

Can Oil Palm Smallholders Become Financially Independent?

Dapatkan Pekebun Sawit Mandiri Secara Finansial?

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Abstract Oil palm plantations are highly profitable, attracting producers from different backgrounds, including smallholders. However, the industry requires a high investment and long-term financial management. Unfortunately, most smallholders do not have both capacities and thus have limited capacity to self-finance their plantations. This study aims to analyze this condition using data from 964 oil palm smallholdings from 5 groups, namely (i) certified plasma/ex-plasma smallholders, (ii) certified independent partnered smallholders, (iii) noncertified plasma/ex-plasma smallholders, (iv) noncertified independent – partnered smallholders, and (v) noncertified independent – non partnered smallholders in North Sumatra, South Sumatra, Riau, and Jambi. The data were collected in 2013, 2016, 2018, and 2019 by purposive clustered sampling method. The data were descriptively analyzed using a financial calculation approach. All values were converted into the 2019 future value using a 7% interest rate applied for small-scale business loans. Self-finance is assessed in short- and long-term needs. The short-term refers to the minimum household needs, while the long-term is the certification and replanting cost. The minimum household needs were calculated based on the minimum regional wage. Certification refers to RSPO smallholder certification, with four cost components, namely audit, surveillance, HCV, SIA, and EIA, and corrective actions. Replanting costs refer to Keputusan Direktur Jenderal Perkebunan. The estimation results show that smallholders cannot self-fund their short- and long-term financial needs, which could lead to additional land needs. Long-term financial needs can be managed through group collective action and regular saving within a minimum

total group of 250 ha.

Keywords: Self-finance, short-term, long-term, financial needs, certification, replanting

Abstrak Perkebunan kelapa sawit adalah usaha yang menguntungkan, sehingga menarik produsen dari berbagai latar belakang, termasuk para pekebun. Namun, usaha tersebut membutuhkan investasi yang besar dan pengelolaan keuangan jangka panjang yang baik. Kedua kapasitas tersebut jarang dimiliki pekebun, sehingga sebagian besar pekebun tidak dapat membiayai perkebunan mereka secara mandiri. Penelitian ini bertujuan untuk menganalisis kondisi tersebut dengan menggunakan data dari 964 pekebun sawit, yang berasal dari 5 jenis kelompok, yaitu (i) pekebun plasma/eks-plasma tersertifikasi, (ii) pekebun swadaya yang bermitra dan bersertifikasi, (iii) pekebun plasma/eks-plasma non-sertifikasi, (iv) pekebun swadaya yang bermitra tapi belum sertifikasi, dan (v) pekebun swadaya yang belum bermitra dan belum bersertifikasi di Sumatera Utara, Sumatera Selatan, Riau, dan Jambi. Data diperoleh dari tahun 2013, 2016, 2018, dan 2019 dengan metode purposive clustered sampling, dan dianalisis secara deskriptif dengan pendekatan perhitungan keuangan. Seluruh data keuangan dikonversi ke tahun 2019 dengan menggunakan future value dengan tingkat bunga 7% yang setara dengan tingkat suku bunga KUR. Kemampuan untuk membiayai (self-finance) diukur dengan kemampuan pemenuhan kebutuhan jangka pendek yaitu kebutuhan minimum rumah tangga, serta kemampuan pemenuhan kebutuhan jangka Panjang yaitu kebutuhan pembiayaan sertifikasi dan peremajaan. Kebutuhan minimum rumah tangga dihitung berdasarkan upah minimum regional. Biaya sertifikasi merupakan sertifikasi RSPO pada pekebun dengan 4 komponen yaitu audit, surveillance, HCV, SIA dan EIA serta Tindakan perbaikan. Biaya peremajaan merujuk pada Keputusan Direktur Jenderal

Penulis yang tidak disertai dengan catatan kaki instansi adalah peneliti pada Pusat Penelitian Kelapa Sawit

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Perkebunan. Hasil perhitungan menunjukkan bahwa pekebun belum mampu untuk memenuhi kebutuhan jangka panjang dan jangka pendek, sehingga masih dibutuhkan penambahan luas lahan. Pemenuhan kebutuhan jangka panjang dapat dipenuhi melalui kegiatan bersama dalam kelompok seperti Tabungan rutin, dengan minimum skala 250 ha.

Kata Kunci: *Kemandirian finansial, biaya sertifikasi, biaya peremajaan, pekebun sawit rakyat*

INTRODUCTION

The total Indonesian oil palm plantation area is more than 16 million ha, comprising state companies, private companies, and smallholders (Directorate General of Estate Crops, 2018). Initially, these plantations were mostly state plantations, but since the late 70s, smallholdings began to develop. Four decades later, they cover more than 40% of the total oil palm plantation area (Directorate General of Estate Crops, 2018). This rapid development was mainly driven by the profits from oil palm, which appeared to be higher than most other commodities (Schwarze, Lay, Kunz, Faust, van Treeck., 2015; Febian, Priatmadi, Biyatmoko & Adriani, 2024). Smallholders can be divided into plasma (schemed) and independent smallholders. Initially, all smallholders were intensively supported by big companies and were known as plasma smallholders. Later on, more independent smallholdings developed. However, 25 years later, many smallholdings could independently replant their plantations (Amalia, Nurkhoiry, Nasution & Kurniawan, 2017; Johnston, Smit, Bronkhorst, Medler, Adjaffon & Cavallo, 2015). Reviewing extensive previous studies, Petri (2023) found that the lack of eligibility for public replanting funds appears to be the main barrier for oil palm smallholders to replant their old crops. de Vos, Suwarno, Slingerland, van der Meer & Lucey (2023) found that the lack of funds is the main reason that none of the smallholders obtained certification without external facilitator support. While oil palm plantations are believed to be profitable, smallholders' capacity to self-funded is limited (Sahara & Kusumowardhani 2017; UNDP 2022).

To address this condition, the government funds oil palm smallholder replanting through the Peremajaan Sawit Rakyat (PSR) Program. This could significantly improve smallholding productivity as most of them are

likely using illegitimate seedlings. Using identical fertilizer applications, the productivity gap between legitimate and illegitimate seedlings can reach 20 – 30% (Chalil, Basyuni, Barus, & Putri, 2018). The program is not only expected to be a short-term financial solution but also improve their long-term financial planning. One of the requirements for this grant is to have the potential to be certified (Gimni, 2020). There are two types of palm oil sustainable certificates, namely the Indonesian Sustainable Palm Oil (ISPO) and the Roundtable Sustainable Palm Oil (RSPO). ISPO has a 5-year mandatory period following the release of the PP44/2020 President Decree in 2020. Both ISPO and RSPO cover the economic aspect of sustainability, in addition to social and environmental aspects. The Principles and Criteria (P&C) of sustainable certification can be used as a guideline for Good Agricultural Practice (GAP), which should increase productivity. In addition, the P&C also covers Best Management Practices (BMP), which could improve market acceptance (selling price) and business sustainability. Economic sustainability refers to meeting current needs without compromising future generations. Therefore, economic sustainability should be able to support both short- and long-term needs (Elsawy & Youssef, 2023). However, similar to replanting, smallholders also need full financial support from external sources for the certification process.

Financing is a crucial aspect of business sustainability. Unfortunately, most oil palm smallholdings face short- and long-term financial issues. Short-term- issues include lack of funds, as previous studies found it is the main factor in low fertilizer usage among oil palm smallholdings (Lim, Tenorio, Monzon, Sugianto, Donough, Rahutomo, Agus, Slingerland, Darlan, Dwiyahreni, Farrasati, Mahmudah, Tohirin, Nurdwiansyah, Palupi, Pradiko, Saleh, Syarovy, Wiratmoko & Grassini, 2023; Chalil, Barus, Hasnah, Utami, & Krisnamurthi, 2023; Ramadhana, Ahmed & Thongrak 2021; Woittiez, Slingerland, Rafik, & Giller, 2018). Long-term issues include replanting support, as smallholdings cannot do so independently (Nurfatriani, Ramawati, Sari & Komarudin, 2019). This situation has led to discussions about the trade-off between efficiency and independence of programs and support and its impact on smallholdings. While efficiency is always beneficial, sustainability can be increased if dependency is decreased. Therefore, parties supporting smallholders

need to improve the competence and ability of smallholders to manage and maintain their businesses. One solution is to improve their productivity and income.

The fact that the oil palm smallholders need funding support for replanting and certification raises the question of whether their income is high enough to make them financially independent. This question contradicts the general perception of oil palm plantations producing a high income that sparked the independent smallholding development and additionally indicates risk in smallholding sustainability. Being highly profitable also contradicts being highly dependent on external financial support. This issue is rarely raised in previous studies. This study aims to understand and provide alternative solutions to improve the independence of smallholders. These solutions would greatly benefit the Indonesian palm oil industry, considering that smallholdings make up more than 40% of the total oil palm plantation area. In particular, the research questions are:

1. Can oil palm smallholdings profit cover the smallholders' household need?
2. What is the minimum oil palm land size needed to cover the smallholders' minimum household need?
3. Can oil palm smallholders self-fund the certification costs from their oil palm plantation profit?
4. Can oil palm smallholders self-fund the replanting costs from their oil palm plantation profit?

MATERIALS AND METHODS

The study used survey data on oil palm smallholdings in the North Sumatra, South Sumatra, Riau, and Jambi Provinces. Data were collected in 2012, 2013, 2016, 2018, and 2019 from 964 smallholders. All money value data in 2012, 2013, 2016 and 2018 were converted into the future values in 2019.

$$FV = PV (1 + r)^n$$

where: FV = future value; PV = present value; r = annual interest rate; n = number of periods interest rate; $(1 + r)^n$ is compounding factor with 7% annual interest rate, which equal to the micro credit (*Kredit Usaha Rakyat/KUR*)

Using the clustered purposive sampling method,

these smallholders were classified into five groups, namely (i) certified plasma/ex-plasma smallholders, (ii) certified independent partnered smallholders, (iii) non-certified plasma/ex-plasma smallholders, (iv) non-certified independent – partnered smallholders, and (v) non-certified independent – non-partnered smallholders. Ex-plasma smallholders are included in the plasma smallholder category as their numbers tend to decrease while generally still practicing most of the knowledge and methods received during training as plasma smallholders. Non-certified independent – non-partnered samples were obtained from the same sub-districts.

Financial independence refers to the ability of smallholders to cover both short- and long-term financial needs (Bansal & DesJardine, 2014). Smallholders' ability was estimated by their profit from oil palm plantations. Short-term financial needs were estimated from the household needs, while long-term from certification and replanting.

Profit was estimated from the revenue and cost of production with data from revenue and cost component questions. Revenue was estimated by the weighted average value of the high, normal, and low season productivities and selling prices, with a 3-month-, 6-month-, and 3-month period per year, respectively. Selling prices might influenced by the market dynamic (Figure 1). In 2013, the average FFB current price was IDR935/kg, with a range between IDR850 and IDR1120, while in 2016, 2017 and 2018, the average current prices were IDR 1413, 1529 and 1228, respectively. Therefore, selling prices might not be completely comparable between types of groups, but the ratio between future values of profit and household needs is relevant to answer research question 1.

The household needs were estimated from the minimum wage of each province. However, the minimum regional wage refers to single-worker minimum needs, but there is no standard for household minimum needs. Therefore, double the value of the minimum regional wage, assuming both husband and wife works and receive incomes, could be used as the approach for the average HH minimum needs. The minimum land required is the land size needed to cover HH minimum needs. This was calculated by dividing HH income by HH minimum needs. The land size needed was estimated based on the calculation of smallholding per ha.



Figure 1. FFB selling price on village trader dan government level

Gambar 1. Perkembangan harga TBS di tingkat pedagang pengumpul desa dan di Tingkat pemerintah

Certification costs were estimated in a previous study Chalil & Djama (2019). The certification potential of oil palm smallholders was estimated by comparing certification costs and their production costs, revenues, and business profits. Based on 8 cases of RSPO certification for smallholder oil palm plantations. The

RSPO certification was selected as it has been obtained by smallholders for a longer time by a relatively large number of groups compared to other certifications. Audit costs were incurred once every five years, while other component costs were incurred annually. Details of costs and ranges for each component are in Table 1.

Tabel 1. Biaya sertifikasi RSPO
Table 1. RSPO certification costs

Components of certification costs	Average costs	Ratio of Range
	IDR million/submission	Max/min
Audit	70 – 90/5 years	1.29
Surveillance	40 – 110/year	2.75
HCV, SIA, and EIA	50 – 100/year	2.00
Corrective actions	3 – 30/year	10.00
Total	535 – 1,290/5 years	

Source: Chalil and Djama, 2019
Sumber: Chalil and Djama, 2019

Table 1 shows that the lowest certification costs directly involve and impact smallholders, namely corrective actions, such as training, procurement of tools, and construction of infrastructure to meet the requirements of the RSPO P&C. However, the highest variation appears in the corrective actions. This

condition reflects the high variation in the baseline condition of smallholders. Some smallholder-certified groups started in very poor conditions, with no group and almost no GAP implementation. Overcoming such conditions was possible through a long engagement period, many training sessions, and intensive

supervision. In contrast, other groups, such as ex-plasma smallholders, have been intensively supervised from the establishment of their plantations. They already have an organized group and sufficient knowledge of GAP. Meanwhile, the highest certification cost comes from impact analysis (High Conservation Value (HCV), Social Impact Analyses (SIA), and Environmental Impact Analyses (EIA)), which were generally carried out by large companies (Table 4). HCV, SIA, and EIA are studies conducted by partner companies of smallholdings in the surrounding areas. Therefore, this component does not have a high variation. Audit and surveillance costs vary on the number of samples. Smallholder certification is a group certification with multiple smallholders. Each 100 smallholders need to be represented by 10 samples, while 400 and 1000 only need 20 and 33 samples, respectively. As the difference in the total number of group members is not big, the variation in total audited and surveilled samples is also small.

The ability to self-fund the certification cost was estimated by the ratio of maximum and minimum certification costs (Table 1) and income per 5 years for 50 ha, 250 ha, and 500 ha (based on the income per ha per month). A ratio of less than one shows the inability to self-fund certification costs, while one or more shows that the smallholder can cover certification costs from the profits of their plantation. The certification cost analyses are divided into three scales of submission, namely 50 ha, 250 ha, and 500 ha. 50 ha and 500 ha, which refers to the minimum smallholding group land size stated in the Replanting Program (Decree of The Directorate General of Plantation No. 29/2017, Chapter IV, Point A) and the Recommendation for the ISPO Smallholding Certification (Decree of The Agriculture Ministry No. 38/2020 Chapter V, article 53, point 7) respectively. Each scale has minimum and maximum values.

The cost of replanting refers to calculations by The Directorate General of Plantations (Keputusan Direktur Jenderal Perkebunan No: 192/Kpts/RC.10/6/2013). The replanting costs refer to the region II and III-unit costs, which cover the four provinces in this study, namely North Sumatra, South Sumatra, Jambi, and Riau. Each province covers three types of land soil, namely, dry, wet, and Ganoderma Risk land, each with its minimum and maximum values. The ability to self-fund replanting costs were estimated by the ratio of the

maximum (IDR65million/ha) and minimum (IDR55million/ha) certification costs and income per ha for 20 years (Replanting is only done once; replanting costs should be accumulated within the productive age, which is 20 years or 480 harvests). A ratio of less than one shows the inability to self-fund replanting costs, while one or more shows that smallholders can cover their replanting costs from the profits of their plantation. The amount for savings toward replanting costs (IDR/ha/harvest) was estimated by dividing the maximum or minimum replanting costs by 480 (number of harvests).

RESULTS AND DISCUSSIONS

Short-Term Financial Needs: Profit, Household Needs, Minimum Land Size

Table 2 shows that the average smallholding land size is about 2.5 ha, with a minimum and maximum size of 2.05 and 2.82 ha, respectively. The average crop age of plasma/ex-plasma smallholders is older than their independent counterparts. Plasma smallholdings were first developed in the 1980s with the full support of the Government and the World Bank. Meanwhile, independent smallholdings became popular after information on the high income of plasma smallholders began circulating. All plasma/ex-plasma smallholders use legitimate seedlings, while most independent smallholders use illegitimate ones. In this study, only 34.31% of the certified independent partners use legitimate seedlings. Meanwhile, all smallholders in both plasma/ex-plasma groups use legitimate seedlings. Previous studies show that the difference in oil palm productivity between legitimate and illegitimate seeds can reach 30% - 66% (Kariyasa, 2015; Muharam, Wirianata, Gunawan, 2023). Table 2 shows that even though the average crop age of certified plasma/ex-plasma smallholders is 25.43, their productivity is similar to certified independent partnered smallholders with an average crop age of 15.69. Therefore, the replanting program from the government could be utilized to improve productivity. The productivity of non-certified plasma/ex-plasma smallholders was relatively low due to replanting. In this case, most crops were in less productive periods (above 20 years old and around four years old).

Tabel 2. Produktivitas dan harga jual perkebunan sawit rakyat
 Table 2. Productivity and selling prices of smallholdings

Type of Smallholding	Land size	Crop age	Use of certified seeds	Productivity	Selling price
	Ha	Year	% of the total group samples	ton FFB/ha/ Month	IDR/kg
Certified plasma/ex-plasma	2.05	25.43	100.00	2.10	1,665.58
Certified independent partnered	2.82	15.69	34.31	2.10	1,712.41
Non-certified plasma/ex-plasma	2.66	19.91	100.00	1.10	2,015.83
Non-certified independent – partnered	2.29	14.73	33.33	1.44	1,159.21
Non-certified Independent - non-partnered	2.36	18.45	23.53	1.43	1,084.22
Average	2.44	18.84	58.23	1.63	1405.36

Independent smallholders have also become certified. Some had just partnered with companies after establishing their smallholdings using illegitimate seedlings. Selling prices could be influenced by certifications and partnerships, which are reflected in prices received by certified and plasma/ex-plasma groups. Certified and partnered smallholders can directly sell all of their FFB to the partner mill and receive higher prices than selling prices through village traders. This statement is supported by (Alamsyah, Napitupulu, Hamid, Yanita, & Fauzia, 2021) who found that price difference is significantly influenced by the quality factor of the seeds used, the amount of fertilizer used, the experience of farmers in farming and the marketing channels used.

However, certifications do not guarantee the highest FFB selling prices, as certified smallholders do not physically sell their FFB as Certified Sustainable Palm Oil (CSPO). For example, certified partnered smallholders do not use certified seedlings and produce FFB with high oil content (*rendemen*). They do not receive premium FFB selling prices but receive additional income from selling the RSPO certificates through Palm Trace. As shown in Figure 1, the prices could also be influenced by market

dynamics. In this case, the current average price between years of studies could differ more than 60. Therefore, although plasma and certification provide higher selling prices for the first three groups compared to the last two, there are variations within the first three groups.

Table 3 shows that in maintaining productivity, certified plasma/ex-plasma smallholders have the highest costs, which mainly stem from harvesting labor. However, with a high productivity and selling price, they can still cover production costs. In contrast, the non-certified-non-partnered group has the lowest production costs, but consequently, the group also has lower productivity even though the crops are at the optimal age. To estimate the short-term performance of smallholdings, the profits of each group are then compared to the minimum household needs. The non-certified-non-partnered group with low productivity appears to have higher land size to ensure sufficient income for their households. The productivity difference between plasma/ex-plasma and non-certified non-partnered groups is more than 40%, indicating the potential to gain from intensification for independent smallholdings.

Tabel 3. Biaya, penerimaan dan pendapatan berdasarkan tipe perkebunan sawit rakyat
 Table 3. Cost, revenue, and profit based on types of smallholdings

Type of Smallholding	Production Costs	FFB Sales Revenue	FFB Profit		
	IDR/ha/year	IDR/ha/year	IDR/ha/year	IDR/ha/month	IDR/HH/month
Certified plasma/ex-plasma	10,684,553.74	36,614,332.07	25,929,778.33	2,160,814.86	4,500,535.74
Certified independent partnered	7,557,841.33	54,330,176.28	46,772,334.95	3,897,694.58	10,631,290.93
Non-certified plasma/ex-plasma	8,365,531.25	26,298,183.46	17,932,652.21	1,494,387.68	2,314,641.16
Non-certified independent – Partnered	6,472,873.61	19,904,613.41	13,431,739.80	1,119,311.65	2,420,628.01
Non-certified Independent - non-partnered	5,307,625.33	17,091,933.79	11,784,308.47	982,026.71	2,364,672.78

Note: HH = household

Keterangan: HH = rumah tangga (household)

Tabel 4. Pendapatan, kebutuhan rumah tangga minimum dan luas lahan minimum
 Table 4. Profits, household minimum needs and minimum land size

Type of smallholding	Regional minimum wage (IDR/month)	minimum HH needs (IDR/month)	Profit/minimum HH needs	minimum land size (ha)
Certified plasma/ex- plasma	2,782,432.88	5,564,865.76	0.81	2.58
Certified independent Partnered	2,587,754.86	5,175,509.72	2.05	1.33
Non-certified plasma/ex-plasma	2,403,351.61	4,806,703.23	0.48	3.22
Non certified independent – partnered	2,515,837.68	5,031,675.36	0.48	4.50
Non-certified Independent - non-partnered	2,335,782.36	4,671,564.72	0.51	4.76
Average	2,525,031.88	5,050,063.76	0.88	2.62

On average, the ratio of profits and HH needs of smallholdings is 0.88, with a minimum and maximum value of 0.48 and 2.05, respectively. This condition shows that only certified partnered smallholders can cover the minimum HH needs with profits from their oil palm plantation. Other smallholders cannot do so due to using uncertified seedlings or not applying proper fertilization, which leads to low productivity. In such a condition, while the average smallholder land size is 2.44, the average minimum land size is 2.62 ha. However, the minimum land size required can increase to 5.57 ha if productivity and selling prices are low and decrease to 1.33 if vice versa. Marhaento, Putra, Ma'ruf, Wibowo, Nissauqodry, and Astikadewi (2023) studied 16 oil palm smallholding centers and found that land expansion could be avoided by increasing smallholding productivity. Table 4 details the short-term performance of each type of smallholding.

Therefore, with the existing condition, oil palm smallholdings cannot cover their minimum household needs. If the oil palm plantation business is the only household income source, this raises the need for more

land to fulfill their needs. However, an increase in productivity and selling price can ensure that smallholders can rely on their income from their oil palm plantations and do not need additional land needs.

Long-Term Financial Needs: Profits, Certification Costs, and Replanting Costs

The long-term financial needs for oil palm are expenses for certification and replanting. For certification, smallholders often need to prepare for several years, and replanting is needed at the end of the 25-year cycle. However, even though certification appeared to be beneficial, since the introduction of smallholdings certification in RSPO in 2009 and ISPO in 2011, only less than 1% of the total Indonesian smallholdings have successfully received RSPO and ISPO certification (RSPO, 2024; Direktorat Jendral Perkebunan, 2024). One of the main constraints is the high certification costs. Therefore, none of the certified smallholdings can independently finance the certification costs. However, such a constraint might be addressed with a sufficient land size for group certification.

Tabel 5. Pendapatan, biaya sertifikasi dan biaya peremajaan
Table 5. Profit, certification costs, and replanting costs

Type of smallholding	certification cost/profit (%)						replanting cost/profit (%)	
	Min	Max	Min	MaxT	Min	Max	Min	Max
	50 ha		250 ha		500 ha			
Certified plasma/ex-plasma	8.25	19.90	1.65	3.98	0.83	1.99	0.56	0.63
Certified independent partnered	4.58	11.03	0.92	2.21	0.46	1.10	0.31	0.35
Non-certified plasma/ex-plasma	11.93	28.77	2.39	5.75	1.19	2.88	0.80	0.92
Non-certified independent – partnered	15.93	38.42	3.19	7.68	1.59	3.84	1.07	1.22
Non-certified Independent - non-partnered	18.16	43.79	3.63	8.76	1.82	4.38	1.22	1.39
Average	11.77	28.38	2.35	5.68	1.18	2.84	0.79	0.90

Comparing the minimum and maximum certification costs, Table 5 shows that certification costs will be too expensive if the land size per

submission is 50 ha, totaling 11.77% to 28.38% of their total profit. However, if the land size of the submitting group follows the ISPO recommendation (500 ha), the

certification cost per ha is only about 1.18% to 2.84% of the average smallholding profit. In general, certification costs do not include the land legality costs. Land legality for certification refers to land ownership document, namely STDB and SPPL. The document to fulfill the land legality requirement in RSPO certification does not have to be the freehold land title (*sertifikat hak milik*). Plasma or ex-plasma already have this title, but most independent smallholders only have the district letter, which is acceptable for RSPO certification. De Vos, Suwarno, Slingerland, van der Meer, and Lucey (2023) found that from 18 certified independent smallholder groups in Indonesia, 77% are “former scheme/ex-plasma” smallholders, as they have clear land legality and are organized in groups before certification. This study covers smallholder groups that obtained RSPO certification at the early stages of smallholder certification, using the 2009 P&C for smallholders. However, in practice, the requirements and arrangements for STDB and SPPL were not strict enough during that period. Therefore, land legality costs were excluded in this study.

To avoid being overwhelmed by certification costs, smallholders should set aside a portion of their profits from each harvest. In other words, certification costs should be managed as a long-term financial arrangement. Most smallholders harvest every 15 days, and the certification is valid for five years. Therefore, smallholders need to save for certification costs within 120 harvests. For a 50-ha group certification, each smallholder should save around IDR250,000 to IDR550,000 from each harvest. The amount decreases significantly from IDR20 to IDR45 if the scale increases to 250 ha. This calculation shows that sufficient scale is crucial for smallholder certification. The execution of such a plan also needs to be managed by smallholder groups and coordinated with the buyer, which will be withdrawn before being received by smallholders as sales revenue to guarantee the continuity of the savings.

Similar to certification costs, smallholders should manage replanting costs as a long-term financial arrangement by withdrawing them from their sales revenue at each harvest. Replanting is only done once in each 25-year economic cycle; the replanting costs should be accumulated within the productive age, which is 20 years or 480 harvests. On average, replanting costs about 0.79%-0.90% of one smallholding profit cycle, equal to IDR55-65million/ha.

Dividing the total replanting costs into 480, each smallholder should save around IDR250,000 to IDR350,000 from each harvest. Such an amount is quite burdensome for the average smallholder. However, the Indonesian Government has created a replanting scheme. From 2017-2023, the Government can provide IDR 35 million/ha for smallholders for replanting, equal to 50%-60% of the total replanting costs. By utilizing this scheme, smallholders only need to save IDR100,000 to IDR175,000 from each harvest to accumulate enough funds for replanting. In 2024, the Indonesian Government has doubled the scheme to IDR 60 million/ha, which can cover 90%-100% of the total replanting costs.

Therefore, with the current condition, oil palm smallholdings still cannot self-fund their long-term financial needs, which are certification and replanting costs. This condition mainly stems from their lack of land scale and savings plan. Utilizing collective actions with a sufficient land scale and saving regularly could be used as alternative solutions to address the problem.

CONCLUSION

Given the average productivity and land size, smallholders cannot currently be financially independent. However, they can reach a sufficient scale through group management and collective action. GAP and vertical integration with the mills will improve productivity and selling prices, increasing the profits of the oil palm plantations of smallholders. As group submissions, certifications could supplement this process. Smallholders should ensure that certification costs will be affordable by determining the appropriate minimum land size for group submission. A similar group management approach can be taken for replanting. Smallholder groups should manage their funds through regular savings to address the cash flow problem. With such an approach, smallholders have the potential to be financially independent in the future and be more economically sustainable.

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