the scheme to other areas (Golden Agri 2016).

The initiative targets one million smallholders independent from larger corporations or mills, who represent more than half of the palm oil smallholders in Indonesia. It focuses in its first

implementation phase on the region of Riau in Sumatra, with the intention to extend to other areas. Financing for replanting will be facilitated, to meet the need for replanting which has arisen from inferior seeds used in prior planting, which resulted in low productivity and marginal yields. The initiative aims to increase smallholders' yields from 2–3 tons to 5–6 tons per hectare, and to sustainably mitigate further agricultural land development and expansion.

The financing scheme intends to encourage and support independent smallholders to collectively organize themselves more efficiently, by means of them establishing cooperatives. Long-term agreements with GAR's supplier mills can be facilitated through these cooperatives, as well as the clarification of land titles through governmental certification programs. Most importantly though, the initiative enables the approval of palm oil replanting loans for these cooperatives, together with alternative income generation for smallholders during the unproductive period before the replanted trees start to generate fruit.

3.2.1.2 Musim Mas' 'Indonesia Palm Oil Development Scheme for Smallholders'

In 2015, the palm oil company Musim Mas, in partnership with the International Finance Corporation (IFC), initiated a comprehensive program called the 'Indonesia Palm Oil Development Scheme for Smallholders' (IPODS), with the aim of developing and demonstrating a replicable and scalable business model for sustainable palm oil by independent smallholders.

It is the largest independent smallholder project in Indonesia, targeting by December 2020 to have registered 12,000 independent smallholders for the program, and 2000 independent smallholders certifiable under RSPO, ISPO and ISCC (International Sustainability and Carbon Certification). Of the 2000 certifiable smallholders, at least 500 farmers should be integrated in Musim Mas supply chains for traceable, certified CPO. Through the provision of technical training on Good Agricultural Practices (GAP) and Better Management Practices (BMP), access to certified markets and affordable credit, the program supports independent smallholders to enhance the sustainability and profitability of their production practices (Musim Mas 2007).

3.2.1.3 PT Perkebunan Nusantara XIII’s ‘Oil Palm Replanting Program Independent Smallholder Farmers’ scheme

An example of an innovative financing scheme implemented and established by the government-owned plantation company PT Perkebunan Nusantara XIII (PTPNXIII) is the ‘Oil Palm Replanting Program Independent Smallholder Farmers’ (OPRPISF) scheme in West Kalimantan. It targets independent smallholders, and aims at increased productivity and yields through the provision of affordable credit.

OPRPISF’s objectives include the implementation of GAP, the facilitation of high quality input and the provision of long-term replanting finance for independent smallholders (see Figure 1), with the ultimate objective of increasing smallholder productivity.

The OPRPISF scheme, established with the PISAgro Palm Oil Working Group led by Sinar Mas in 2014, is built on the model of PTPNXIII’s *Revitalisasi* program for palm oil smallholders in West Kalimantan. The *Revitalisasi* program was one of the first replanting schemes in Indonesia, targeting only smallholder plasma plantations. Both schemes share a common focus on rehabilitation and renovation (RandR) of

smallholdings, aiming to increase their productivity and sustainability, as well as the livelihoods of smallholders. The *Revitalisasi* program schemes provide managerial and agricultural advice, as well as facilitate inputs and finance. Total investment into the PTPNXIII *Revitalisasi* program scheme is USD 75 million with an absolute guarantee by PTPNXIII. The aim is to revitalize 15,000 ha of palm oil plantations in Indonesia (Rabo International Advisory Services B.V. 2016b). Replanting first began in 2007 and was funded by BRI Agro (Rabo International Advisory Services B.V. 2016a). Smallholders see an investment under the PTPNXIII scheme of USD 3200/ha, with a corresponding repayment period of 10 years at an interest rate of 7–12.5% (Rabo International Advisory Services B.V. 2016b).

3.2.2 Case studies: Commercial banks

3.2.2.1 CIMB Niaga

CIMB Niaga, like many other large commercial and state-owned banks in Indonesia, has a large loan exposure to the oil palm sector, mainly due to the corporate loans it provides to mills and plantation companies (Profundo 2017). Although the exact figures of CIMB Niaga’s palm oil loan portfolio are not available, the 2016 annual report for the CIMB group indicates a 5% exposure to

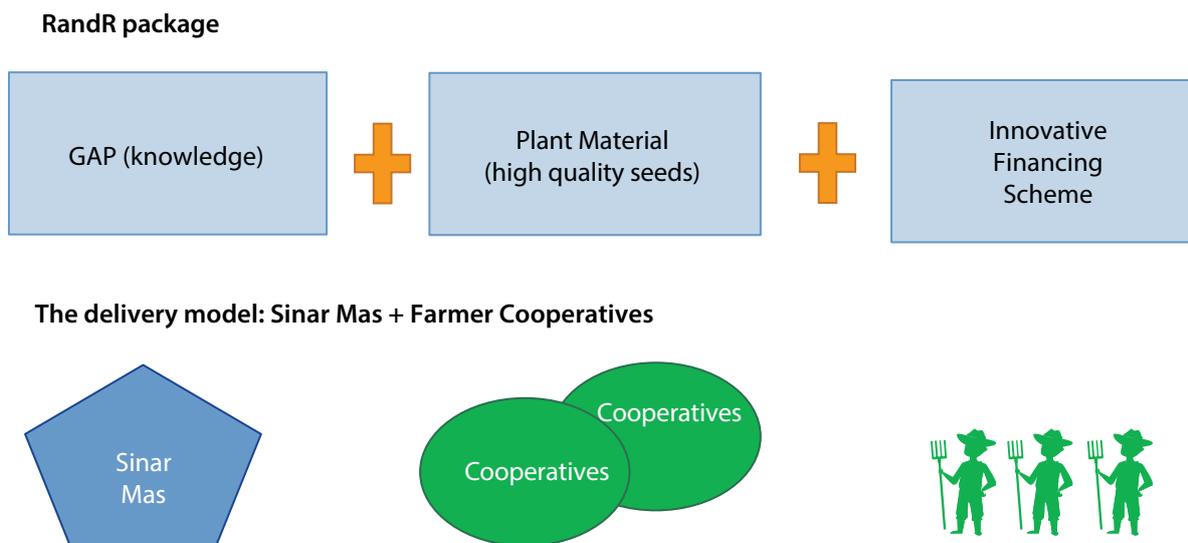


Figure 1. PT Perkebunan Nusantara XIII’s ‘Oil Palm Replanting Program Independent Smallholder Farmers’ Scheme.

Source: Rabo International Advisory Services B.V. (2016). *Rehabilitation and renovation of crop trees in cocoa, coffee and palm oil*, a final report.

the palm oil sector. These loans are used primarily for working capital and capital expenditures. CIMB Niaga generally has no control over the farmers supplying the mills, which presents a major credit risk to the bank. Therefore, CIMB Niaga is currently in the process of developing financial products and services specifically targeted at eligible individual smallholder farmers, through a dedicated micro-credit department. However, these financial products are still strongly reliant on the presence of hard collateral, as well as external credit enhancements (such as mills acting as guarantors), and thus are more comparable to traditional MSME lending.

3.2.2.2 Bank Mandiri

State-owned Bank Mandiri is one of the largest lenders to palm oil plantations, with a IDR 48.9 trillion loan portfolio (approximately 9% of its total loan portfolio) exposed to the palm oil sector (The Jakarta Post 2017). Similar to CIMB Niaga, Bank Mandiri's product suite is mainly targeted at large plantation companies. However, short-term products are also on offer for plasma farmers through partnership programs. In an attempt to address long-term financing needs, Bank Mandiri has started to offer replantation credit facilities (*Kredit Pengembangan Energi Nabati* (KPEN) and *Revitalisasi Perkebunan* (RP)) with government-subsidized interest rates covering the production gap between replantation and first production, with a view to accelerate the development of smallholder plantations (Bank Mandiri 2017). The facility has various requirements, such as a plantation business license in accordance with applicable provision and corporate guarantees. It similarly relies on the presentation of eligible collateral. The facility is offered through the KUR program (*Kredit Usaha Rakyat*), a micro-credit program based on government-sponsored subsidies targeting micro entrepreneurs (CNN Indonesia 2017).

3.2.2.3 BRI Agro

Another bank with significant exposure to the palm oil sector is BRI Agro, the largest disbursing bank for micro and small business loans under the KUR program in 2016 (Bank BRI 2016). Under the KKPA and the KUR program, BRI Agro has developed a consumer business product to support smallholders with palm oil replanting. In 2016, BRI Agro signed a Memorandum of

Understanding with the palm cooperative Berkat Ridho Kopsa, with a view to financing the replantation activities of hundreds of independent smallholders (covering approx. 500 ha of land) in Riau province. By facilitating farmer training in plantation management as well as by promoting GAP, this initiative provides a basis for innovative financing solutions to address independent smallholders' current lack of affordable long-term finance (PISAgro 2016). Notably, the chosen location of Riau province has a large presence of peatland, which leaves relatively little room for expansion. Efforts will therefore have to focus on intensification, in order to generate higher production yields from existing plantations on mineral farmlands.

Like Bank Mandiri, the facility of BRI Agro is structured with a 'step-up' interest rate. This sees farmers paying a (lower) KUR interest rate when replanted trees are immature, before switching to the commercial rate when trees have reached full production. In this scheme, farmers are also economically supported to meet their daily expenses during the production gap (receiving a compensation fee of around IDR 500,000 ha/month). However, the entity which will take responsibility for this income gap – either through financing or salary – remains unclear.

3.2.3 Case study: Impact investors – Tropical Landscapes Finance Facility

The Tropical Landscapes Finance Facility (TLFF) is a finance vehicle designed to provide Indonesia with long-term financing for landscape protection and rural livelihoods (unpublished internal document by ADM Capital 2017). Founded in 2016, the objective of the TLFF is to strengthen long-term sustainable land use and renewable energy, in order to mitigate prevailing deforestation in Indonesia and counteract carbon emissions. The TLFF interacts with public and private entities, providing long-term financing schemes to smallholders to promote their sustainability as well as productivity in the Indonesian agricultural sector. Additionally, the vehicle aims to facilitate rural access to energy, land restoration and renewable energy.

The initiative is a cooperation of ADM Capital, ADM Capital Foundation, BNP Paribas, the UN Environment Program and the World Agroforestry Center (ICRAF) (unpublished internal document

by ADM Capital 2017). It consists of two entities, the Tropical Landscapes Loan Facility (TLLF) and the Tropical Landscapes Grant Fund (TLGF) (Figure 2). While the TLLF facilitates access to long-tenor credit for eligible projects, the TLGF enables service support of the TLLF.

The purpose of the fund is to promote long-term integrated landscape management (ILM). In traditional landscape management, stakeholders address globally relevant challenges such as climate change, poverty and loss of biological diversity in an individualistic and segregated manner. By contrast, ILM is a more holistic approach of landscape management, recognizing the interlinkages between these challenges. As such, it integrates all involved stakeholders in order to leverage actions and to achieve long-term reforms in addition to short-term objectives. This multidisciplinary approach addresses and integrates factors such as economic, social and environmental objectives, into the usage and management of landscapes. Actions within the scope of ILM can range from simple facilitation of knowledge and information sharing, to coordination and joint implementation of actions which thereby benefit from synergy effects (EcoAgriculture Partners

2013). By facilitating long-term cooperation amongst multiple stakeholders, ILM acts as a mediator between the public and private sector, whilst also considering local and individual interests. Such a multidimensional landscape approach is necessary; increasing smallholders' productivity alone does not result in increased environmental sustainability, particularly not when productivity increases are the result of an expansion of acreage.

The TLFF has an initial fund of USD 10 million, allowing for a typical tenor of 10–15 years per loan. After ADM Capital identifies eligible projects in sectors such as palm oil, wind or solar energy, long-term loans, financed by BNP Paribas, are then issued. Projects eligible for TLFF funding can be both innovative or established. When projects have reached a certain size and begin to generate economic returns, the loans are converted to the Tropical Landscape Bond (TLB) program, to ensure long-term funding as well as recyclable capital for TLFF. The bonds issued through the TLB can be classified as green bonds. This kind of bond is an innovative form of debt investment instrument that has experienced rapid growth in recent years. Green bonds are explicitly designated

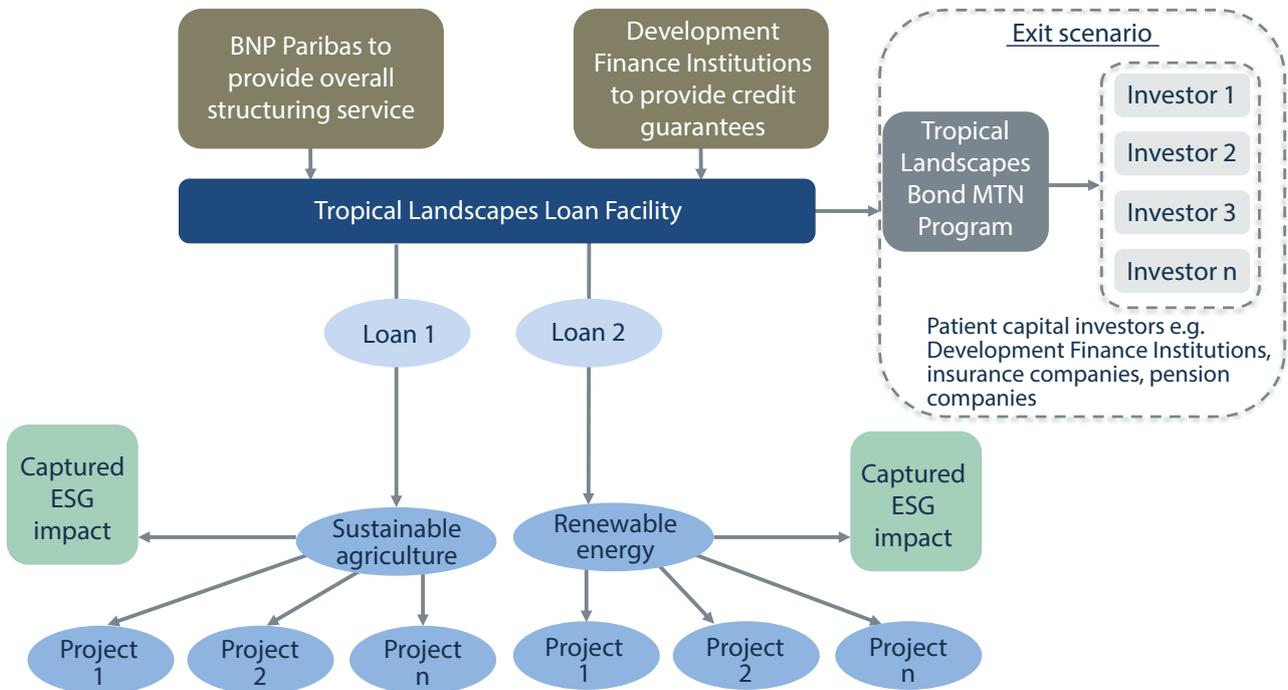


Figure 2. Tropical Landscapes Loan Facility structure.

Source: ADM Capital (2017). *The Tropical Landscapes Finance Facility*, an unpublished internal document.

for the financing of projects with a strong environmental and sustainability focus, such as renewable energy projects, or projects designed to mitigate impacts of climate change. Green Bond Principles have been defined, in order to determine standard guidelines and promote integrity. Although they are non-binding, these principles provide a benchmark for sustainable investment.

The TLFF and TLB initiative combines a novel twofold approach to mitigate underlying credit risk. In the initial phases of TLFF funding, when projects are expected to present high credit risk due to their early stage of development, they are collateralized on a project-specific base. When the projects reach the stage where they are creating sustainable cash flows and credit risk is significantly lower, more investors will be willing to invest. The replanting loans will then be 'repackaged' and bundled into green bonds, which ADM Capital will sell to investors like pension or insurance companies or DFIs, through the BNP Paribas network.

At present, the scheme is at an early stage of development; thus far it has only been implemented for plasma farmers supplying GAR's supply shed² in Riau. Independent smallholders are excluded from the scheme, as they do not have the contractual obligation to sell their FFBs to GAR after replanting. Currently farmers in this scheme are grouped in a portfolio. Eighty percent of the portfolio is funded by green bonds (issued by the fund to impact investors with a 7% interest rate), whereas 20% is funded by investors (high-risk equity). As this scheme represents an opportunity for GAR to attract large-scale, long-term replanting financing to groups of smallholders in its supply shed, GAR will provide a corporate guarantee on the issued bonds.

3.2.4 Case study: Development Finance Institutions – Smallholder Finance Facility

The Smallholder Finance Facility (SFF) is a joint initiative of the Dutch Development Bank FMO (*Nederlandse Financierings-Maatschappij voor Ontwikkelingslanden N.V.*) and the Dutch foundation for sustainable trade IDH (*Initiatief Duurzame Handel*). It provides funding for value chain activities; co-financing smallholders together with supply chain actors, with the ultimate aim of improving their productivity and thus their livelihoods. The initiative aims to invest up to EUR 50 million (EUR 45 million from FMO and EUR 5 million from IDH, both funded by the Dutch Government) into upstream supply chain projects over the next five years, providing a combination of technical assistance, conditional grants and debt instruments. It acts through supply chain partners that otherwise abstain from investments in smallholders due to their liquidity constraints and risk aversion. The initiative has a broad geographical reach, including Latin America, sub-Saharan Africa, and South and Southeast Asia.

Behind the SFF lies the motivation to increase smallholders' livelihoods as well as their farm productivity and profitability. The intended results are to be achieved through a combination of GAP, facilitating access to quality inputs (fertilizers, pesticides and seeds) and by replanting or rehabilitating crops. Finance to implement these activities will also be facilitated (IDH 2017).

The SFF's strengths lie in its cooperation with traders and processors who are experienced in sourcing commodities in emerging and developing markets, as well as the connection it has made between sector-related product requirements and their supplying smallholders. The fund is structured to directly share the risks of smallholders' investments with partners further down the value chain. Companies involved can be active in coffee, cocoa and palm oil supply chains, for example, and are typically experienced in cooperating with smallholders on training or financing (IDH 2017).

² Supply sheds are geographic areas where mills and refineries draw their supply.

4 Potential investment schemes for long-term financing

In Section 3, several cases of innovative financing that are currently being implemented have been discussed. All these schemes are exclusively for plasma farmers, except for GAR's 'Innovative Financing Scheme' described in Section 3.2.1.1. In Indonesia, the most urgent sustainability issue facing the sector at present, is the large-scale replanting requirements of tens of thousands of smallholders. This section therefore looks to summarize the current challenges that financial service providers (FSPs) face in providing oil palm smallholders the long-term finance they require for replanting. Following this, another innovative financing scheme under development, into which the discussed solutions are embedded, is presented. Finally, the section concludes with an analysis of the changes required in institutional, market and supply chain factors in order to implement the proposed innovative financing schemes.

4.1 Challenges

Existing financing schemes usually provide financing to smallholders through other value chain actors, like palm oil mills, since directly financing smallholders is too risky and costly. International and domestic FSPs both face challenges when it comes to bringing affordable long-term financing to independent smallholders. These challenges can be briefly summarized as follows:

- **Small ticket size and limited ability to mitigate associated risks:** Providing loans on an individual basis is too costly and risky for FSPs. When granting credit to their clients, banks and other financial institutions face fixed costs like loan origination, credit scoring and monitoring costs. Where large corporate clients are concerned, banks are willing to incur these costs as they represent an insignificant percentage of the total loan amount. The same logic cannot be applied to smallholder replanting finance, where average ticket size is in the range of USD 2,000–4,000/ha. Additionally, local FSPs, who are geographically closer to farmers, have limited tools to assess and analyze risks related to replanting.
- **Lack of creditworthiness:** This stems from the challenging requirement for smallholders to provide collateral to secure lending, as well as a lack of reliable information on farmers (profile, capabilities, collateral, ownership and repayment capacity), and the lenders' inability to extend loans based solely on internal cash flow models.
- **High credit risk during unproductive period after replanting:** The time lag between first planting and first production requires a grace period of 3–4 years in which the borrower faces a cash shortage and higher risk of default.
- **Long tenor and ability to mitigate associated risks:** Looking at the repayment capacity of farmers and assuming a repayment period that includes a 3–4-year grace period, loan tenors are in the range of 10–14 years. FSPs have limited ability and generally insufficient expert knowledge to monitor agricultural and management risks at a smallholder level.
- **Currency risks associated with lending to smallholders in IDR:** In particular this affects impact and international investors willing to provide long-term financing to support replanting. The Bank of Indonesia's prudence requirements on foreign currency denominated loans (Bank Indonesia 2014) impose a strict ratio of 20:80 between a borrower's foreign currency denominated short-term assets and their liabilities. As a result, foreign FSPs and impact investors, unable to provide their loans in IDR, are at a disadvantage in providing financing to mills and smallholders; only large mills that sell to exporters settle their transactions in foreign currency, and these rarely lack access to finance.
- **Limited aggregation of farmers:** Independent smallholders are often geographically scattered

and not formally organized. The lack of aggregation points poses challenges in terms of loan delivery and monitoring in rural areas; smallholders need first to be grouped at the mill, co-op or farmer group level. Similarly, it also restricts the possibility of gathering data from farmers at a collective level.

- **Sustainability criteria:** Compliance with sustainability criteria during production is increasingly required by FSPs when providing long-term finance to smallholder farmers. However, smallholders often lack knowledge and training about how to fulfill such sustainability requirements during production.

4.2 Proposed solutions and schemes for long-term financing

So far, very few long-term initiatives have been successfully implemented, and even fewer at large scale. Recent initiatives in the palm oil financing landscape have indicated that the key to effective independent smallholder financing programs lies in value chain-wide approaches, based on commercial sustainability, rather than government-related support. This paper proposes six mechanisms in response to the abovementioned challenges which will allow FSPs to provide commercial long-term replanting loans to independent smallholders:

- **Data collection, mining and monitoring:** Given the remote locations of many independent smallholders, FSPs are constrained in their ability to assess and monitor end clients. However, leaps forward in data collection technologies now allow FSPs to reduce their dependency on internally generated data. They can now outsource both data collection and data mining, especially cash flow projections and individual credit scoring decisions, as well as monitoring.
- **Portfolio approach:** FSPs can reduce their large numbers of client acquisitions and loans by relying on agency distribution agreements with KUDs (*Koperasi Unit Desa*, Village Cooperative System). Branchless banking schemes, whereby KUDs act as agents for the bank, also offer the possibility of establishing digital payment systems, thereby increasing overall financial inclusion.
- **Supply chain approach:** Investment schemes for sustainability certification and replantation could be designed by shifting a portion of credit risk down the value chain, onto larger, more financially sound entities. For example,

mills and processing companies could act as guarantors for smallholders, as well as provide offtake agreements between smallholders and buyers, resulting in more affordable financing costs for end borrowers. In turn, the mills would themselves benefit, from a stable, RSPO-certified supply shed.

- **Income diversification sub-scheme:** Alternative income-generating activities remain an essential component of every replantation scheme, as smallholders face cash shortages during the initial 3–4-year production gap after replanting. Land clearing and preparation for replanting require external labor; instead of outsourcing these costs to a replanting company, the loan facility could be structured in a way to include a salary component to be paid to farmers to work on their own land. Other examples include livestock breeding and fattening schemes, the sale of tree trunks and the intercropping of chili and cassava.
- **Cost of living stipend:** In order to compensate for lost income during the unproductive replanting period, banks could elect to include a cost of living stipend in their loans to qualified farmers.
- **Sustainability criteria:** Many Indonesian banks have been accused of lagging behind in terms of incorporating sustainability criteria in their credit decisions. Key performance indicators addressing ESG criteria – regarding climate, ecosystem integrity and landscape conservation, species protection and improved livelihoods – should be defined and incorporated into the banks' credit risk frameworks (see also later in Section 5.2).

An example of a potential replanting financing scheme, which has not yet been implemented but in which the above solutions are embedded, will now be presented and elaborated on.

In contrast with, for example, ADM Capital's fund for replanting, this recently launched 'Replanting Financing Scheme' in Jambi province (illustrated in Figure 3, developed by Financial Access and SNV), targets individual smallholders who are part of a relatively well-structured supply chain, who are members of KUDs and who have a collective need for tree replanting. Financial Access has developed a financial model to estimate the impact of key financial, household and production variables that determine the cash flows of oil palm smallholder households. Financial Access has developed a cash flow model that takes into account supply chain, market and agronomic data as well as farm- and

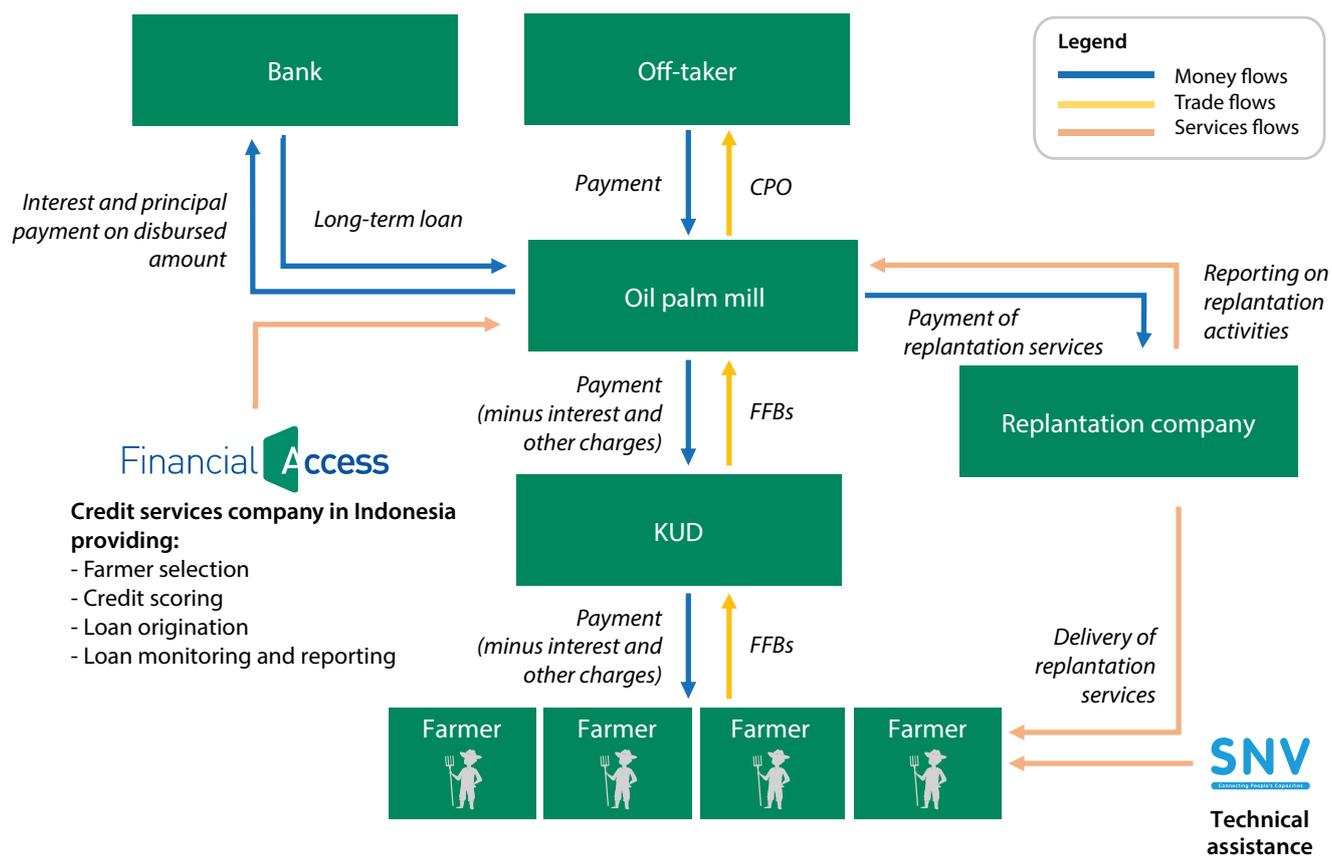


Figure 3. Investment structure design of the 'Replanting Financing Scheme'.

Source: Financial Access Consulting Services (2017). *Replanting Financing Scheme*, an unpublished internal document.

household-level data to estimate the financing need and potential repayment capabilities of each farmer. By means of statistical and scenario analysis, variables with the highest impact on cash flow are identified and ranked, which in turn represents the basis for the development of a non-historical credit scorecard. Assessments are based not only on the creditworthiness of the farmer, but also on environmental risks associated with replanting, for which data collected via satellite and drone imagery are used.

Once data has been collected and analyzed, farmers are segmented. The intention is to select cooperatives and farmers that are most attractive for commercial financing, as well as to select those that would most benefit from training and technical assistance. Based on this segmentation, Financial Access focuses on realizing financing for the most creditworthy farmers, and SNV focuses on providing technical assistance programs, specifically designed to meet the needs of farmers with the potential to become bankable over time. Financial Access will then present pre-qualified pools of fully assessed loan

applications to lenders (banks, impact investors, investment funds). The result is that lenders will be offered a large pool of processed loan applications with an attractive risk profile, saving them significant costs and risks. This is expected to result in financing for selected smallholder farmers at lower interest rates.

The technical assistance on offer is not limited to training and support to improve agricultural practices; it also includes interventions to create additional income streams for farmers during the replanting period. The costs of such interventions constitute a relatively small percentage of the replanting costs, and can therefore be mostly absorbed in the replanting loans. Alternatively, cost-of-living stipends can be included in the loans to ensure a minimum income for the farmer during the replanting period.

This financing scheme signifies a low-cost transformation of farmers' bankability, facilitating access to long-term capital, and offering investors and banks an attractive investment opportunity, at low cost and reduced risk.

5 Conditions enabling innovative financing models to foster sustainable and inclusive development

Bringing sustainable long-term finance to oil palm smallholders is a major challenge. Smallholders face difficulties in meeting the expected requirements of sustainable production, collateral and sufficient cash flow, while FSPs are constrained by the high risks involved in lending to smallholders. This section provides insight into the key conditions required in order to overcome these bottlenecks and create an enabling environment for sustainable oil palm investments.

5.1 Support and incentives for smallholders to meet sustainability requirements

Compliance with GAP, RSPO certification, no-deforestation, or other ESG criteria, is increasingly becoming a requirement of FSPs operating in the palm oil sector. By linking access to finance to sustainable operating practices, banks and investors can create strong incentives for companies and producers to take necessary action towards responsible production and sourcing (WWF 2015). However, smallholders often lack the knowledge and capital they need in order to meet these requirements. Adequate measures need to be in place to support smallholders to transition to sustainable production systems and demonstrate their compliance with the relevant criteria.

5.1.1 Good Agricultural Practices

Adherence to Good Agricultural Practices (GAP) is a minimum requirement for responsible investments in palm oil production. GAP typically covers agronomic practices related to fertilizer application, pest and disease management, selection of planting material, harvesting and transport; and helps to ensure acceptable standards of productivity, sustainability and quality (Dakulah and Othman 2015). Guaranteed access to technical assistance and training in GAP, as well as reliable

and affordable access to good quality inputs, are key conditions to support the uptake of GAP among smallholder farmers (Perez et al. 2016). Organizing farmers in functioning smallholder organizations is a prerequisite for delivering such support services (IFC 2013). Governments, companies, NGOs and well-functioning cooperatives have programs in place to provide technical assistance to oil palm smallholders, but the available resources and delivery mechanisms are often insufficient or ineffective (Molenaar et al. 2010). Where critical gaps exist, agreements need to be reached on who will be responsible for improving technical assistance, infrastructure, and input distribution networks; commitments also need to be secured towards funding the necessary investments.

5.1.2 RSPO certification

Although GAP can help to mitigate the social and environmental risks associated with oil palm cultivation, innovative financing schemes which aim to support truly sustainable and inclusive palm oil supply chains need to go beyond GAP requirements, and adopt more stringent ESG standards. RSPO (Round Table on Sustainable Palm Oil) certification is viewed by investors as the most influential initiative in promoting sustainability in the sector, and some have already incorporated RSPO certification into the terms and conditions of their investment loans to producers (WWF 2012a). Achieving certification requires skills in management, administration, quality control, marketing and service delivery; these skills are difficult for smallholders to develop without support. Likewise, the high costs associated with RSPO membership, training, certification and monitoring are beyond the financial means of most smallholders, and may prevent their participation in RSPO certification (Nagiah and Azmi 2012). Smallholder RSPO certification entails costs in the range of USD 1.19–34.66 per hectare (WWF

2012b). Independent smallholders face additional challenges, as they need to organize themselves into formal groups and set up a group management system in order to meet certification requirements (IFC 2013). Imposing certification standards on smallholders, as a condition for access to finance, needs to be accompanied by adequate support mechanisms to address the identified barriers. Failure to do so will only reduce smallholders' ability to improve their production practices, thus excluding them from sustainable supply chains.

In recognition of these challenges, the RSPO set up the RSPO Smallholders Support Fund (RSSF) in 2013, to improve smallholders' access to RSPO certification, and thus promote sustainable agricultural practices and increase the production of Certified Sustainable Palm Oil (CSPO). The RSSF provides financial resources to cover the costs of smallholder certification projects. Funds are intended to support training, project management, environmental assessments, audits, and the establishment of a documentation system (Roundtable on Sustainable Palm Oil 2017) (see Box 3).

Alternatively, the costs of technical assistance, and additional efforts to comply with RSPO criteria, can be covered by a CPO mill or external service provider on a commercial basis (IFC 2013). Instead of imposing certification on lenders as a strict requirement for credit, banks can also give discounts on loans if producers commit to certification. This is already common in Malaysia, and is slowly gaining traction in Indonesia.

5.1.3 Deforestation-free production

Studies highlight that access to finance is positively associated with the likelihood of farmers expanding oil palm land (Alwarrizti et al. 2016). While oil palm expansion can help to enhance smallholder production and income, it is also a major driver of deforestation and greenhouse gas emissions (Broich et al. 2011a; Carlson et al. 2012b; Abood et al. 2014). It is estimated that during the period 1990–2005, approximately 60% of oil palm expansion in Malaysia was at the expense of forest cover (Abazue et al. 2015), with similar estimates found for Indonesia (Khor et al. 2015). To ensure that potential financing models are successful in fostering sustainable and inclusive palm oil supply chains, it is crucial that conditions are in place to prevent the undesired effect of deforestation. Although many certification schemes incorporate criteria which address forest conversion, certification alone may not be sufficient to ensure deforestation-free supply chains (Smit et al. 2015). Often additional conditions need to be in place, as outlined below.

- **Support for sustainable intensification:** It has been widely documented that oil palm smallholders in Indonesia underperform in terms of productivity (IFC 2013). Improving yields on existing plantations can reduce a farmer's need for more land, and hence avoid further encroachment into forested areas. In addition, higher yields will help increase smallholder cash flows and improve the return on investment. There is high potential to increase smallholder yields by implementing

Box 3. The RSPO Smallholders Support Fund

The RSPO Smallholders Support Fund (RSSF) is funded from 10% of the revenues generated from the sales of certified sustainable palm oil. The RSPO certified about 109,400 individual and scribed smallholders in their last reporting period (up to June 2016) (Roundtable on Sustainable Palm Oil 2017). Legal entities that have sufficient experience working with smallholders, and promoting the production of sustainable palm oil, can apply for the funding. Funding can be used to cover:

- The preparation costs associated with certification, including payments for BMP training, infrastructure, documentation systems, and organizational strengthening (through the Smallholder Certification Project).
- Certification audit costs, including 100% of the audit costs of all potential certification processes of independent smallholder groups (through the Smallholder Certification Audit Cost Project). Pre-audit assessments are not included.
- Costs for projects and initiatives other than the above, including the development of tools that help smallholders comply with RSPO certification (through the Smallholder Impact Project).

GAP and replanting aging plantations.

Key areas in which smallholders often lack understanding are: efficient fertilizer and herbicide use; pruning and weeding rates; integrated pest management; and the use of high quality seeds (Soliman et al. 2016). It is estimated that training smallholders in better management practices could lead to a doubling in FFB productivity (Rainforest Alliance 2016).

- **Traceability and forest monitoring:** The implementation of a transparent traceability and forest monitoring system is another key element in ensuring that smallholders who receive credit adhere to no-deforestation standards. When implemented at the cooperative or mill level, such a system can help to detect changes in forest cover within a supply shed. The producers operating in that area can then be identified, and support and incentives can be provided to enhance the sustainability of their production practices, or steps can be taken to discontinue financing.
- **Effective landscape planning:** Although enhancing smallholder yields may reduce the need for expansion, it does not necessarily lead to more sustainable outcomes. By increasing the returns of oil palm cultivation, smallholders could be incentivized to further expand their landholdings to improve their economic status. For this reason, efforts to increase oil palm yields need to be coupled with effective landscape planning, as well as strict regulation and law enforcement (Daemeter Consulting 2015; Soliman et al. 2016). A thorough landscape analysis and area zonation can help to guide sustainable agricultural expansion to degraded lands, and avoid forest clearance in critical deforestation zones.

5.2 Land tenure security

A key bottleneck for smallholders trying to access formal credit is a lack of collateral resulting from their lack of secure land tenure. Traditionally, banks and other financial institutions in Indonesia require a land certificate (or collateral with equivalent stature) before considering whether or not they will provide finance to farmers or small enterprises. However, smallholder land tenure is a historically complex issue in Indonesia. In many regions, communal property rights exist; land ownership is recognized by other villagers without printed documentation. In some cases,

farmers can obtain a *Surat Keterangan Tanah* (land certificate) from the village head, but this has a lower legal status than a land title. In informal lending schemes, or for small loan amounts, such a document may be accepted, but it is usually not recognized as full collateral by formal FSPs. The process of obtaining formal land titles is often very complex and expensive for farmers (Molenaar et al. 2010). In an oil palm cultivation region of Sumatra, the process of checking the land, interviewing neighbors and other stakeholders, and issuing official documentation is manually carried out by official agents. This comes with average costs of USD 250–450 per land holding, costs which are borne entirely by the farmer (Landmapp, personal communication, 2016). As a consequence, many smallholders cannot access long-term replanting finance.

Governments can play a crucial role in resolving tenure issues by simplifying procedures and reducing the costs for smallholders to obtain land titles. The *Larasita* program has recently been launched by the Government of Indonesia to accelerate land registration by providing mobile certification units. NGOs and companies can also play their part, by providing the necessary funds or conducting land mapping exercises. Smallholders with formal land titles will not only have better access to long-term financing, they will also be better protected against land grabbing or land conflicts connected to inheritance. Efforts to enhance the formalization of land titles can be complemented by the development of new mechanisms in the financial sector which allow farmers to lend against crops in the ground. In addition, FSPs can be encouraged to accept a more flexible range of collateral, and offer repayment terms that meet smallholder needs (Molenaar et al. 2010).

5.3 Market linkages between smallholders and mills

The price farmers receive for their FFBs is one of the most important determinants of oil palm smallholder incomes, and therefore is a key factor in their cash flows. In Indonesia, the regulated FFB price is set by provincial governments, based on an official formula linked to average CPO prices on global markets. FFB prices are usually reported over the radio and published on regional government websites, but these websites are not

always up to date or easily accessible for farmers. As a result, many smallholders have limited knowledge of the set price, placing them in a weak position to negotiate chains (Daemeter Consulting 2015).

The government price is set pre-transaction costs. The net price received by farmers can be much lower and depends on various factors, in particular, FFB quality, which is determined during a grading process at the mill. An extensive study by IFC (IFC 2013) found that smallholders in Indonesia have limited awareness of these quality standards, the quality of their own FFBs, or how this might influence prices. In general, there was no direct communication with the mill on these aspects. Transparency in the grading process and in the calculation of FFB prices would provide greater incentives for smallholders to invest in improvements to their FFB quality, which would see them receiving a higher price for their produce. This would require short lines of communication between smallholders and CPO mills, as well as periodic and timely disclosure of the necessary information. One possible way to organize this would be to have regular meetings with smallholders to discuss price and quality issues.

The net FFB price received by farmers also depends on a critical step in the value chain between the farm and the CPO mill. The IFC study reports that smallholders who sell directly to a mill or to a cooperative receive higher prices for their FFBs than those who sell to traders (IFC 2013). Independent smallholders typically depend on traders to purchase and transport their FFBs to a CPO mill before the fruits over-ripen. Ideally FFBs need to be processed within 24–48 hours post-harvest. This poses supply chain challenges, particularly for smallholders in remote areas, where long distances to the nearest mill, poor quality roads and long waiting lines at the mill gates can cause significant delays in fruit delivery. Traders often operate territorially, creating a monopoly position in which smallholders are forced to accept low prices to ensure their FFBs are processed in time (Rainforest Alliance 2016). The average price tied smallholders receive for their FFBs when selling to a cooperative can be up to 33% higher than the price received by independent smallholders who sell to traders (Rainforest Alliance 2016). This shows that there is a high potential for increasing independent farmers' income from FFB sales by improving their market access. Promising strategies for creating direct links between smallholders and CPO mills are included in Box 4.

Box 4. Independent mills and mini-mills – the way forward?

For independent oil palm smallholders, it is often difficult to get direct access to a mill. One strategy to increase the offset possibilities for independent smallholders would be to allow the establishment of **independent mills** that do not own plantation land. Increased competition between mills would enhance their accessibility and potentially result in better prices, although this also depends on the availability of the crop and the extent to which a mill encourages the building of a supply chain relationship. Depending on the negotiation position of the smallholder, prices may continue to be dictated by the mills. The establishment of independent mills does not resolve the need to involve third-party transportation either, another aspect resulting in farmers receiving a lower price. Regardless, increasing competition in the processing market would change the incentive structure, and motivate mills to develop stronger, more constructive relationships with smallholders.

As smallholders are unable to source and process FFBs themselves, they cannot themselves be competition to mills on the CPO market. Few smallholders have been able to establish their own mill due to the high costs involved (USD 30 million). **'Mini-mills'**, requiring an investment of USD 2 million, are an exception and could be established by well-organized cooperatives. An advantage of setting up mini-mills is that once cooperatives succeed in entering the CPO market, companies can invest in smallholder support to improve plantation efficiency, in order to secure supply. In addition, constructing mini-mills that can undertake the first stage of processing, fruit digestion, will lead to efficiency gains in processing and logistics. Conversely, the introduction of mini-mills also entails significant social and environmental risks. Developing the necessary infrastructure and capacity to monitor effluents and prevent environmental pollution (e.g. retention ponds) will likely be a challenge. Additionally, failure of a mini-mill project due to mismanagement or external factors could result in high social and economic costs for the smallholder organization and its members (Molenaar et al. 2010).

5.4 Supporting FSPs to assess and manage risks

Despite strong demand for replanting loans from smallholder oil palm farmers in Indonesia and Malaysia, the financial market largely fails to meet this need, due to FSPs' lack of understanding of smallholder financing needs, as well as perceived high credit risks and operational costs. Access to farm-level financial and production data is needed to assess the bankability of farmers, understand credit risks, and support lending decisions. However, such data are not always systematically recorded, and adequate mechanisms for analyzing the data are often lacking. To overcome this bottleneck, tailored mechanisms need to be put in place to support FSPs in efficient large-scale collection and analysis of smallholder farm data.

Financial Access has developed a Credit Risk Scoring tool which estimates the impact of 25 financial, household and production variables on smallholder cashflows. It determines short- and long-term financing needs, and provides insight into future capacity to repay loans under a replanting scenario. The outcomes allow FSPs to better understand risks, and select the best performing farmers with the lowest credit risks. These bankable farmers can then be packaged into portfolios, enabling financial institutions to provide loans at scale and offer more affordable wholesale interest rates.

5.5 Enabling strong and effective smallholder organizations

Another key way to improve oil palm smallholders' prospects of being able to access long-term finance, is to aggregate them into strong and effective smallholder organizations. This can be done by strengthening existing cooperatives, or supporting farmers to set up new structures and management systems. Well-functioning cooperatives can play a crucial role in enhancing smallholder incomes and livelihoods, by providing their members with the necessary support and incentives to increase their productivity, access profitable markets and achieve certification. The cooperative unit provides the economies of scale required to negotiate better

prices for inputs and outputs, make investments in infrastructure, or in some cases, establish post-harvest processing plants to enable value addition. Additionally, effective cooperatives enable efficient provision of technical assistance, as well as the establishment of group certification systems (Molenaar et al. 2010; IFC 2013). To enable access to finance, cooperatives can serve as intermediaries between smallholders and FSPs, and play a role in managing finance distribution schemes and monitoring loans.

Despite the significant potential for cooperatives to contribute to smallholder development, in reality many palm oil cooperatives in Indonesia are weak and dysfunctional, failing to perform these tasks. Corruption, mismanagement, weak leadership, lack of funds, limited administrative capacity and political interests have often resulted in internal conflicts, and reduced institutional trust amongst their member farmers and business partners. As member farmers lose confidence in the cooperative, they tend to leave or become dormant rather than attempt to lobby the management for change. The underlying causes of these issues are complex, but include limited checks and balances in the cooperative structure, and a lack of guidance and support for cooperative members and leaders (Molenaar et al. 2010).

Tailored support mechanisms need to be put in place to build and strengthen palm oil cooperatives, and address the identified issues. Reforms at management level may also be required to increase transparency and accountability, restore trust among members and increase member participation. Specialized management skills training needs to be provided, particularly on effective leadership and collective financial and organizational management. To support access to certification, internal control systems need to be set up, to teach farmers about the principles and criteria of the certification schemes, prepare them for the auditing process and monitor compliance. Additionally, support can be provided for setting up loan distribution and monitoring schemes. Governments, mills, NGOs and FSPs can all play a role in providing technical assistance or funds towards cooperative development.

6 Conclusion

Smallholders systemically lack access to long-term finance, due to limited collateral, the high operational costs faced by lenders, and insufficient financial (and other) data for lenders to make well-informed credit decisions on smallholders' creditworthiness. Most of the innovative financing schemes presented in this paper have addressed these issues, but they have been developed or launched recently and at limited scale. It is therefore too early to determine which models are the most successful and determine potential 'best practice' for replication and scaling up, in order to reach the hundreds of thousands of independent smallholders in need of long-term financing. Banks have not yet addressed the challenges they face in a systemic manner, which continues to make smallholder farmers an unattractive target as a priority business segment.

The urgent need for oil palm replanting will largely determine what long-term financing to smallholders looks like over the coming years. With the exception of Mandiri Bank, which is interested in financing smallholder replanting via KUR financing, most Indonesian banks do not yet have the capacity and capabilities to meet this large

and growing demand for smallholder loans. The Indonesian Government has taken a number of steps to support replanting and provide financing, for example with the creation of the CPO Fund, providing replanting loans to farmers. However, the required scale of financing necessitates a much more integrated, programmatic approach, involving national and provincial government, the financial sector, farmer organizations, mills and all other stakeholders in the palm oil supply chain. Without active, large-scale support from the government, involving interest rate subsidies, loan guarantees, taxation and other measures, it is unlikely that the financial sector will be sufficiently incentivized and able to expand and scale up lending to smallholders, thus bridging this growing financing gap. Although the oil palm sector differs greatly between the two countries, the Indonesian Government could also learn from Malaysia. The Malaysian Government identified long-term financing as a key constraint for smallholder farmers early on, and as a result now has a number of successfully established, large, government-supported financing and grant schemes accessible to smallholders seeking long-term finance for expansion and replanting.

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Annexes

Annex 1. Overview of established institutions and instruments facilitating palm oil production in Malaysia and Indonesia

Institution and establishment date	Donor	Scheme	Purpose and/or activities	Outreach / outcome
Malaysia				
British Colonial Government. 1870s.	UK Government.		Import of first oil palm seedlings to Malaysia.	
French writer under British administration. 1912.			Development of first commercial plantation (1917).	2,600 ha of commercial plantation.
FELDA (Federal Land Development Authority). 1956.	Government of Malaysia/ World Bank (1956–1990).	Resettlement Scheme (1956).	<ul style="list-style-type: none"> • Loan system. • To provide support services, inputs, infrastructure and markets. • Settler families received land titles/ ownership. • Focused on smallholder oil palm/ rubber. 	<ul style="list-style-type: none"> • Total resettlement of 122,000 landless families. • 470,000 ha of smallholdings. • Raised smallholder household incomes, lifting 1 million people out of poverty. • Fluctuating market prices made it difficult for settlers to repay loans.
		Block system (1970).	To increase collective responsibility, efficiency, productivity, and product quality.	Farmers criticized unequal distribution of income and work skills.
		Share system (1985).	<ul style="list-style-type: none"> • To create a self-reliant rural community. • Farmers received fixed wage and dividends, title to house, small plot for subsistence farming, and share in plantation. 	<ul style="list-style-type: none"> • 81 resettlement schemes. • 13,234 settlers. • Settlers felt like wage laborers and had difficulties repaying loan.
FELCRA (Federal Land Consolidation and Rehabilitation Authority). 1966–1997.			<ul style="list-style-type: none"> • Supported productivity and livelihood improvements of rural families not covered under FELDA. • Rehabilitated unsuccessful state-managed schemes. • Consolidated unused 'idle' land. • Central management of land by local communities in return for bi-annual dividends. 	173,000 ha of plantation land (2016).

continue to next page

Annex 1. Continued

Institution and establishment date	Donor	Scheme	Purpose and/or activities	Outreach / outcome
			<ul style="list-style-type: none"> Communities encouraged to participate as laborers or contractors. Support through crop management, basic infrastructure, and crop processing. 	
FELCRA Berhad. 1997.	Corporatized FELCRA.		<ul style="list-style-type: none"> Management of existing community plantations. Development of new areas for commercial agricultural development. 	
RISDA (Rubber Industry Smallholders Development Authority). 1989.	Government of Malaysia.	Smallholder Development Centers.	<ul style="list-style-type: none"> Smallholder rubber/ oil palm. Support through replanting, agricultural inputs, infrastructure, training. 	Development and management of 37,011 ha oil palm plantations (by 2000).
Government of Malaysia.	Government of Malaysia.	<i>Konsep Baru</i> policy (1995).	<ul style="list-style-type: none"> To promote commercial land development, mainly for oil palm. Landholders encouraged to assign land rights to the government through Land Custody and Development Authority (LCDA) and joint venture agreement with private company. Investor pays value of land to landowners/ holders. Landholder/ community has 30% equity share in company. Private company manages estate and pays dividend to landholders. Landholders can obtain employment on estate as laborers. 	<ul style="list-style-type: none"> 51,362 ha of oil palm plantations (by 2011). Communities felt lack of choice in terms of participation in scheme. Little control over negotiation process, lack of adequate information on terms and conditions of joint venture, questionable methods used to define land boundaries, low wages, arduous working conditions, uncertainty over return of land, and failure of companies to pay dividends.
Government of Malaysia.	Government of Malaysia.	TSSPK (Replanting Subsidy for Oil Palm Smallholders).	<ul style="list-style-type: none"> To incentivize and support farmers to replant ageing plantations. Provision of grants for clearing of land, supply of high quality seedlings and agricultural inputs. 	17,569 smallholders received replanting funding (2011–2014).

Institution and establishment date	Donor	Scheme	Purpose and/or activities	Outreach / outcome
Indonesia				
Dutch Colonial Government. 1848.	Dutch Government.		<ul style="list-style-type: none"> • Import of first oil palm seedlings to Indonesia. 	
Belgian Agronomist under Dutch Administration. 1911.			<ul style="list-style-type: none"> • Development of first commercial plantation. 	2,600 ha of commercial plantation.
Dutch Colonial Government. 1919.	Dutch Government.		<ul style="list-style-type: none"> • Land became available through land leases from local indigenous communities through colonial administration. • Support through scientific research, development of well-equipped estates and mills. 	<ul style="list-style-type: none"> • Increase oil palm plantations from ~6,900 ha to ~75,000 ha (1919–1936). • Increase in production from ~181 tons to ~191,000 tons of palm oil (1919–1937).
Government of Indonesia. Post-war times.	Private investors.		Investments in development of oil palm plantations.	After independence (1945), oil palm plantation development stagnated due to end of financial support from Dutch Colonial Government.
Government of Indonesia. 1967/1970s.	Government of Indonesia, World Bank.		<ul style="list-style-type: none"> • Investments in state-owned plantations (1967) • Smallholder financing and support (1970s). 	
Government of Indonesia.	Government of Indonesia – investments via state-owned companies.	PIR-Trans scheme (1980s-1994).		
Government of Indonesia.	Government of Indonesia gradually withdrew, giving rise to private smallholder lending schemes.	KKPA (1994–1998).	To provide smallholders (organized in cooperatives) access to subsidized bank loans.	
Government of Indonesia.	Government of Indonesia.	<i>Reformasi</i> era (1998 onwards).	<ul style="list-style-type: none"> • More neoliberal, market-driven model • To expand smallholder cultivation area by enhancing smallholder access to technology, investment capital. 	Influx of (trans)migrants throughout all development phases.

Annex 2. Tabulated summary of reviewed financing schemes

	GAR's Innovative Financing Scheme	Tropical Landscapes Finance Facility	The Indonesian Oil Palm Estate Fund (BPDP)	Financial Access/ SNV Replanting Scheme
Partners	GAR, Indonesian Government, Indonesian Economist Association and Indonesian Chamber of Commerce.	ADM Capital, ADM Capital Foundation, BNP Paribas, UNEP and ICRAF.	Indonesian Government.	Financial Access and SNV.
Target reach	1 million independent smallholders.	N/A (independent smallholders excluded).	N/A	15,000 independent smallholders.
Geographic focus (initial)	Riau, Sumatra.	Riau, Sumatra.	Riau, Sumatra.	Jambi, Sumatra.
Source of financing	State-owned bank with guarantor.	Impact investors with guarantor (green bonds at 7% interest or shares).	Indonesian Government.	Commercial banks and/or impact investors.
Program highlights	<ul style="list-style-type: none"> Land use certified by the government. Long-term facility with subsidized interest rates. Implementation of GAP and high-yield production. ISPO certification. 4 years' compensation to farmers during replanting as part of loan facility. 	N/A	<ul style="list-style-type: none"> Long-term facility with subsidized interest rates. Main concerns are over loan origination and disbursement. 	<ul style="list-style-type: none"> Structured long-term facility with step-up interest rates after production gap (possibility of subsidizing in first 4 years). Incorporation of sustainability criteria, implementation of GAP and high-yield production and ISPO/RSPO certification. Alternative income-generating activities (e.g. selling trunks or cover crops) during replantation gap.
Status	450 smallholders/ 1,200 ha.	Early stage.	600 ha in the Riau province.	Early stage.

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The objective of this study was to evaluate past and current policies and smallholder financing schemes in the palm oil industry in Indonesia and Malaysia. The outcomes of these models for smallholders were also evaluated, in terms of income security, sustainable practices and environmental impact. Finally, financing schemes that could contribute to more sustainable smallholder oil palm development were analyzed, and compared to past and existing schemes. The focus of this study is on oil palm smallholders, who play a crucial role in the palm oil production industry and account for the vast majority of oil palm cultivation in Malaysia, and even more so in Indonesia.

A number of past and current financing schemes in Indonesia and Malaysia were evaluated through a literature analysis and field assessment. In Malaysia, the main long-term financing challenges faced by smallholders have been solved by large government-sponsored financing schemes and are, thus, less relevant for the report's discussion. As such, the case studies regarding current innovative financing schemes are restricted geographically to Indonesia.

The report proposes potential models to increase the mobilization of long-term finance to smallholders in the palm oil sector. Furthermore, it identifies and reflects on the key enabling conditions that would help overcome the bottlenecks in smallholder long-term financing and create an enabling environment for sustainable oil palm investments. These are: 1) incentives to meet sustainability requirements including Good Agricultural Practices, RSPO certification and deforestation-free production; 2) land tenure security; 3) improved market linkages between smallholders and mills; 4) support for FSPs to assess and manage risks; and 5) strong and effective smallholder organizations.



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