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Cost reduction for upscaling voluntary sustainability standards: the case of independent oil palm smallholders in Central Kalimantan, Indonesia

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Upscaling Voluntary Sustainability Standards (VSS) can generate ecological and social benefits at a scale that is meaningful to address pressing environmental issues such as climate change and biodiversity losses. Lack of resources and risks of implementation gaps may, however, hinder the success of upscaling VSS. This paper aims to fill the gap in the literature regarding options to reduce certification costs to upscale VSS amid the limited financial resources available for certification. The paper presents the result of action research involving 3,507 independent oil palm farmers who are members of six farmer groups in two districts in Central Kalimantan to achieve Roundtable on Sustainable Palm Oil (RSPO) certification. The research found that achieving economies of scale by increasing the total number of certified farmers can reduce the certification costs per farmer. By establishing a district-level entity, the costs related to audits, RSPO membership fees, and the establishment of farmer groups, such as developing standard operating procedures (SOPs), can be lowered. Implementation gaps were not found with the increase of farmers joining the project based on the training frequency and the external audit findings reports on farmers' compliance with RSPO principles and criteria. The findings of this study provide a basis for promoting the upscaling of VSS, including through the RSPO jurisdictional approach.

KEYWORDS

voluntary sustainability standards, independent smallholders, cost effectiveness, Central Kalimantan, palm oil

1 Introduction

Voluntary sustainability standards (VSS) aim to ensure that agricultural commodities are produced sustainably without causing the loss of tropical forests, ecosystems, and biodiversity. As market-based instruments, VSS seek to provide higher market prices to producers for producing their commodities using a set of environmental and social standards (Pirard, 2012; Marx et al., 2015). Farmers producing certified commodities such

as coffee, cacao, oil palm, and timbers can obtain price premiums around 10 percent or higher than the market sales price of the commodities (Gockowski et al., 2013; Lemeilleur et al., 2020; Naegele, 2020).

VSS seek to change the behavior of commodity producers, including smallholders, to reduce deforestation and protect forests. Coffee certification, such as Fairtrade-Organic certification, can produce substantial environmental benefits, including increasing soil organic carbon; tree diversity, basal area and biomass, and leaf litter and species richness (Vanderhaegen et al., 2018). The certification of oil palm smallholders has the potential to achieve within-plantation biodiversity conservation as farmers' plots are usually situated in landscapes with greater heterogeneity than large-scale plantations (Azhar et al., 2015). The certification can, therefore, encourage smallholders to produce oil palm sustainably instead of being the drivers of deforestation, as reported in the literature (Gutiérrez-Vélez et al., 2011; Austin et al., 2019).

In the palm oil sector, VSS such as the Roundtable on Sustainable Palm Oil (RSPO) have led to better environmental and social outcomes, though only in specific circumstances. Studies show that RSPO certification can reduce deforestation despite the fact that the total reduction of deforestation was relatively small (Carlson et al., 2018; Lee et al., 2020). Moreover, the social impacts of RSPO certification vary. RSPO certification was linked to poverty reduction in villages with cash-crop livelihoods, however, not in those with subsistence livelihoods (Santika et al., 2020). Another study showed that better educational facilities were further associated with RSPO certification, although no other statistical impacts were observed in other development indicators (Lee et al., 2020).

To fully produce the intended ecological and social impacts, VSS need to be upscaled to cover all actors along the supply chain across sectors and geographies. Otherwise, buyers who continue to buy unsustainable commodities will encourage producers who do not change their practices to continue to produce commodities at the expense of the environment. Upscaling can reduce leakage, in which negative environmental impacts of development activities are not terminated but simply displaced from one area to another (Lambin et al., 2020). Furthermore, mainstreaming Fairtrade in commodities such as coffee, cacao, and tea, for instance, has the promise to lift farmers out of poverty by enhancing payments as a result of competition between firms (Mook and Overdeest, 2018; de Gelder et al., 2021).

Efforts to upscale VSS have been seen in major commodities such as coffee (Dietz et al., 2021), cacao (Krauss and Barrientos, 2021), seafood, and cotton (Lambin et al., 2020). Marine Stewardship Council (MSC) certification covered 60 percent of the global whitefish market in 2018 because only a few large players dominated the market. Better Cotton Initiative (BCI) certified 19 percent of global cotton production by 2018. BCI certification came from the initiative of civil society organizations (CSOs), which later encouraged government actors to adopt elements of successful initiatives into legal mandates. BCI principles and criteria have been embedded into national regulations in Mozambique, which aim to produce all cotton in the country sustainably. In 2017, 86% of Mozambique's cotton farmers grew cotton according to

the BCI principles and criteria.¹ In the palm oil sector, RSPO has initiated a jurisdictional approach to certification, an approach to ensure oil palm cultivation does not have negative impacts on the environment and society by scaling up the coverage of palm oil certification in administrative areas or jurisdictions (RSPO, 2021). Furthermore, Indonesia and Malaysia, the major producers of palm oil, have made certification compulsory through Indonesian Sustainable Palm Oil (ISPO) and Malaysian Sustainable Palm Oil (MSPO), respectively (Aziz et al., 2021; Kannan et al., 2021; Naidu and Moorthy, 2021; Pramudya et al., 2022).

Upscaling VSS comes with various challenges. Collaboration among public, private, and civil society actors is required to upscale VSS. However, these actors often have different motivations and incentives to make the transition toward sustainability (Lambin et al., 2020). Private actors often face risks in investing financial resources in sustainability initiatives, while governments often have competing priorities to serve their constituents. Although all actors will benefit from partaking in sustainability initiatives in the long run, they have different costs, including transaction costs, and benefits in the short run (Knorrunga et al., 2012).

Significant resources will be required to cover certification costs if VSS is to be upscaled. In the coffee sector, for instance, Dietz and Grabs (2022) found that expanding VSS is faced with higher costs of changing current practices to meet the sustainability principles and criteria. They also predicted that financial resources cannot or will not grow in proportion to cover the certification costs in the coffee sector in Honduras. Bilateral donors and philanthropic organizations have supported farmers in getting certified (Lambin et al., 2020; Dietz and Grabs, 2022). In the palm oil sector, governments in several countries have been allocating financial resources to support the certification. The Malaysian government, for instance, allocated RM 30 million (~USD 636,377) to fully fund expenses for the MSPO audit, including training for independent oil palm smallholders (Aziz et al., 2021; Kannan et al., 2021).

Due to limited financial resources to support certification, options to reduce certification costs take on greater importance as a way to upscale VSS. Affordable certification costs can also increase the willingness of smallholders to participate in certification programs (Saadun et al., 2018). In the palm oil sector, many studies have focused on analyzing the costs of smallholder certification (Beall, 2012; Wangrakdiskul and Yodpijit, 2015; Hidayat et al., 2016; Hutabarat et al., 2018). These studies mainly suggested increasing the price premium to cover the costs. There is a gap in the literature regarding how to reduce the costs of certification to achieve sustainability at scale despite limited financial resources.

Studies also find that upscaling VSS poses several risks, such as implementation gaps, dilution, and reputational damage. Mainstreaming Fairtrade, for instance, has been widely criticized for its potential to weaken the implementation of the principles and standards (Doherty et al., 2013). Moreover, Dietz and Grabs (2022) studied the effort of upscaling five coffee certification labels using 659 coffee farmers in Honduras. They found certification labels that grew quickly, resulting in implementation gaps. As certification

1 <https://bettercotton.org/where-is-better-cotton-grown/better-cotton-mozambique/>

schemes attempted to certify larger numbers of farmers, fewer farmers in a given group were audited for compliance, and producers also had less capacity to fulfill the demands that the standards set (Dietz and Grabs, 2022).

This paper aims to answer two research questions. First, what strategies can reduce the costs of upscaling the certification of independent oil palm farmers? Second, will undertaking these strategies lead to implementation gaps?

To answer both research questions, the paper extracts lessons from the action research of certifying 3,507 independent oil palm smallholders of six farmers groups in Central Kalimantan, Indonesia. The paper first reviews the literature on upscaling VSS and the RSPO certification before presenting the method and the study case. We then present the results of our analysis and discuss the implications before providing recommendations.

2 Literature review

Upscaling of sustainable solutions, such as VSS, is necessary to achieve impacts at a scale that is meaningful to protect natural ecosystems. Lambin et al. (2020) discussed two possible pathways for upscaling VSS. They are: “leveraging a dominant private actor’s market power and integrating civil society or private sector initiatives into public policy” (Lambin et al., 2020, p. 20). In the first case, major companies consolidate themselves to create market dominance, which makes it easier for them to demand their suppliers meet sustainability standards. This pathway however has disadvantages, such as difficulty in traceability for the case of palm oil and marginalization of smallholders, that can only be addressed by governments through public policies. The second pathway is when the government adopts elements of voluntary sustainability certification initiatives first piloted by civil society organizations or progressive actors into legal mandates. Such policy integration means that these initiatives apply to all actors in a jurisdiction, thereby scaling up the impacts. Mozambique’s collaboration with the Better Cotton Initiative and Bolivia’s 1996 revision of its forestry law are examples of this pathway. So too is the RSPO’s introduction of the jurisdictional approach to certification in 2021 (RSPO, 2021). “*The RSPO Jurisdictional Approach (JA) to Certification is an approach to minimise the negative impact of oil palm cultivation on the environment and on society, at the scale of government administrative areas (Jurisdictions), which involves a stepwise certification of the production and processing of sustainable oil palm products*” (RSPO, 2021, p. 10).

The effort to upscale VSS comes with challenges. Dietz and Grabs (2022) studied five coffee certification standards using a dataset of 659 farmers in Honduras, finding that no certification schemes for coffee managed to grow substantially while maintaining strong additionality. The five standards were The Common Code for the Coffee Community (4C), Fairtrade, Fairtrade-Organic, UTZ Certified, and Rainforest Alliance. They found that standards that scaled the fastest, such as UTZ and 4C, faced considerable risk of implementation gaps on the ground as they needed to certify large farm groups with limited financial resources. To lower certification costs, only a small group of participants were audited by a third-party auditor. The standards also had a limited budget available for farmer outreach. The price

premium decreased as the marginal compliance costs increased when more producers were added to the certification system. They concluded that there is a high necessity to invest more resources to train and recompense smallholders to guarantee sustainability additionality of VSS. They argued that “successful mainstreaming would require better cost coverage of sustainability improvements by value chain actors” (p. 1).

Small producers face challenges in getting certified, mostly due to limited financial resources and the high cost of certification processes. In the palm oil sector, several studies have researched the cost of achieving independent smallholder certification (Table 1). The largest components of the certification costs are the audit cost, obtaining legal documents required for certification, and training (Beall, 2012; Wangrakdiskul and Yodpijit, 2015; Hidayat et al., 2016; Hutabarat et al., 2018). Several studies have proposed strategies for reducing audit costs, including developing a platform for multiple certification schemes (Lambin and Thorlakson, 2018). Moreover, obtaining legal documents and managing documents is the second-most costly expense (Hutabarat et al., 2018). The government should develop a policy to make the process more efficient (Watts et al., 2021).

Several strategies have been put in place to reduce the cost of certification, particularly for small producers, so that it can cover many smallholders with limited resources. One of the most common strategies is to increase the economies of scale in the certification process. This is why RSPO applied the group certification scheme for independent smallholders (Nesadurai, 2019). In Malaysia, smallholders are consolidated into groups by the government to upscale the certification coverage of MSPO while reducing costs. Sustainable palm oil clusters were established across the country to certify farmers, where one cluster consists of one to two thousand farmers (Kannan et al., 2021; Bok et al., 2022). Furthermore, Tey et al. (2021) carried out a comprehensive literature review regarding the financial costs and benefits of RSPO certification for independent oil palm farmers. They argued that increasing farm size in the certification process could also increase the affordability of the certification process, which indicates the importance of economies of scale (Tey et al., 2021).

3 Method

This study applies an action research method for answering two research questions. First, what strategies can reduce the costs of upscaling the certification of independent oil palm farmers? Second, will undertaking these strategies lead to implementation gaps? Action research is defined as “a participatory process concerned with developing practical knowledge in the pursuit of worthwhile human purposes” (Reason and Bradbury, 2013, p. 4). The action research on oil palm smallholder certification was carried out by an Indonesian non-profit research organization in Seruyan and Kotawaringin Barat Districts, Central Kalimantan Province, Indonesia. The stance during the action research process was set by the premise that “one cannot understand a system until one tries to change it” (Schein, 2008, p. 273). By implementing the certification process directly, the research aimed to understand smallholders’ challenges and ways to reduce the costs for smallholders in obtaining certification. The adopted method is

TABLE 1 Summary of certification cost from previous studies.

Source	Cost item	Min (\$/ha)	Max (\$/ha)
Levin et al. (2012)	Initial certification and necessary staffing	2.13	3.54
	Training of staff and smallholders	0.09	23.1
	Corrective actions	3.74	10.99
	Ongoing certification and maintenance	2.43	13.03
	Total	8.39	50.66
Beall (2012)	Audit costs	55.93	55.93
	Yearly surveillance audit	99.23	99.23
	Average yearly initial certification costs	38.75	38.75
	Total	193.91	193.91
Wangrakdiskul and Yodpijit (2015)	Initial certification costs	11.6	28.99
	Initial training costs	22.18	55.44
	Initial staff salary	31.62	31.62
	Staff salary	15.81	15.81
	Re-certificate audit costs	6.89	17.21
	Training costs	5.2	10.39
	Total	93.29	159.47
Hutabarat et al. (2018)	Establishment of internal control system (ICS)	0.94	0.94
	Training	4.71	4.71
	Group member training	35.45	35.45
	Group certification documents	3.2	3.2
	Farmers' documents	38.68	38.68
	Internal assessment I	0.9	0.9
	Internal assessment II	0.11	0.11
	RSPO member registration	0.4	0.4
	Pre audit	7.4	7.4
	Remedial CARs	0.26	0.26
	Main audit	8.5	8.5
	Total	100.62	100.62
Hidayat et al. (2016)		Scheme	Independent
	Audit implementation	0.06	0
	Capacity building and training	0	3.49
	Data verification	0	0.06
	External audit	11.37	9.57
	Follow-up audit	0.05	2.07
	Internal audit	0	0.84
	Organization establishment	0	0.74
	RSPO membership	0	0.28
	Document recording	9.23	1.52
	Environmental and biodiversity standard compliance	1.6	0.67
	Farmers organization meeting	2.08	33.83
	Legal aspect compliance (STDB/cultivation registration certificate)	0	2.01
	Operational costs of organization	0	1.5
	Social standard compliance	1.47	3.06
Total	25.86	59.63	

similar to the Clinical Research method with the primary goal of helping while the production of knowledge is a by-product (Schein, 2008, p. 266).

The action research started following smallholder mapping and registration activities, in which all stakeholders, including farmer groups, the local government, and private sector actors, mutually agreed to proceed with smallholder certification. The research started with assisting 190 farmers in Pangkalan Tiga village (Figure 1). Additional farmers then joined the certification process in Pangkalan Tiga village, bringing the total number of farmers to 510. After completing the first audit in Pangkalan Tiga, two more farmer groups in two villages were assisted in Kotawaringin Barat, namely Pangkalan Dewa and Lada Mandala Jaya villages. A similar process took place in two villages in the Seruyan district, Suka Maju, and Sukorejo. A total of 1,280 smallholders from five farmer groups participated in the project to support independent smallholders to get RSPO certification between 2017 and 2019 (Table 2).

After evaluating the certification process of the first five farmer groups, several measures were put in place to reduce costs. One of the major steps was establishing a jurisdictional entity, a district-wide association that provides services for all farmers in the district. Under the entity, a total of 2,227 farmers obtained RSPO certification in July 2023.

The certification process of oil palm farmers in Pangkalan Tiga village, as the first village assisted in getting RSPO certification in the project, served as the benchmark for the certification process in other villages. In Pangkalan Tiga village, the project decided which items to fund based entirely on farmers' requests. After Pangkalan Tiga village, the certification process for the four other villages was carried out in parallel. Learning from the experience of Pangkalan Tiga, the project deliberately chose not to provide the same level of support to the other two villages. However, this did not reduce the entire cost of certification as it just shifted the cost burden from the project to farmers. Farmers were also more willing to cover the costs as they were motivated by the successful example of Pangkalan Tiga.

The project reduced certification costs by lessening the travel related to the project implementation. To reduce the travel costs related to farmer training, the project sought trainers from surrounding palm oil mills instead of bringing trainers from the provincial or national capital, where they usually resided. Moreover, training and project supervision visits were carried out at around the same time, covering all participating villages to reduce travel-related costs.

The annual expenses decreased as the farmers became more familiar with sustainable farming practices. In the case of Pangkalan Tiga, the farmers were able to manage the surveillance audit process independently during the second surveillance audit, or around 3 years after first being assisted. Farmer groups were expected to be able to pay for the surveillance audit using the profit generated from selling the certificate. Furthermore, the groups also had sufficient funds to invest in small business ventures such as producing organic fertilizers and agritourism.

The certification process was financed by numerous organizations. The funders included the Norwegian Agency for Development Cooperation (Norad) and the German International Climate Initiative (IKI) through sub-grants, the RSPO Smallholder Support Fund (RSSF), and Unilever, a consumer goods company.

Throughout the certification process, the non-profit research organization acted as a facilitator that channeled financial support to farmers by: (1) providing technical assistance such as mapping farms, carrying out baseline analyses, and providing on-the-job training for the farmer groups to administer the certification process; (2) paying for expenses related to certification such as travel, meeting and audit costs; and (3) connecting farmers with the district government to expedite the process of obtaining legal documents. The non-profit research organization assisted six farmer groups in Central Kalimantan throughout seven stages of the certification process (Figure 2). Watts et al. (2021) provide a detailed description of the smallholder certification process. Following the certification process, the farmer groups then sold the certificate through *PalmTrace*, which is a marketplace where RSPO-certified oil palm products can be purchased and sold. They had a prior agreement to sell the credit to a consumer goods company that provided financial support for the certification process.

Data on costs were obtained from the project's financial reports of the non-profit research organization carrying out the action research to calculate the cost of certification. The financial reports were further audited by third-party auditors. The certification costs were organized based on the certification stages, which are similar to those described in Watts et al. (2021).

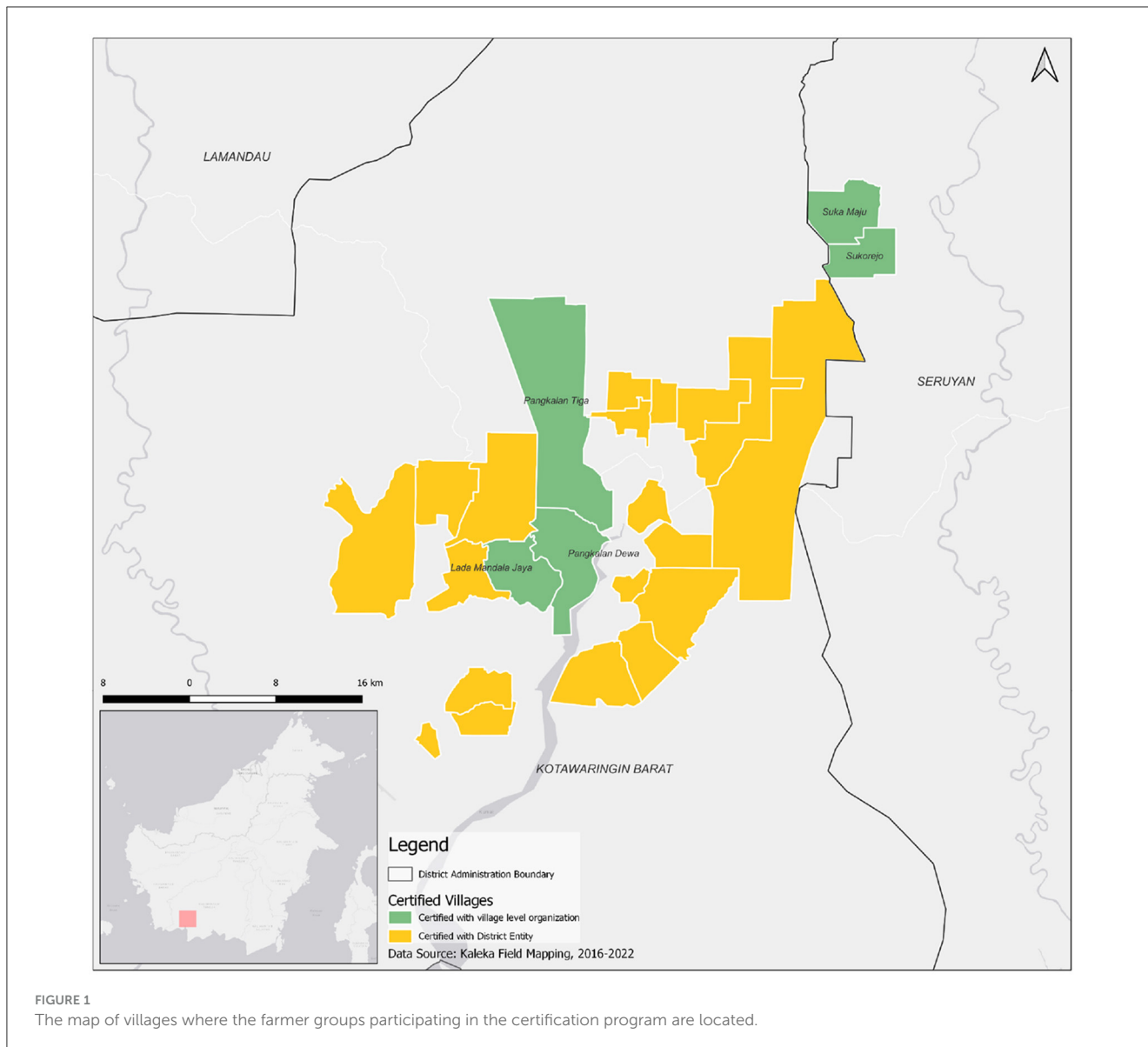
To measure the impact of the cost reduction strategies implemented, the study assessed the effectiveness of training provided for farmers participating in the certification process and the audit findings of non-compliance with RSPO principles and criteria. We analyzed the external and internal audit reports and the farmers' training records.

4 Results

4.1 Strategies to reduce certification costs

The strategies applied in the project resulted in the overall reduction of cost. Before the cost reduction measures, the upfront costs of certification in the first five farmer groups were between \$114 and \$303 per farmer or \$45 and \$165 per hectare (Table 3). As the scale increased, the costs decreased to only \$45 per farmer or around \$19 per hectare. The upfront costs included all costs related to preparing the farmers to obtain certification, as depicted in Table 3. The reduction of upfront cost per farmer in the villages indicates that achieving economies of scale during the certification process can reduce the cost (Figure 3). On average, the upfront per-farmer certification cost decreased by at least six cents per each additional farmer added into the certification process. The graph shows that per-unit cost decreased as the number of farmers increased.

The strategy to increase the total number of farmers participating in the certification process within a district-level entity requires a strong capacity within the entity to manage the certification process. An internal control system (ICS) was established to ensure the compliance of all members with RSPO principles and criteria. The daily activities of ICS were collecting all documents required for the certification process, carrying out training, and conducting internal audits. As the number of farmer members increased, the project spent considerable time building



the capacity of the district entity's personnel to administer the certification process. The entity is meant to help all farmers obtain certification within the entire district, starting with the first 2,227 farmers. The cost of setting up the entity was relatively high at the beginning compared to the cost of setting up the previous groups. Because no more costs will be required for organizational setup with any additional members joining the group, the cost will eventually be lower in the long run.

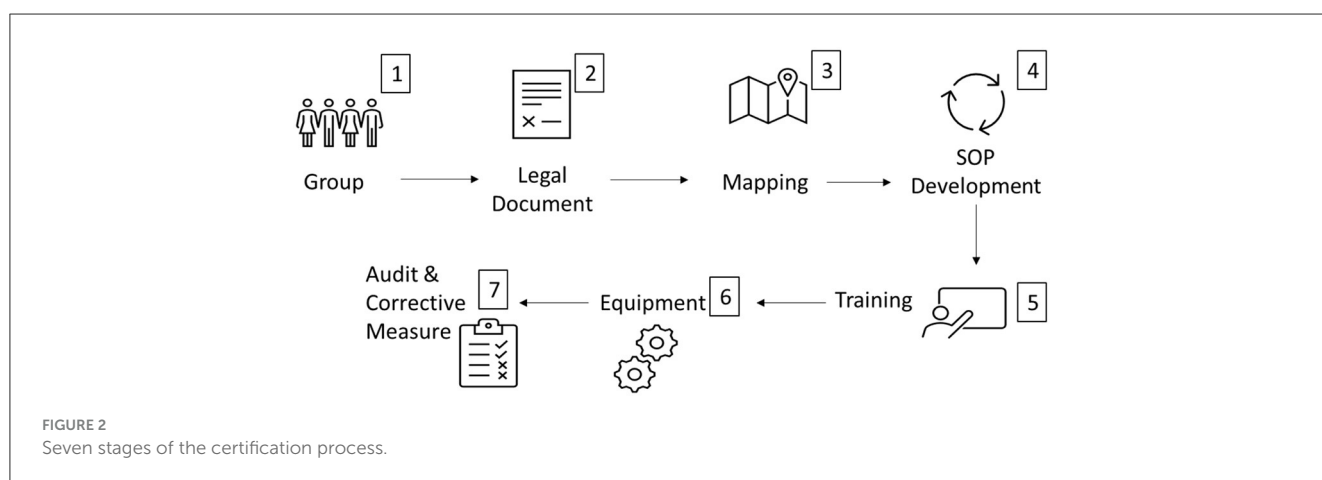
With the establishment of the district-level entity, the certification costs were reduced due to the following reasons. First, the most obvious cost reduction is related to the RSPO membership fee, which is paid only for one group instead of for multiple groups. Second, the cost can be reduced as the project only developed one set of standard operating procedures (SOPs) to guide the compliance of farmers to the principles and criteria for all farmers. In contrast, the project needed to develop one set of SOPs for each of the five groups that were assisted previously. Furthermore, for the district-level entity, the project revisited all the previous

five SOPs and developed a web-based system based on the SOP so that everyone could have access to it and use the template and documents freely.

The major cost associated with the certification process is the audit cost. The typical activities carried out during external audits are checking organizational documents, interviewing group managers and farmers who are selected as samples, conducting consultations with stakeholders, visiting the farms, and preparing audit reports. The costs of the first audit and correction measures accounted for more than 40 percent of the total certification cost in the first four villages. The result is similar to the findings of Beall (2012), Levin et al. (2012), and Wangrakdiskul and Yodpijit (2015), which found that the major part of certification costs were allocated to the first audit or subsequent surveillance audits. When the number increased to 2,227 farmers, the audit cost was reduced from \$61.64 and \$140.25 to \$15.84 per farmer, or between \$22 and \$79.84 to \$6.98 per hectare. The audit cost made up around 24% of the total costs. The reduction in audit cost was mainly due to fewer

TABLE 2 Certified smallholders in Kotawaringin Barat, Central Kalimantan.

Village	No. farmers	No. plots	Area	Production (Ton/Ha)	Starting	Audit
Without cost reduction measures						
Pangkalan Tiga	510	906	1,420.3	20.65	03/2016	07/2017
Pangkalan Dewa	204	361	341.3	17.39	12/2017	09/2018
Lada Mandala Jaya	214	455	399.3	15.23	12/2017	08/2018
Suka Maju	177	764	331	22.61	09/2017	03/2019
Sukorejo	175	930	288	12.0	09/2017	04/2019
With cost reduction measures						
District level entity Kotawaringin Barat	2,227	4,382	5,052.6	14.37	09/2020	03/2023



days allocated by auditors to audit one entity instead of multiple entities, although the number of sample farmers audited remains the same. The audit cost was also lower compared to the first five groups due to the lower cost of travel to the site.

The annual surveillance audit cost also decreased with the increase in the total number of farmers. After the farmers obtain their certification, they need to maintain the certificate by going through an annual surveillance audit for the years to come. The surveillance audit cost involving around 200 farmers in Pangkalan Dewa and Lada Mandala Jaya was about \$64 per farmer (Table 3). The price decreased to \$26 per farmer during the surveillance audit in Pangkalan Tiga, when the total number of farmers was 510. The reduction of the surveillance audit cost was because of the increase in the total number of farmers audited, which reduced the audit cost per farmer.

The cost of obtaining legal documents varied depending on the district where the farmers were located. In the Seruyan district, the cost of obtaining legal documents was consistently low due to the government's commitment to jurisdictional certification. In Kotawaringin Barat, the cost associated with obtaining legal documents varied over time, showing that as the new official responsible for issuing the document took office, the cost changed too. The legal documents, which include the land title, the environmental management license, and the farmer registration for cultivating oil palm, are supposed to be issued without charge to farmers as district governments cover the cost as part of the service provided for their constituents. When local governments

are not allocated sufficient funds to provide the services due to other pressing needs, other parties should bear the costs, such as the certification project presented in this paper.

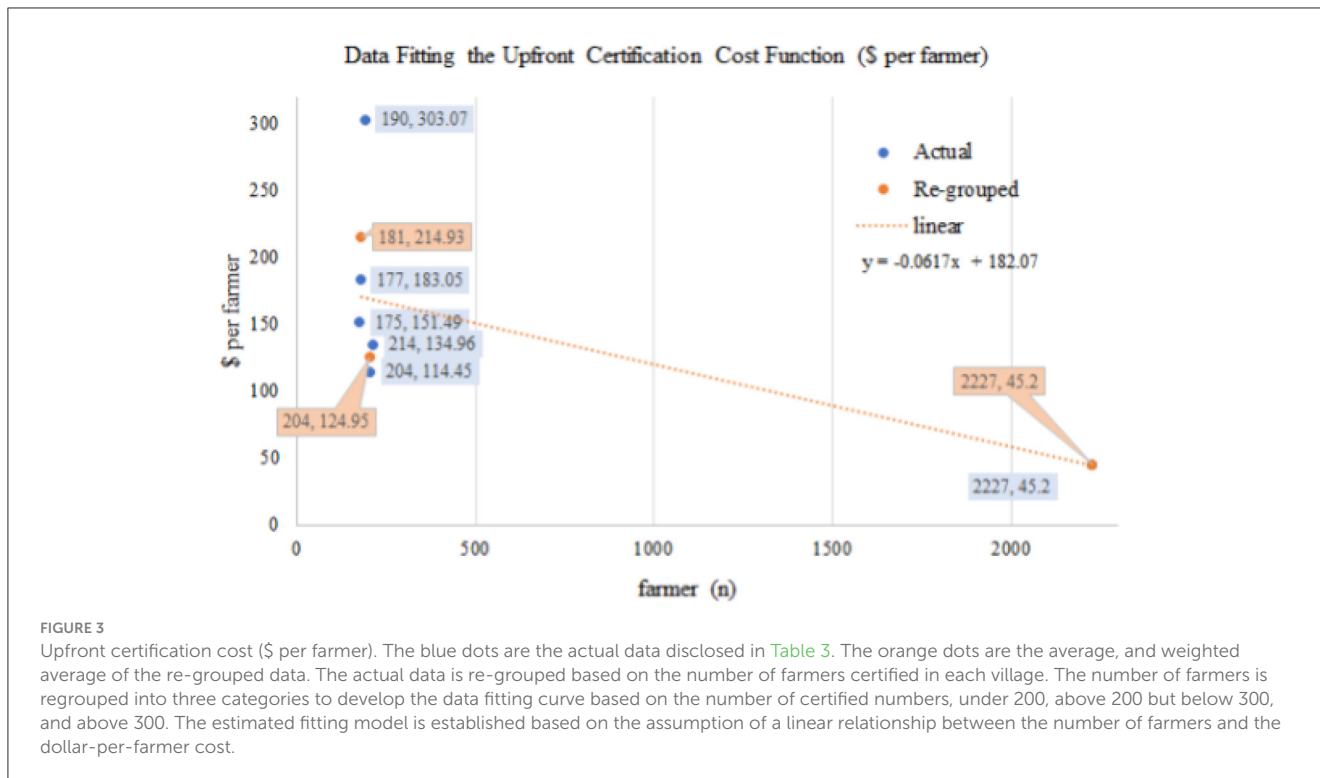
The training cost remained stable regardless of the number of farmers participating in the certification process. The training cost ranged between \$12.75 and \$35.81 per farmer in all groups except for the case of the first farmer group that the project assisted in Pangkalan Tiga village. The reduction of the training cost was mainly due to several strategies put in place to deliver training for the farmers, such as finding trainers from the surrounding areas, such as oil palm mills/estates or government units. Training for several groups around the same schedule can reduce overall training costs.

Certification costs varied depending on the districts where the farmer groups were located. Expenses related to mapping and data collection of farmer members joining the certification process varied depending on the district where they were located and their farms' locations. In the Seruyan district, the cost of mapping was higher due to the locations of farmer plantations that are often harder to reach than the farmers in Kotawaringin Barat. The poorer quality of roads also made it more costly to collect data on farmers' plots than in neighboring districts. Moreover, the cost of obtaining legal documents also varied depending on the districts where the farmers were located. The cost of processing the legal documents is usually high at the beginning. As governments learn how to deliver the service, the cost can eventually be reduced. However, with the change of leadership and staff in the plantation office

TABLE 3 The certification costs of six farmer groups in Central Kalimantan.

Certification cost item by process	190 farmers in Pangkalan Tiga	Additional 320 farmers in Pangkalan Tiga	204 farmers in Pangkalan Dewa	214 farmers in Lada Mandala	177 famers in Suka Maju	175 farmers in Sukorejo	2,227 farmers of district entity
	319.45 ha	810.8 ha	341.33 ha	399.27 ha	331 ha	288 ha	5,052.6 ha
Establishment of Farmer's Organization	\$1,477.25		\$206.34	\$910	\$1,012	\$634	\$9,926.04
<i>\$ per farmer</i>	<i>\$7.78</i>	-	<i>\$1.01</i>	<i>\$4.25</i>	<i>\$5.72</i>	<i>\$3.62</i>	<i>\$4.46</i>
<i>\$ per ha</i>	<i>\$4.62</i>		<i>\$0.60</i>	<i>\$2.28</i>	<i>\$3.06</i>	<i>\$2.20</i>	<i>\$1.96</i>
Legalization process (obtaining legal documents)	\$3,427.71	-	\$554.13	\$92.05	\$1,259	\$106	\$6,874.03
<i>\$ per farmer</i>	<i>\$18.04</i>	-	<i>\$2.72</i>	<i>\$0.43</i>	<i>\$7.11</i>	<i>\$0.61</i>	<i>\$3.09</i>
<i>\$ per ha</i>	<i>\$10.74</i>		<i>\$1.62</i>	<i>\$0.23</i>	<i>\$3.80</i>	<i>\$0.37</i>	<i>\$1.36</i>
Social-demographic mapping and environmental condition mapping	\$6,885.17	-	\$557.80	\$2,452.34	\$2,442	\$1,507	\$17,275.80
<i>\$ per farmer</i>	<i>\$36.24</i>	-	<i>\$2.73</i>	<i>\$11.46</i>	<i>\$13.80</i>	<i>\$8.61</i>	<i>\$7.76</i>
<i>\$ per ha</i>	<i>\$21.58</i>		<i>\$1.63</i>	<i>\$6.14</i>	<i>\$7.38</i>	<i>\$5.23</i>	<i>\$3.42</i>
SOP development	\$21,874.87	-	\$2,726.87	\$5,106.67	\$4,466	\$4,723	\$1,054.50
<i>\$ per farmer</i>	<i>\$115.13</i>	-	<i>\$13.37</i>	<i>\$23.86</i>	<i>\$25.23</i>	<i>\$26.99</i>	<i>\$0.47</i>
<i>\$ per ha</i>	<i>\$68.57</i>		<i>\$7.99</i>	<i>\$12.80</i>	<i>\$13.49</i>	<i>\$16.40</i>	<i>\$0.21</i>
Training for capacity development to meet RSPO standard	\$12,052.80	-	\$3,122.11	\$2,729.42	\$6,339	\$2,885	\$30,272.51
<i>\$ per farmer</i>	<i>\$63.44</i>		<i>\$15.30</i>	<i>\$12.75</i>	<i>\$35.81</i>	<i>\$16.49</i>	<i>\$13.59</i>
<i>\$ per ha</i>	<i>\$37.78</i>		<i>\$9.15</i>	<i>\$6.84</i>	<i>\$19.15</i>	<i>\$10.02</i>	<i>\$5.99</i>
Necessary equipment installation	\$15.23	-	\$456.92	\$-	\$286		\$0.00
<i>\$ per farmer</i>	<i>\$0.80</i>		<i>\$2.24</i>	<i>\$0.00</i>	<i>\$1.62</i>		<i>\$0.00</i>
<i>\$ per ha</i>	<i>\$0.05</i>		<i>\$1.34</i>	<i>\$0.00</i>	<i>\$0.86</i>		<i>\$0.00</i>
Audit and correction measures	\$31,435.67		\$15,723.18	\$17,596.09	\$24,824	\$22,993	\$35,265.46
<i>\$ per farmer</i>	<i>\$61.64</i>		<i>\$77.07</i>	<i>\$82.22</i>	<i>\$140.25</i>	<i>\$131.39</i>	<i>\$15.84</i>
<i>\$ per ha</i>	<i>\$22.13</i>		<i>\$46.11</i>	<i>\$44.10</i>	<i>\$75</i>	<i>\$79.84</i>	<i>\$6.98</i>
Total the upfront cost	\$77,168.69		\$23,347.35	\$28,887.01	\$32,460	\$26,511	\$100,668.34
<i>\$ per farmer</i>	<i>\$303.07</i>		<i>\$114.45</i>	<i>\$134.96</i>	<i>\$183.05</i>	<i>\$151.49</i>	<i>\$45.20</i>
<i>\$ per ha</i>	<i>\$165.47</i>		<i>\$45.06</i>	<i>\$72.40</i>	<i>\$98.07</i>	<i>\$92.05</i>	<i>\$19.92</i>
Annual recurring expense	\$18,091.00		\$13,031	\$13,031	\$9,703	\$8,986	
<i>\$ per farmer</i>	<i>\$25.84</i>		<i>\$63.88</i>	<i>\$63.88</i>	<i>\$54.82</i>	<i>\$51.35</i>	
<i>\$ per ha</i>	<i>\$12.74</i>		<i>\$38.18</i>	<i>\$32.66</i>	<i>\$29.31</i>	<i>\$31.20</i>	

Source: action research by authors. The italic values are the costs per hectare and per farmer.



responsible for issuing the legal document for the certification process, the cost of obtaining the legal document increased again as it took time for new officials to become familiar with the tasks.

4.2 The impact of cost reduction measures on the implementation

The cost reduction strategies did not impact the frequency of training provided to farmers. The lack of effect on the number of training provided for farmers was because RSPO specifically stipulates what and how training should be provided for farmers in the Independent Smallholder Standard. The standard was first issued in 2013 and later revised in 2019. The standard is further interpreted at the national level to consider the specific situation of each country, and several guidelines were provided for the implementation of the standard. The 2019 RSPO independent smallholder standard requires 21 training modules to be provided for farmers going through the certification process. This number of modules increased from just 14 modules required in the previous standard. Furthermore, the number of farmers who should be provided with training also increases with the 2019 standard as compared to the previous one.

Table 4 provides the number of training sessions provided in the certification process and the total number of farmers who attended the sessions, although one training session can cover multiple topics. In some cases, several training sessions were carried out for one training module targeting different target audiences. With the increase of farmers participating in the certification process, numerous training sessions should be held,

TABLE 4 Training sessions provided and the total number of farmers attending the sessions.

	Number of training sessions	Total farmers attended training
190 Pangkalan Tiga	14	467
Additional 320 Pangkalan Tiga	26	675
204 Pangkalan Dewa	11	526
214 Lada Mandala Jaya	15	508
177 Suka Maju	35	1,044
175 Sukorejo	33	1,030
2,227 farmers in the district entity	156	8,956

Source: action research by authors.

as typically, one session can be attended by 20–30 farmers. We computed the Spearman rank correlation coefficients to assess the association between the number of farmers participating in the certification process in a farmer group and the number of training sessions and between the number of participating farmers and the mean number of farmers participating in a session. The analysis showed a correlation coefficient of 0.1 between the number of registered farmers and the number of training sessions, a value proximate to zero, suggesting a weak or negligible correlation. The analysis additionally revealed a correlation coefficient of 0.4 between the number of registered farmers and the attendance at training sessions, signifying a high correlation. Nevertheless, it is important to note that this correlation does not necessarily indicate a strong association.

TABLE 5 The external audit findings on non-compliance to RSPO principles and criteria.

Village	Problem with internal audit process	Unmarked plot boundaries	Dangerous waste management	Health insurance and safety	ICS capacity*	Legal documents	LUCA**	Traceability	Training	Total
Lada Mandala Jaya	3		1	7	23	2		4	4	44
Pangkalan Dewa		1	2		1	1	1			6
Pangkalan Tiga					3				1	4
Pangkalan Tiga	1			1	5	1				8
Suka Maju		1	1			4	1			7
Sukorejo		1				2	1		1	5
Farmers in the district entity					2					2

*ICS Capacity refers to the capacity of the farmer group to develop, implement, and monitor systems for managing the group, including standard operating procedures and policies. ** LUCA refers to the Land Use Change Analysis that assesses the impact of oil palm cultivation on potential High Conservation Value Areas.

The cost reduction strategies did not have any impact on the external audit findings on the non-compliance of farmers to RSPO principles and criteria (Table 5). The external audit of the district entity found two issues that should be corrected, particularly related to the ICS's capacity to manage the certification process. The problems related to the ICS capacity are consistent throughout all farmer groups, together with the issue of obtaining legal documents and traceability, regardless of the scale.

5 Discussion

Increasing the number of farmers in the group certification reduced the cost per farmer. In the case of the district entity, the certification cost went down from \$114–303 per farmer when there were 170–214 farmers during the 1st year of certification to only around \$19.92 per farmer when 2,227 farmers joined the process. The group in Pangkalan Tiga increased the number of farmers to 510 during the first surveillance; however, the upfront cost remained. The average cost per farmer or hectare decreased as the total number of farmers increased in the certification process, which indicates the concept of economies of scale (de Roest et al., 2018). This finding is aligned with the literature on payment for environmental services that economies of scale make some PES programs more effective by eventually reducing transaction costs to make the programs feasible (Pagiola and Platais, 2006; Engel et al., 2008; Tacconi, 2012; Wunder, 2015). It also supports findings from timber certification schemes that larger scales are needed to make farmer group certification cost-effective (Maraseni et al., 2017).

One of the largest costs of certification is related to an audit cost. The project managed to reduce the cost by increasing the scale of certification. The audit cost reflects the supply of and demand for audit services, so increasing the number of auditors would further reduce the costs. By increasing the scale, the time allocated for checking organization documents will be carried out for one group instead of multiple groups. For governments that have made the sustainable certification of palm oil compulsory, such as Indonesian Sustainable Palm Oil or Malaysian Sustainable Palm Oil, setting a standard cost for auditing services may be an option.

The cost of obtaining legal documents in the case of Central Kalimantan ranged between \$0.23 to \$10.74 per farmer (Table 3). The result of this study can be further compared to the case of the Amanah farmer organization, which is located in Riau Province, Indonesia, as reported by Hutabarat et al. (2018). The study reported that the costs to obtain certification documents, including the legal documents, were the highest proportion to the total certification costs and the training cost. The costs of obtaining legal documents were around \$38.68 per hectare. It is important to note that the items included in the cost calculation of Hutabarat et al. (2018) may be different from the calculation in this study. However, the government structure and political situation were relatively similar in Riau Province to the case reported in this study in Central Kalimantan. The low cost of obtaining legal documents in this study case was mainly due to the support of the district government for the certification process, which also streamlined the legal documentation process. The costs were primarily associated with the time required for farmer organizations to submit documents, follow up with government officials, and collect the documents.

Hence, the distance from villages to the government offices is the only determining factor. As the government is also becoming familiar with issuing legal documents for farmers, the processing time is becoming faster.

No implementation gaps were observed in this study as those reported in the literature in the case of the coffee sector. Dietz and Grabs (2022) reported that certification labels in the coffee sector aim to expand faster with limited resources. Limited resources further reduce the incentives provided for farmers and the capacity to carry out outreach or help farmers comply with standards. They also found implementation gaps related to mainstreaming VSS, such as a lower number of audits being carried out to check compliance. None of these issues was found in our study. This is because RSPO has maintained stringent standards, including those for independent smallholder farmers. The certification process was carried out according to the existing standards without any compromise.

The 2019 RSPO Independent Smallholder Standard set a higher training and internal audit requirement than the previous standard issued in 2013. For training, the new standard increased the total modules of training for farmers from 14 modules to 23 modules. The number of farmers that should be trained was also stipulated in the 2019 RSPO Independent Smallholder Standard. Moreover, the 2019 standard also required all farmer members to be assessed in an internal audit before an external audit can be carried out. This requirement is higher than the previous standard, which stipulates that only a few farmers selected through a sampling method are audited. For an external audit, the selection of the sample is still the same as the previous standard, which is based on the number of farmers and the risks. RSPO further provides a scale for auditors to assess the risk to put in the formula. In the case of the district entity, the risk is considered high as the ICS should manage the certification process of farmers located in many villages.

Upscaling requires the participation of many actors at different levels. The involvement of public, civil society, and private actors is the key to upscaling (Jelsma et al., 2017; Lambin et al., 2020; de Vos et al., 2023). The involvement of various parties in the project results in the reduction of certification costs. The government is involved in issuing legal documents. The oil palm estate companies, together with government units, can provide training for farmers instead of bringing experts from other areas. All these in-kind contributions lead to a lower cost of certification. Furthermore, aligning between public and private certification standards can accelerate palm oil production's transformation (Apriani et al., 2020).

5.1 Recommendations

We offer recommendations for reducing costs further based on the results of the action research carried out. Our study results provide a basis for advocating the RSPO jurisdictional approach to certification that is currently being developed (RSPO, 2021). Under the jurisdictional approach, a certified unit is no longer a farmer group or company but rather an entire jurisdiction such as a district in Indonesia (Nepstad et al., 2013; Seymour et al., 2020). This approach can drive subnational governments to take responsibility

for the certification process by providing legal documents and other necessary support, such as training. Consequently, the support of local governments in the certification process is critical to reducing certification costs. Furthermore, jurisdictional certification can ensure that the certification process achieves economies of scale, resulting in a cost-efficient and cost-effective process. This can be done by, for instance, organizing all farmers that will be certified into one farmer organization instead of having many organizations for only a limited number of farmers.

The district entity should have sufficient capacity to work with a large number of farmer members. The project invested a significant amount of resources to strengthen the capacity of the district entity, including its personnel, to run day-to-day activities, perform some level of technical skills such as making maps and data analysis, and carry out training and internal audits. The larger upfront investment put into the establishment of the entity will enable it to cater to a large number of farmers' participation in the district in the long run. The issues of capacity are highlighted in other studies as crucial factors for upscaling VSS, including Dietz et al. (2021) in the coffee sector. Furthermore, the district entity also established a smaller internal control system in each village to assist in the implementation of the certification. The study found that several tasks are best handled at the district level, such as information dissemination, identification of high conservation values, managing the RSPO membership, and several trainings that can be delivered through training of trainers methods such as the use of pesticides. Other tasks such as data collection, training related to oil palm cultivation, and regular farmer meetings are best implemented by the village group.

5.2 Study limitations and recommendations for future research

The study results, particularly related to the certification cost per farmer or hectare, should be generalized cautiously to other contexts, especially when the social and political situations are different. In Indonesia, legal documents can be obtained for free by farmers; however, due to the diversity of the districts, not all district governments can provide services for farmers. They often need to learn about the service and, depending on their knowledge, can provide it cost-effectively. Moreover, although this study was carried out in Kotawaringin Barat and Seruyan districts, the district entity that was established to achieve the economies of scale is specifically located in Kotawaringin Barat district. In the Kotawaringin Barat district, many independent smallholders are located in close proximity to each other; hence, finding more than 2000 farmers to join the district entity was feasible. In cases where independent farmers are scattered, such as in the Seruyan district, getting the same number of farmers as in the Kotawaringin Barat district might be more difficult.

The selection of items supported financially in the certification process determined the total costs of certification reported in this study. Other costs that are not financed by the study and not included in the calculation in this study are the cost of establishing farm boundary markers, signage, and other necessary equipment. These costs were borne by the farmers. We also did not

include the costs related to staff salaries working on the project. Typically, the project provides support for the salaries of the staff hired by the farmer group to help manage the process, which includes managing files and documents, organizing events, and communicating with external parties. The organization assisting the farmers also allocated staff to train the farmer group staff and assist in communication with RSPO and external auditors.

Future research can contribute to increasing the understanding of how certification costs can be reduced. Assessing the variation between jurisdictions is important to understand how the government and other actors, such as private companies and civil society organizations in the jurisdictions, work together to support farmers in getting certified. The assessment can also reveal who bears which expenses in order to understand whether the overall certification costs can be reduced or if they are simply borne by a different actor. Different studies often include different cost items in the cost analysis, so it will be useful for future research to record the expenses in detail to allow for better comparison or generalization.

6 Conclusion

Our action research involving 3,507 independent oil palm farmers from six farmer groups in two districts in Central Kalimantan shows that increasing the total number of farmers to be certified and achieving economies of scale can reduce the certification cost. The findings of this study also suggest several measures that can be put in place to reduce the costs of certification for independent oil palm farmers. The study did not observe any implementation gaps as the certification cost decreased with the increase of farmers joining the project. The frequency of training provided for farmers was similar throughout the farmer groups assisted, including the district entity. By comparing the external audit findings, no particular impact in terms of compliance with RSPO principles and criteria between farmer groups was observed. The findings of this study provide a basis for promoting the upscaling of VSS through the RSPO jurisdictional approach.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

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Ethics statement

The studies involving humans were approved by Bernadinus Steni, Chairman, Kaleka. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

SI: Conceptualization, Investigation, Writing – original draft, Writing – review & editing. KP: Formal analysis, Investigation, Methodology, Writing – original draft. JB: Writing – original draft. AD: Data curation, Formal analysis, Writing – original draft. HM: Investigation, Writing – original draft. DR: Data curation, Project administration, Writing – original draft. DF: Data curation, Formal analysis, Writing – original draft. VH: Project administration, Writing – original draft.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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