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Linkages of smallholders' attitudes with the implementation of principles and criteria RSPO certification independent smallholder forum MRM Jambi Province, Sumatera Indonesia

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Abstract. Oil palm plantation industry in Indonesia is growing rapidly. Extensive development took place during 1999-2016. The total plantation area reached 11,118,795 hectares by 2016. Some 5,754,718 hectares was managed by private companies, 4,656,648 hectares by smallholders and 707,429 hectares by state-owned enterprises. Issues of oil palm plantation that are not environmentally friendly are continuously exposed. Therefore, Forum Petani Swadaya-MRM independent smallholder RSPO has obtained certification, meaning that this research is important to be carried out. Respondents in the study were 82 people. Data were analyzed using non-Parametric Chi-Square statistical tests. Smallholders' attitudes and knowledge are cognitively 47.6%, affective 57.3% and conatively 63.4%. Achievement of RSPO principles and criteria; 1). Commitment to transparency is 69%, 2). Compliance with applicable laws and regulations 84%, 3). Commitment to long-term economic and financial viability 64%, 4). Use of appropriate best practices by plantations and factories 47%, 5). Environmental responsibility and conservation of natural resources and biodiversity 41%, 6). Responsible consideration of employees, and of individuals and communities affected by growers and mills 64%, 7). Responsible development of new plantings 71%, and 8). Commitment to continuous improvement in key areas of activities 82%. The relationship between attitude and implementation of principles and criteria for RSPO certification. From the results of parametric statistical tests using Chi-Square, $3.42 t_{hit} > t_{table} 1.68$, the meaning of refusal H_0 thank H_1 means that there is a significant relationship between attitudes and implementation of RSPO certification principles and criteria, there is a tendency for a positive attitude, the implementation of the RSPO principles and certification is high. The assessment between the attitude and application of the principle and criteria shows the sustainability status for the forum certifications.

1. Introduction

Data on the development of oil palm area from 1999 to 2016, the growing land area of oil palm plantations in Indonesia. The area of oil palm plantations from 1999 increased rapidly until 2016. In 1999, the area of oil palm plantation was 3,901,802 hectares. In the sixteen-year period it increased dramatically to 11,118,795 hectares. The total area managed by private companies covered 5,754,718



ha, 4,656,648 ha was managed by smallholders, and the remaining 707,429 ha was managed by state-owned enterprises, it means the number of smallholders who cultivate oil palm plantations in Indonesia is quite large (36.5%) [1], but not many of these smallholders have attempted to practice environmentally sound and long-term management of oil palm plantations [2]. However, the MRM Forum Petani Swadaya is one group of farmers applying oil palm plantation practices that are environmentally sound and have obtained RSPO certificates in 2017. Therefore, this research is important to be carried out. The problems in this study are:

- 1). What is the attitude and knowledge of farmers towards the RSPO certification program
- 2). What is the level of application or achievement of the principles and criteria for RSPO certification
- 3). What is a relationship between attitudes and the implementation of RSPO certification principles and criteria
- 4). What is the sustainability status of RSPO certification

The purpose of this research is to:

- 1). Know farmers' attitudes and knowledge of the RSPO certification program
- 2). Know the level of application or achievement of the RSPO certification principles and criteria
- 3). Analyze attitudes and implementation of principles and criteria RSPO certification
- 4). Assess the sustainability status of RSPO certification

2. Materials and methods

The data taken in the field are RSPO principles and criteria data that have been implemented by smallholders receiving RSPO certificates. The method used in the study was a simple random sample. Research locations are in Tanjung Jabung Barat District, Merlung subdistrict and Renah Mendaluh Subdistrict consisting of five villages, namely Merlung Village, Rantau Benar Village, Lubuk Terap Village, Sungai Rotan Village and Pulau Pauh Village. It has been chosen as a research location purposively, the five villages are members of the PS-MRM Forum. with the number of 172 households:

According to reference [3], if the total population is less than 100 then the sample is taken entirely, but if it is greater than 100 then it can be taken 10% - 15% or 20% - 30% or more. To determine the sample will be taken using the formula from Taro Yamane or Slovin in Reference [4] as follows.

$$n = \frac{N}{Nd^2 + 1}$$

Note:

- n = Number of sample
 N = Number of population
 d² = Precision (set 10%)

Based on the formula above, the following sample numbers are obtained:

$$n = \frac{N}{Nd^2 + 1} = \frac{172}{172.0,1^2 + 1} = 82,20 = 82,20 \text{ respondents}$$

Methods of data analysis used are:

Through Chi-Square test with 2x2 contingency. According to reference [5], if the cell contains a frequency of ≥ 5 , then the formula used:

$$\chi^2 = \frac{N[(AD-BC)]^2}{(A+B)(C+D)(A+C)(B+D)}$$

Whereas if there is a cell containing a frequency of < 5 , the following formula is used:

$$\chi^2 = \frac{N[(AD-BC) - \frac{N}{2}]^2}{(A+B)(C+D)(A+C)(B+D)}$$

Description: N = Number of samples

The table is as follows:

Chi-square test analysis with 2x2 contingencies

Table 1. 2x2 Contingency Analysis

Farmers attitudes	Implementation of the RSPO P & C Certification Program		Total
	Successful	Not successful	
Positive	A	B	A + B
Negative	C	D	C + D
Total	A + C	B + D	N

Value (X^2) in the free degree table (Db) = 1 at 95% confidence level is 3.84 can be compared between X^2 count with X^2 tables with the following decisions:

Ho: There is no real connection between the attitude of farmers and the implementation of the principles & criteria for RSPO certification

H1: There is a real relationship between the attitude of farmers and the implementation of the RSPO Certification Principles & Criteria Program

With the following conditions:

- Accept Ho reject H₁ if X^2 counts < X^2 table means there is no real relationship between farmer attitudes and the implementation of RSPO certification principles and criteria
- Reject H₁ accept Ho if X^2 count > X^2 table there is a real relationship between the attitude of farmers and the implementation of principles and criteria

Furthermore, to measure the relationship between the two variables, contingency coefficients are used with the following formula:

$$C_{hit} = \sqrt{\frac{X^2}{X^2 + N}}$$

Where:

X^2 = Value of Chi-square

N = Number of Samples

C_{hit} = Contingency Coefficient

Weak: 0 – 0,353

Srong: 0,354 – 0,707

Next to calculate the relationship, can use the formula:

$$t_{hit} = r \sqrt{\frac{N - 2}{1 - (r)^2}}$$

Where ;

$H_0 ; r = 0$

$H_0 ; r \neq 0$

If t counts ($\leq t$ table = ($\alpha = 5\% db = N - 2$) Accept Ho

If t counts ($> t$ table = ($\alpha = 5\% db = N - 2$) Reject Ho

3. Results and discussion

In attitude there are three components, namely cognitive, affective and conative [6]. Cognitive is a component that contains a person's understanding of what is true or true for the object of attitude, the Affective component is a person's subjective emotional toward an object of attitude. Affective in

question leads to a level of agreement - disagree, and the conative component is a tendency to behave in a person that is related to the object of the attitude he faces. The theory is if the attitude is positive then the application of the principles & criteria will be high. While the RSPO principles & criteria have eight points, namely: which will be used as a standard for member farmers to be implemented on the plantation level.: 1). Commitment to transparency, 2). Compliance with applicable laws and regulations, 3). Commitment to long-term economic and financial viability, 4). Use of appropriate best practices by plantations and factories, 5). Environmental responsibility and conservation of natural resources and biodiversity, 6). Responsible consideration of employees, and of individuals and communities affected by growers and mills, 7). Responsible development of new plantings, and 8). Commitment to continuous improvement in key areas of activities [7].

The results of the calculation of farmer frequencies from the attitude values were as follows: there were 45 respondents (54.9%) high, farmers who had high cognitive value were 39 respondents (47.6%), farmers who had high affective were 47 respondents (57.3%), and farmers who have a high conative value is 52 (63.4%) (see table 2). This means that not all respondent farmers have a positive attitude towards RSPO principles and criteria. Nevertheless the implementation of RSPO principles & criteria is carried out by farmers (see table 2).



Figure 1. Linked Contingency between attitude and Principle & criteria implementated (T value)

Table 2. Attitude analysis and separate application for each component

		RSPO Implementation			
		R	T	Total	
Cognitive	R	Count	19	11	30
		% of Total	23.2%	13.4%	36.6%
	T	Count	18	34	52
		% of Total	22.0%	41.5%	63.4%
Affective	R	Count	19	11	30
		% of Total	23.2%	13.4%	36.6%
	T	Count	18	34	52
		% of Total	22.0%	41.5%	63.4%

		RSPO Implementation			
		R	T	Total	
Conative		% of Total	22.0%	41.5%	63.4%
	R	Count	19	11	30
		% of Total	23.2%	13.4%	36.6%
	T	Count	18	34	52
		% of Total	22.0%	41.5%	63.4%

Table 3. Linkaged contingency between attitude and principle & criteria implemented

		RSPO Implementation		Total	
		R	T		
Attitude	R	Count	22	15	37
		% of Total	26.8%	18.3%	45.1%
	T	Count	15	30	45
		% of Total	18.3%	36.6%	54.9%
Total		Count	37	45	82
		% of Total	45.1%	54.9%	100.0%

The results of the overall analysis show that the attitude variables are significant (see figure 1 and table 3) with the implementation of RSPO principles & criteria. As mentioned by reference [8] that's the farmers who obtained the RSPO certificate implemented the RSPO principle & criteria and Napitupulu opinion supported by reference [9], that the knowledge of the farmers is related to imlementation of RSPO principle & Criteria. But on the other hand, when separately calculated the cognitive component in this case knowledge has not been related to the implementation of RSPO principles & criteria. This is possible because the new PS-MRM Forum obtained RSPO certification in 2017. Member farmers are still in the process stage towards understanding the RSPO program. However, at the level of the management level, it is seen that understanding and thinking and implementing principles and criteria have shown excellent cognitive. This means that not all members of the RSPO who have RSPO certification in the research location have positive knowledge. At the management level at the PS-MRM Forum can jointly conduct socialization to provide the same understanding to certified RSPO member farmers. As stated in reference [10], land markets did not have significant effects on forestland Appropriation and deforestation by farm households In Jambi Province. Instead, our data suggest that forest land Appropriation and the deforestation were primarily instigated by a booming export sector and facilitated by legal ambiguity and high internal tenure security for appropriated landand then by reference [11] Associated with RSPO certification the biodiversity will enhance, then the farmer group (Gapoktan) has been managed. Furthermore, the profit has been organized and the feedback will return to smallholder. The results are related. In the plantation areas oil palmsare planted byintercropping (plot scale) systems. As stated in reference [12] the evidence of that biodiversity enrichment in oil palm can generate synergies between economic and ecological functions under certain conditions. In the initial phase, EFForTS-BEE significantly increased yields per oil palm, which at the plot scale even compensated for the yield losses from oil-palm removal. With knoledge smollholders are able to impelement how to manage oil palm plantations and the environment in accordance with RSPO principles and criteria.

Furthermore, the status of RSPO certificate sustainability at the PS-MRM Forum is examined, indicating the sustainability status of RSPO certification can still be maintained, because the application of the principles & criteria is already high and supported in totality on the attitude variables of farmers.

4. Conclusion

From the calculation of the frequency of farmers have a positive attitude with a high attitude value of 45 (54.9%), farmers who have high cognitive value is 39 (47.6%), farmers who have an affective value of 47 (57.3 %), and farmers who have a conative value of 52 (63.4%). Overall the value of attitude is positive. Then followed by the implementation of the high RSPO principles & criteria. In total, there is a significant relationship between attitudes and implementation of RSPO principles & criteria. Then the results of the sustainability of certification at the PS-MRM Forum indicate the status that can continue. This means that the positive attitude of farmers has encouraged the implementation of RSPO principles and criteria, which is followed by the sustainability of RSPO certificate status in the PS-MRM Forum.

References

- [1] Ministry of Agriculture, 2017. Indonesia Oil Palm farmers Data. Published Indonesia Republica Agriculture Ministry
- [2] Keraf, 2010. Krisis & Bencana Lingkungan Hidup Global. Kanisius. Yogyakarta
- [3] Sugiyono, 2014. Business Research Methodes, Alfabeta. Bandung
- [4] Riduan. 2007. Formulas and Data in Statistical Applications for Research. Alfabeta. Bandung
- [5] Siegel, Sidney. 2011. Nonparametric Statistics for Social Science, Gramedia Indonesia
- [6] Azwar, S. 2015. Human Attitude, Theoryand Measurement. Jakarta, Library Student
- [7] RSPO, 2014. Principles and Criteria for the Production Sustainable of Palm Oil. Endorsed by the RSPO Executive Board and accepted at the Extraordinary General Assembly by RSPO Members on April 25th 2013 (Including Major Indicators endorsed by RSPO Board of Governors on 15 November 2013)
- [8] Napitupulu, D. Rosyani, Ernawati, Rukayah Rofiq, 2017. RSPO Certification Impacts on Oil Palm Smallholders welfare in Jambi Province. *Jurnal Analisis Kebijakan Pertanian* Vol. **15**. No. 2, Desember 2017. 127-149
- [9] Rosyani, Dompok Napitupulu, Ermadani, dan Zuhdi, 2015. Impact of RSPO Certification to Economy, Environment and social of oil palm plantation with Tanjung Sehati Smallholder Jambi, Sumatera, Indonesia
- [10] Krishna, Vijesh V, Christoph Kubitza, Unai Pascual, and Matin Qaim, 2017. Land Markets, Property Rights, and Deforestation; Insights From Indonesia. *World Development* Vol xx-pp xxx-xxx, Published by Elsevier Ltd
- [11] Rosyani, Bambang and Ermadani, 2018. Independent Smallholders Sustain Biodiversity and Economy) in Jambi Province, Sumatera, Indonesia, Submitted *Biodiversity Journal* (Not yet Published)
- [12] Gerard, A., Wollni, M., Hölscher, D., Irawan, B., Sundawati. L., Teuscher, M., Kreft, H., (2017). Oil-palm yields in diversified plantations: Initial results from a biodiversity enrichment experiment in Sumatra, Indonesia. *Agriculture, Ecosystems and Environment* 240 (2017) 259