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Farmers' Organizations Model of Independent Smallholders in Sustainable Palm Oil Certification

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ABSTRACT

Independent smallholders represent more than 3.1 million hectares of all palm oil plantations in Indonesia. However, they receive inadequate attention from sustainability initiatives, deforestation and palm oil production discussions. Meanwhile, evidences show that by collaborating voluntarily in organizations and building linkages with public and private stakeholders among institutional arrangements, farmers have opportunities to access productive assets for expanding their capacities, to seize economic changes, and policy making. Thus, the research answers the key point relationships of the organization of smallholders to meet sustainable certification system. The analysis was conducted in three districts by using structural equation models. The study indicates that there was, directly and indirectly, an effect of the farmers' organization for achieving sustainability. However, none of independent smallholders in the analysis site participated in the farmers' organization. The farmers' organization is also proven to have a positive effect on the legality and a positive indirect effect on the sustainability through the legality. In the farmers' organization, providing information to relevant stakeholders is in line with the applicable provisions, except on the confidential subject which is important for sustainability. The most important aspect with regard to the legality is

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the stakeholders' agreement on management and monitoring of the environment.

Keywords: Certification, farmer's organization, independent smallholders, palm oil, sustainability, legality

INTRODUCTION

Smallholders represent an enormous share of the world's palm oil production and important players in the Indonesian palm oil sector. In Indonesia, smallholders have already managed more than 40 percent (4.2 million hectares) of plantations and more than 3.1 million hectares are owned by independent smallholder farmers. Yet, independent smallholder farmers have received inadequate attention by sustainability initiatives or environmental impacts in palm oil production discussions. Thus, they are unable to take full advantage of market opportunities, particularly international market that requires standardization and certification by palm oil plantation. This is also exacerbated by internal factors of independent smallholder farmers due to scattered locations, no grouped nor organizations, which become a daunting challenge resulting in lower productivity.

Nowadays, the existence of certification as a standard is a mandatory requirement in several importing countries which is expected to provide benefits, i.e. the track of sustainability (Mol & Oosterveer, 2015); providing a verifiable method to assess the level of sustainability performance (Sit, 2017); a measure of progress against the sustainability development (D'Hollander, 2016; Langley & Tsoukas, 2017; MacCarthy, 2017; Poveda & Young, 2015); increasing supply chain transparency and improving relationships with suppliers (Aaronson & Wham, 2016; Ernst & Young Global Limited [EYGM], 2016).

Nevertheless, the indirect positive impacts of certifications could also be far bigger than the direct impacts, although access to markets and vulnerability are not improved through certification (Barry et al., 2012; Kronenberg, 2014; Hidayat et al., 2015; Oya et al., 2017). Yet, if the certification schemes are institutionalized, farmers can simply shift to a more profitable approach of production, although not sustainable production (Hidayat et al., 2015).

Therefore, Indonesia as one of palm oil exporting countries launched Indonesian Sustainable Palm Oil (ISPO) standard with the Ministry of Agriculture's decree No.19/Permentan/OT.140/3/2011 to form the norm of sustainable production and to deal with industry sustainability. ISPO standard is covering licensing and plantation management, cultivation and process, environmental monitoring and management, labor, social, economic management, and sustainable business improvement. The Indonesian Government conjointly issued law No. 19/2013 for enhancing small farmers' living within the future, conjointly supported by the recently issued law No. 11/ Permentan/OT.140/3/2015 for Indonesian Sustainable Palm Oil (ISPO) certification system.

However, it is not easy to implement ISPO, even though there is evidence showing that by collaborating voluntarily in organizations and building linkages with public and private stakeholders among institutional arrangements, farmers have opportunities to access productive assets for expanding their capacities, to seize economic changes, and to take part in policy making (Abaru et al., 2007; Barham & Chitemi, 2009; Bijman et al., 2012; Bijman & Hu, 2011; Fairfield et al., 2011; Lowitt et al., 2015; Zimba, 2013).

Hence, since the term sustainability has been emerged and booming, stakeholders are concerned with improving the organization's sustainable behavior for regulatory approaches in effective ways accordingly (de Lange et al., 2012; Vaio & Varriale, 2018). For these reasons, it is imperative that we focus on farmers' organizations as a result of the role of farmers' associations, which facilitate dialogues involving all people who exercise its functions for farmers. Farmer organizations conjointly also play crucial roles in rural communities, supporting democratic decision-making processes, leadership development and education. This concern relates to how sustainability is sustained in organizations through the lens of strategy and organization theory for developing the internal knowledge-based (Leon, 2013).

This finding is also based on the concept of dynamic capabilities (Teece et al., 1997) for deploying capabilities in their own organizations (Breznik & Lahovnik, 2016) and interorganizational alliances of activities on sustainable farmers' organization behavior (Post, 2015), which prove the organization innovativeness for facilitating sustainability (Luqmani et al., 2017). While, the legal aspect of sustainable development is important matter in international law due to the emerging principle of international environmental law, or as a customary norm that will eventually be accepted as binding on all states (Segger & Khalfan, 2004). Thus, the research addresses the questions of what and why are the key point relationships (direct and indirect) of smallholders' organizations to meet sustainable certification system as the important key point targets for government support policy in fostering the role of farmer organizations to meet sustainability of palm oil industry.

MATERIAL AND METHODS

The research was conducted in West Kalimantan districts, i.e. Landak, Kubu Raya, and Sambas which have the biggest population of independent smallholder farmers; 150 respondents were recruited using purposive sampling (Fraenkel & Wallen, 1993; Sugiyono, 2003). In-depth interviews were used with an unstructured or semi-structured set of questions to obtain best results and sampling; elicit candidates' responses; fewer distractions; faster and cheaper; more productive; deeper insights; versatile, and quicker adaptation (Alshenqeeti, 2014; Turner, 2010).

The findings are structured from the Indonesian Sustainable Palm Oil (ISPO) indicators that are taken into consideration by

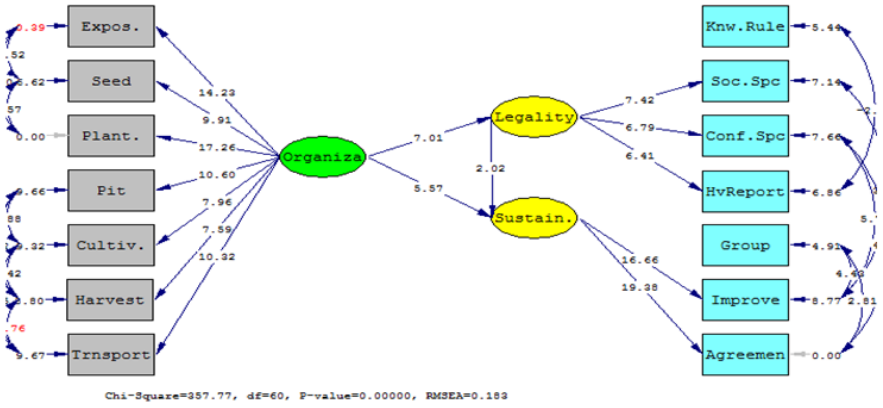
the Ministry of Agriculture as a government policy for the resolution of sustainability environmental issues. The sustainability aspects were developed to support the legality and farmers' organizations, also to answer the question of the key relationships (direct and indirect) of the smallholder organization to meet proper certification system and palm oil industry demands for the long-term. A review of existing literature of previous studies contributes to the findings of the analysis so that conclusions can developed through the question analysis, relevant literature, research instruments and also evidence.

The research data were analized using Structural Equation Model (SEM) with Lisrel software. The analysis was conducted in the following steps: (1) model specification that serves to find and connect the indicators of the latent variables and between latent variables; (2) the qualification model in the over-identified category; (3) the value of the parameters estimation with ML (Maximum Likelihood) with criteria which are the offending estimates in acceptable limits; (4) the validity and reliability test of the model using the value of standard loading factor and CR test; (5) the goodness of fit test; (6) the model respecification using the modification of indices information; (7) the goodness of fit test used once more for model respecification; (8) the result interpretation (Riadi, 2013; Wijanto, 2008).

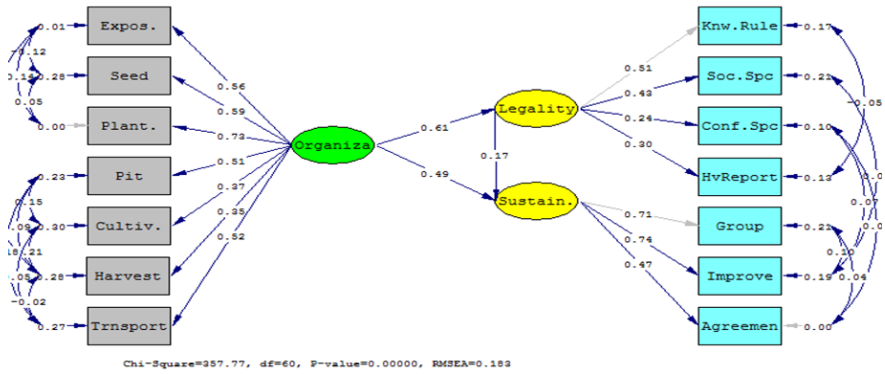
RESULTS AND DISCUSSION

The research questions of what and why are key point relationships (directly and indirectly) of smallholders organizations to meet a sustainable certification system to face major challenges of farmers organization for the long term of palm oil industry are addressed by the results. Thus, initial validity and reliability tests were conducted before answering the research questions. The findings indicate that a number of t-loading factor value was not valid, although all data were reliable, and the validity and reliability test on the data ought to be conducted once more to qualify all the data till they become valid and reliable. Meanwhile, the goodness of fit test indicated that the eight criteria were fulfilled, i.e. SNCP (NCP/n), ECVI, AIC, CAIC, NFI, CFI, IFI and RMR. The results of the estimated coefficient model for sustainable development of independent smallholder farmers in palm oil production are presented in Figure 1.

In Figure 1, there were interrelated dependence relationships or paths of variable latent affecting the sustainability. It confirms that there were direct and indirect effects of farmer organizations on the achievement of sustainability. Farmer organizations also play a crucial role in making the input and output of market mechanism (Barham & Chitemi, 2009; Ouma & Mercer, 2012; Shiferaw & Muricho, 2009; The Sustainable Development Solutions Network [UNSDSN], 2013). Hellin et al. (2007) stated that farmer organizations directly linked to markets could be more economically sustainable as opposed to organizations supported by non-governmental organizations.



(a) t-value



(b) Estimate coefficient

Figure 1. (a) t-value and (b) estimate coefficient for farmer's organization model

Here we see that ISPO certification did not provide a direct impact on sustainability, but farmer organizations are one of ISPO aspect that provide a direct impact on sustainability. This finding indicates that the limited and inconclusive evidence of ISPO certification is beneficial for increasing the production of independent smallholders due to insufficient CPO prices to cover recurrent costs, a lag time in realizing benefits from improved agricultural practices, and limited data (Rietberg & Slingerland, 2016). However, certification of independent smallholders changes market relations, and seems to increase the access to training and technical support as well as access to agricultural inputs and finance (Barry et al., 2012; Hidayat et al., 2015; Molenaar et al., 2013), even though the effects of these changes have not yet been examined.

Thus, there was a question about extension services provided by farmers' organizations which requires deep thinking to solve, particularly issues in market relations, access to training and technical support and access to agricultural inputs

and finance. Literatures proposed some extention services for solving these issues, i.e. exploring market system connections to identify interconnections and opportunities (United States Agency for International Development [USAID], 2017); integrating service provision with public-private sector partnerships (Hussain & Perera, 2004); getting the private sector involved in smallholder input credit and non-credit mechanisms that make inputs more affordable; policies to promote smallholder access to purchased inputs (Gordon, 2000); innovative media platforms and technology (Barton et al., 2016).

Besides, there were the direct effect and indirect effect of farmer organizations to meet sustainability. The functions of farmer organizations is also distinctive and proven historically, i.e. the access to credit, seed, fertilizer and market (Food and Agriculture Organization [FAO], 2011; Gyau et al., 2014; Hellin et al., 2007; Jack, 2013) because they are typically hybrid governance structures combining elements of markets and hierarchy (Ménard, 2007); they are positively associated with higher quality standards because the outcomes are more efficient (economies of scale) and better performance in price and quality (Bijman et al., 2012; Bijman & Hu, 2011; Poole & Frece, 2010; Rwelamira, 2015; Stanciu, 2013); offering higher producer prices as long as they handle considerable quantities in food chains with asymmetric market power (Bijman et al., 2012).

These functions are particularly important in remote areas where farmers are faced with the markets, that are typically characterised by asymmetric information and where farmers rely upon a number of (large) traders or processing firms (Shiferaw & Muricho, 2009; Magesa et al., 2014). Thus, activities in the organization go hand in hand with pursuing public goals such as the development of human capital, improving competitiveness and environmental protection and even building their strategy even on regional characteristics and social processes which will then result in sustained (OECD et al., 2014; World Economic Forum [WEC], 2013) which could be a load of structural and technological innovations that yield each line of returns (Bansal & Hoffman, 2012; Hopwood & Unerman, 2010).

The farmer organization has proven to have a positive effect on the legality and sustainability. Thus, if the farmers' organization increased 1%, it would increase the legal aspect of 0.61% and if the legality increased by 1%, it would also increase the sustainability value to 0.17%. Meanwhile, if a farmer organization increased by 1%, it would also increase the sustainability value to 0.49%.

The farmer organization also had an indirect effect on sustainability as 0.10% through legal. This is of course understandable because one of important parts of the institutional environment, in addition to the social and cultural characteristics, is formed by the legal and policy aspects (NABARD, 2015). It is also triggered by the significant progress toward a sustainable society (Dernbach

& Mintz, 2011; GlobeScan, 2017; United Nations [UN], 2016), much less achieve sustainability by developing and implementing laws and legal institutions. Since government, business, and non-governmental organizations increasingly require legal works that address sustainable development issues (Dernbach & Mintz, 2011). Hence, the farmers' organization has to create the mechanisms for standards, as well as to adapt and respond to unanticipated outcomes, particularly when there is a commensurate focus on capacity building and other strategies to support improved performance (Barry et al., 2012).

This finding is supported by Lyson and Welsh (2005) that more restrictive laws provided better socioeconomic conditions. Eventhough it cannot put structural change, they control the organizational form of farming based on ownership arrangements (Hogeland, 2015); serving as a business climate signal markets demand (Speier & Krueger 2006); effectively organized with the strategy (Bijman et al., 2012).

However, the sustainability is not just about the connection of legal aspect and sustainability (Affolder, 2012; Dernbach & Mintz, 2011), but also the phrase of law for sustainability (Avilés, 2014; Barral, 2012; Rijswick, 2012) and sustainability governance (Clarck, 2012; OECD, 2010). Thus, these following factors were engaged to meet the challenges and defience of sustainability, i.e. providing information, tools, and ideas of key contributions in achieving and foster sustainability for policy makers, practicing lawyers, etc (Dernbach & Mintz, 2011; Willetts et al., 2010); integrated decision-making (Cheever & Dernbach, 2015; Cole, 2014); pre-existing laws (Dernbach & Mintz, 2011); the centrality of governments (Bakshi, 2012; Mudacumura et al., 2006); the climate change concern (EYGM, 2011; OECD, 2016; UN, 2008); the ecological integrity (Aleksandr et al., 2016; Keenleyside et al., 2012); the specific legal principles (Avilés, 2014); creating an appropriate legal structure (Dernbach & Mintz, 2011; Srinivas, 2015; the hard law norms in the sustainability assessment tools and institutions (Barry et al., 2012; Charlemagne et al., 2015; Waas et al., 2014). However, this finding is contrary to the finding of Meng-Shan and Chi-Cheng (2013) that the organization cannot help to require sustainability directly, but external factors can do so.

Thus, none of independent smallholders in the research site participated in the farmer organization due to non-establishment of the farmer organization and lack of understanding about the role of its existence which is in line with the aspect of farmer groups' heterogeneity (Woolverton & Neven, 2014), i.e lack capital to grow in scale and complexity, lack of coordinated decision-making not well-linked; lack of trust in markets from the supply side; lack of planning; storage practices are not in line with a commercial approach; insufficient quality management; lower commercial practices and attitudes. Furthermore, collective decision making is sometimes cumbersome (Poole & Frece, 2010), including undesirable top-down

decision making (Isubikalu, 2007), and a few incentives to get access in output markets (d'Hôtel et al., 2011; Ferris et al., 2014; Hellin et al., 2007).

Although none of the independent smallholders in the research sites participated in the farmer organization, in principle and based on the criteria of Indonesian Sustainable Palm Oil (ISPO) through No.11/Permentan/OT.140/3/2015, independent smallholder farmers are also required to undertake farm management provisions with or without famer organization. Moreover, the principles and criteria of the farmer organization in the ISPO are the institutional of farmers that is formed to assist in the implementation of the farm management including the needs of production facilities, production estimates, crop maintenance activities, pest control, harvesting, transportation, terracing maintenance, drainage, road production, plans rejuvenation, and so forth. Therefore, organizations could use their capabilities in creating and maintaining competitive advantages to meet sustainability (Srivastava et al., 2013) and those aspects help to realize optimal farm management aspects.

Thus, the development of sustainability will be significant if an organization could repeatedly reexamine its sense of purpose and make sure that the organization has a consistent sense of focus, strong engagement both within the organization and with its stakeholders (suppliers, developers of environmentally safer materials and processes, and firms), continuous and pragmatic innovation (Ikeda, 2012; Matsumoto et al., 2017; Weidinger & Fischler, 2014).

Hence, the government may support it through policy making that is adopted in that area and how the line is drawn between public sector support and private sector, and uses events to have impacts, financial, cultural or social terms (Henderson, 2011). Next, the results of the indicator that has a significant effect on the farmers' organization for sustainability is presented in Table 1.

In Table 1, all the indicators of the farmer organization had a contribution of 77.87% to the sustainability. The highest one was providing information to relevant stakeholders in accordance with the applicable provisions, except on confidential subjects. This will allow reporting organizations and report users to focus on the economic, environmental, and social impacts that actually matter, leading to reports that are more strategic, more centered and credible, also easier for stakeholders to navigate (Global Reporting Initiative [GRI], 2015).

The second contribution to the farmer organization is the certified seeds. The question regarding seed circulation might be a complicated one as the farmer seed systems are embedded in social, economic, political and institutional relations of rural life (Coomes et al., 2015; Wencélius et al., 2016), i.e. seeds are effectively kept in farmer networks that become a crucial alternative for providing seeds in times of shortage; seeds bear social prices and transfers by social relations around identity,

Table 1

Indicator of latent variable effect for the sustainability

Indicators of Latent Variables	Estimate Coeff./ Total Effect	Indirect Effect (through legality)	Total effect to farmers organization	Determinant Coefficient
Farmer's organization:				
Expos.	0.56			14.23
Seed	0.59			9.91
Plant	0.72			17.26
Pit.	0.51			10.60
Cultiv.	0.27			7.96
Harvest	0.35			7.59
Transport	0.52			10.32
Legality:				
Knw.Rule	0.51		0.31	
Soc.Spc	0.43		0.26	7.42
Conf.Spc	0.24		0.14	6.79
Hv Report	0.30		0.18	6.41
Group	0.71	0.12	0.42	15.03
Improve	0.74	0.13	0.44	16.66
Agreement	0.47	0.08	0.28	19.38

status and wealth, as well as access (Coomes et al., 2015). Thus, choice of seeds is very influential, besides labor, urea fertilizer, and herbicides, which do not directly have an effect on fruit production (Salmiyati et al., 2014).

Planting on peatlands becomes the third vital factor in the farmers' organization. This can be a challenge for the palm oil plantation that is expounded to the dilemmas and complexities of peatlands with potential impacts ensuing from flooding, water inadequacy and pollution, forest fires and air pollution, habitat loss and biodiversity alteration, social economic shift and global climate change (FAO, 2017; Matthias & Annette, 2016; Roundtable on Sustainable Palm Oil [RSPO], 2015;). If not properly managed, oil palm development on peatlands may conjointly impact the financial aspects of the production (Goldstein, 2016; Veloo et al., 2015). Thus, oil palm cultivation on peatlands needs such a lot of efforts and costs compared to cultivate on the mineral ground (Morel et al., 2016; RSPO, 2015) and particular approach for coordination and collaboration between stakeholders (The Singapore Institute of International Affairs [SIIA], 2017).

Next, cultivation provides the required soil conditions to boost the successful establishment of young offshoots or the tissue of culture plants since it is received from the nursery by considering the character of the date palm and hope for long-term sustainability of the plantation (Ali, 2011; Shah, 2014).

Harvesting is the fifth important indicator in the farmers' organization. Good harvesting practices are needed to produce large quantities of fresh fruit bunches, high oil extraction rates, and good quality oil which is needed for maximum yield (Kumaradevan et al., 2014; Woittiez et al., 2017) with some methods, i.e. Photogrammetric methods (Jaffar et al., 2010; Roseleena et al., 2011), digital camera (Razali et al., 2011), staining methods and laboratory testing, and video image processing (May & Amran, 2011). Good harvesting practices include, i.e. correct procedures; only ripe bunches; good and fast transport of the bunches to the mill; limited loss of loose fruits in the field or during transport (Mat Sharif et al., 2017).

The last indicator in the farmer organization is FFB transported that is one of field issues that affects the composition and final quality of palm oil. The free fatty acid content will be less than 5% if harvesting standards are followed; especially, it is important to confirm fast transportation to the mill and harvesting fruit at the proper ripeness (Morcillo et al., 2013) or the quality of bunches arriving at the mill inside 48 hours (Institut Penelitian Inovasi Bumi [INOBU], 2014; Shamsudin et al., 2012). The mill cannot improve upon this quality. However, it can prevent or minimize further deterioration (Poku, 2002).

Meanwhile, the legality aspect had contributed 71.69% to the sustainability and the most contributing factor was the stakeholders' agreement on the management and monitoring of the environment. It is very clear that no individual, institution, government or company can offer the solution. Collaboration is one of the keys for unlocking sustainability because no single organization or sector has the knowledge or resources to run individually (Cramer-Montes, 2017; Gray & Stites, 2012; Interfaith Center on Corporate Responsibility [ICCR], 2011). Selecting the right partner and partnership design does not, however, guarantee a successful outcome of partnering. Therefore, achieving successful partnerships requires that partners learn to capitalize on the creative tensions inherent in the partnership, i.e. shared vision; collective norms; trust; handling conflict; sharing power and certain voice; and effective leadership (Gray & Stites, 2012; McCormack et al., 2013; Naimoli et al., 2015).

Then, the next contribution on legality aspect to the sustainability is followed by the improvement of the management and monitoring of the environment; management and monitoring of the environment in the group; socialization of wildlife reserved; the kind of wildlife reserved; and reported in the management and monitoring of the environment. This finding is in line with indirect effects of environmental indicators on the sustainability.

To meet sustainability, environmental law becomes crucial for achieving sustainability that is part of the mandatory legal framework (Dernbach & Mintz, 2011; Avilés, 2014). Besides, the importance of environmental sustainability is being recognized by mainstream business practices through building institutional trust for environmental sustainability services in many sectors (Spence et al., 2012). Moreover, there is different emphasis between 'developed' countries, where environmental protection is commonly the primary concern, and 'developing' countries where economic growth and social stability are at the forefront of the sustainability discourse. Moreover, development endeavors of the past have not considered environmental issues and merely focused on short-term technical feasibility and economic benefits in the evaluation of development projects (Mekuriaw & Teffera, 2013).

CONCLUSIONS

There were direct and indirect effects of farmer organization to meet sustainability. However, none of independent smallholders in the research site participated in the farmers' organization. This is due to the non-establishment of the farmers' organization and lack of understanding about the role and benefits of its existence. Meanwhile, farmer organizations have been proven to positively affect the legality and had a positive indirect effect on sustainability through the legal. This is of course understandable because it is one of important parts of the institutional environment, in addition to the social and cultural characteristics, which is formed by the legal and policy aspects. It is also triggered by the progress toward a sustainable society since government, business, and non-governmental organizations demand more legal works. Morever, there is an engagement needed to deal with the challenges and opportunities of sustainability, i.e. providing information, tools, and ideas that policy makers, practicing lawyers, etc. Further, the necessity to translate sustainability into specific legal principles and sustainability assessment tools and institutions that contain hard law norms is embodied into certification systems.

Meanwhile, the most important indicator in farmer organization to meet the sustainability is providing information to relevant stakeholders in accordance with the applied provisions, except for the confidential subject, then followed by certified seeds; planting; planting on peatlands; cultivation; harvesting; and fresh fruit bunch transportation. Moreover, the most important indicator in the legality is the stakeholders' agreement on the management and monitoring of the environment, then followed by the improvement in the management and monitoring of the environment; management and monitoring of the environment in the group; socialization of wildlife reserved; kind of wildlife reserved; and report in management and monitoring of the environmental that was in line with indirect effect of environmental indicators on sustainability.

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