IMPORTANCE OF SOCIAL CHARACTERISTIC OF COMMUNITY TO SUPPORT RESTORATION PROGRAM IN PROTECTION FOREST

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IMPORTANCE OF SOCIAL CHARACTERISTIC OF COMMUNITY TO SUPPORT RESTORATION PROGRAM IN PROTECTION FOREST. A restoration program is needed by West Lampung District, because 80% of the protected forests in this district have been damaged. Bina Wana (BW) Community Forest Group (CFG) has been successful in carrying out restoration program of 465 ha of Bukit Rigis protected forest. It resulted in an 80% increase in its members' income and an increase by 2.58% of the forest cover. To maintain the success of a sustainable restoration program, high commitment from the community is needed. This research has been conducted in June-July 2019 at West Lampung District, Lampung Province, Indonesia. The objective of this research is to analyse the social variables that affect restoration in the protection forest. The dependent variable is income and independent variables consist of respondents' characteristics as individuals and social characteristics of the community. Based on the multiple regression linear analysis from 75 respondents, it was found that the significant variables for the sustainability of the restoration of Bukit Rigis protected forest are as follow: age, sex, education, status in CFG, distance from home to CF areas, social aids and social capital (networks, norms and trust). Existence of the youth groups namely *Himpunan Pemuda Peduli Hutan dan Lingkungan* (HPPHL) and *Melati* Women Forest Farmer Group (WFFG) plays an important role in implementing the restoration program. Establishment of HPPHL will ensure regeneration in maintaining the sustainability of restoration achievements. The role of WFFG is also important because their households' income is supported by WFFG and enables the BW CFG members to be more concentrated in maintaining forest sustainability.

Keywords: Forest restoration, protection forest, community forest, social characteristics

PENTINGNYA KARAKTERISTIK SOSIAL MASYARAKAT UNTUK MENDUKUNG PROGRAM RESTORASI HUTAN LINDUNG. Program restorasi perlu dilaksanakan di Kabupaten Lampung Barat dimana 80% dari hutan lindungnya telah rusak. Kelompok Hutan Kemasyarakatan Bina Wana (KHKBW) berhasil melakukan restorasai di 465 Ha hutan lindung Bukit Rigis dan dibuktikan dengan adanya peningkatan pendapatan anggotanya sebesar 80% dan tutupan hutan yang telah mereka kelola sebesar 2,58%. Untuk menjaga keberhasilan program restorasi yang berkelanjutan diperlukan komitmen yang tinggi dari masyarakat. Penelitian ini bertujuan untuk menganalisis variabel sosial yang mempengaruhi restorasi di hutan lindung. Variabel terikat adalah pendapatan dan variabel bebas terdiri dari karakteristik responden sebagai individu dan karakteristik sosial masyarakat. Penelitian dilakukan pada bulan Juni-Juli 2019 di Kabupaten Lampung Barat, Provinsi Lampung, Indonesia. Berdasarkan analisis regresi berganda linear dari 75 responden diketahui bahwa umur, jenis kelamin, pendidikan, status dalam kelompok Hutan Kemasyarakatan, jarak dari rumah ke kawasan Hutan Kemasyarakatan, bantuan sosial dan modal sosial (jaringan, norma dan kepercayaan) merupakan variabel yang berpengaruh secara nyata terhadap keberlangsungan hasil restorasi. di hutan lindung Bukit Rigis. Keberadaan kelompok pemuda yaitu Himpunan Pemuda Peduli Hutan dan Lingkungan (HPPHL) dan Kelompok Tani Wanita Hutan (KTWH) Melati memiliki peran penting dalam pelaksanaan program restorasi. Berdirinya HPPHL akan menjamin adanya regenerasi keberlanjutan pengelolaan hasil restorasi. Peran dari KTWH juga penting karena kelompok ini mendukung pendapatan keluarga mereka, sehingga anggota KHKBW bisa lebih berkonsentrasi dalam mengelola hutan secara berkelanjutan.

Kata kunci: Restorasi hutan, perlindungan hutan, hutan kemasyarakatan, karakteristik sosial

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I. INTRODUCTION

The ecosystem function of Indonesia's forest has experienced an imbalance since 2009 due to encroachment (Forest Watch Indonesia, 2014). FAO Report (2016) mentioned that the degraded forest area in Indonesia had reached 54.6 %. Based on the Central Bureau of Statistics (Badan Pusat Statistik/BPS) data of 2020, there has been a decrease in forest cover in Indonesia, from 9,576,640 ha in 2014 to 9,411,410 ha in 2019. Furthermore, BPS informed that forest cover in Sumatra also decreased by 398,700 ha from 2014 to 2019.

In order to prevent from further decrease of forest cover, Indonesia government has established several rehabilitation and restoration programs. One of the examples of successful restoration program is in West Lampung District, Lampung Province. Based on data from Media Indonesia (2020), currently degraded forest in Lampung Province has reached 37.42% of 1,004,735 ha total forest area. The BPS (2020) added that in 2014 the forest cover area of Lampung was 364,500 ha and decreased to 335,900 ha in 2019. Specifically in the research location, namely in West Lampung District, which is in the southern part of Sumatera Island, based on Ministry of Forestry (MoF) Decree No 256/Kpts-II/2000, in this district there is 29.231.27 ha of protected forests and 297,097 ha are in the form of national parks. More than 57% of the protected forests cannot function optimally (Muslihah, 2019), therefore, it is necessary to carry out restoration efforts based on the existing conditions in the field (Lamb, 2018).

Since 1999 the protected forest area in West Lampung District has been managed by communities who are members of a Community Forest Group (CFG), namely Bina Wana (BW) which has 8 Sub-CFG with a total member of 297 families. According to Decree No. P9/2021 of the Ministry of Environment and Forestry's (MoEF), Indonesia has 5 schemes under Social Forestry (SF) program and one of those schemes is Community Forest (CF) which has objectives to empower the community for providing their livelihood opportunities. The Decree P9/2021 also stated that the community could be granted a license to manage state forest for a duration of 35 years and allowed to utilize Non Timber Forest Products (NTFPs) from the Protection Forest area while maintaining their ecological sustainability. The BW CFG has carried out restoration of 645 hectares in the Bukit Rigis forest area since they obtained their CF permit in 2000. The definition of restoration used in this research is the process of helping the recovery of an ecosystem that has been degraded, damaged, or destroyed due to direct or indirect human activity or by natural disturbances (Chazdon & Brancalian, 2019). Chazdon et al. (2016) stated that restoration is flexible and adapted to local context. Based on this definition, the success of the restoration must be supported by the community's commitment.

Social characteristics of the community are important in restoring ecological functions or reducing the damage to the ecology. The results of previous studies by Chazdon et al. (2016) and Al-Subaiee (2016) confirmed the notion about the magnitude of the role of certain social factors in stimulating the change in the paradigm of land use through conservation including restoration efforts. If protected forests are successfully restored, land productivity will increase and there will be a positive impact on the preservation of protected forests as well (Wicaksono et al., 2018).

Many studies have been done on restoration of mangrove forests or conservation forests (Ellison et al., 2020). However, only few research has been conducted on restoration of protected forests (Wicaksono et al., 2018). The protected forest of Bukit Rigis has been restored by the BW CF. This location is famous at the national level as being the location of the centre for implementation of the social forestry programs in Lampung Province (Wulandari & Inoue, 2018) but has never been studied in relation to community efforts in forest restoration. Major studies that were conducted in Bukit Rigis are impacts of CF on

socio economic communities. The Bukit Rigis protected forest has improved ecologically and has made a significant economic contribution to the livelihoods of BW CF members. Those two changes indicates the success of the restoration program in the area (Erbaugh et al., 2020). According to Freshelia et al. (2020), the Bukit Rigis forest cover has increased by 2.58% in 13 years (from 2004 to 2017). In addition, the income of the BW CF Group members also increased by 80% (stated by 90% of the respondents) and by Rp 37,841,479/ household/year in 2017 (Puspasari et al., 2017). Thus, it can verify that the BW CF group has succeeded in rehabilitation of the Bukit Rigis protected forest and has the capability to maintain the sustainability of the results for 20 years, regardless of many challenges that must be tackled. The most important factors of the success are the existence of a high sense of belonging to the preservation of the managed forest and the benefits generated from the forest for their families.

Income is one variable of the social economy aspect that can be an indicator to assess whether or not it can meet community's daily needs (Rayasawath, 2018). As for the dependent variable, income has an effect on forest sustainability (Idayanti et al., 2012; Rayasawath, 2018; Erbaugh et al., 2020) and the amount depends on the independent variables. This research use independent variables, as follows (1.) respondent characteristics, i.e. sex, age, status in society and CF, number of family members, education level, ethnic group (Sundanese, Javanese, and Lampungese), distance of the house to CF area, and (2.) social characteristics namely performance of extension education, social capital, facilitation from outside parties (social aids), and seedling aids. According to Nilsson et al. (2016), to determine the conditions of the ecological landscape resulting from the restoration, it is necessary to know the social aspects, such as education and social capital. In this research, those independent variables also will be analysed along with other relevant variables. In the social aspect there are also networks, norms and trust variables which serve as 3 indicator variables for the condition of the social capital. Social capital existing in community is indicated by trust, norms and networking, which will depict communal bond that will facilitate mutual agreement to preserve a program or activities, in this case forest restoration. If a group has strong social capital, it can be expected that there will be a prospect for the sustainability of a program (Jovita et al., 2019).

To date, a lot of restoration studies have been linked only to the success of the ecological aspects, such as a reduction in the rate of erosion and an increase in the number of plant species. On the other hand, there are still few studies on the social aspects that support the success of the ecological aspects in the restoration program (Erbaugh et al., 2020). Erbaugh et al. (2020) also said that the social aspect had an important role in supporting the river restoration so that the benefits of its environmental services increased community income and river stream which were sustainable.

The objective of this research is to analyse the social aspects that stimulate the sustainability of succeeded restoration programs in the Bukit Rigis protected forest. Knowing that social variables have significant effects on the sustainability of the restoration results that can be used as the basis for formulating some forest restoration policies in Lampung Province. It is necessary to have good documentation on restoration program hence they can be scaled up and become a reference for similar programs in other areas (Nilsson et al., 2016 & Chazdon & Brancallion, 2019).

II. MATERIAL AND METHOD

A. Research Site

The research was conducted at Tribudi Syukur village, Kebun Tebu Sub District (Figure 1.), West Lampung District in June–July 2019.

B. Methods

Data collection consisted of primary data and secondary data. Secondary data was

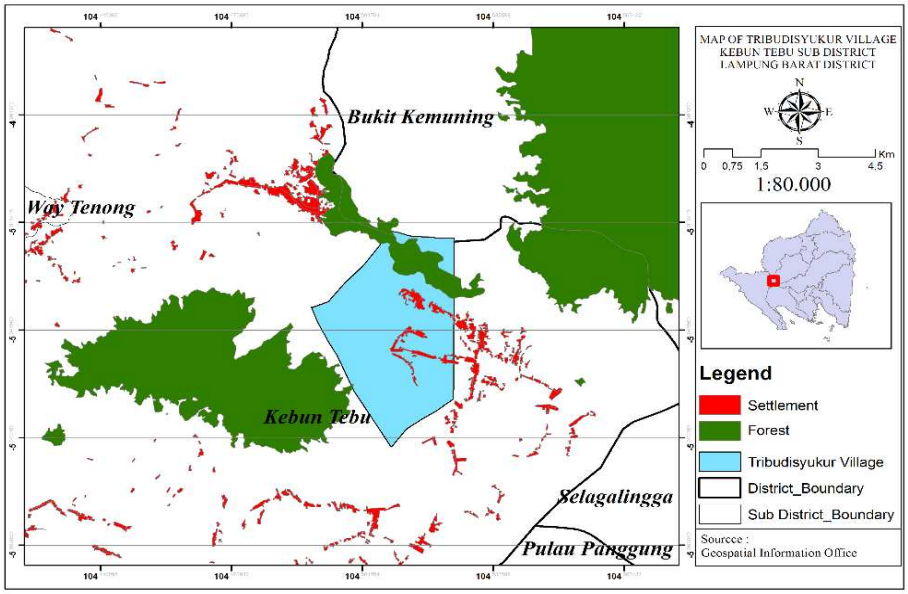

Figure 1. Map of research location at Tribudi Syukur

obtained from scientific publications, activity reports and other supporting data. Primary data was collected from series of interviews based on the questionnaires, including: (1.) characteristics of respondents, namely: income, age, sex, status in CF, status in society, number of family members, education level, ethnic group, distance of house to CF area and (2.) social characteristics: performance of extension education, social aids, seedling aids, networks, norms, and trust.

Regulations of CF Program in Indonesia require that membership of a CF program is at the household level, therefore sampling unit of this research was the household (HH). Before starting to collect data, Sugiono (2012) stated that it is necessary to test the validity and reliability of the questionnaire. The reliability test used Cronbach's Alpha formula and the validity testing was carried out with the help of SPSS version 16. After 3 times field test, finally the validity testing revealed that all questions (in questionnaire) had a greater value than the r table. This means that all questions are valid. Result of the Cronbach's Alpha value was 0.818 with correlation index = r, meaning all the 15 questions regarding restoration variables had good or high reliability.

Data obtained from the Forestry Office of Lampung Province (2018) showed that in the Tribudi Syukur village there are 297 HHs who are members of the BW CF groups. To analyse and better understand the population's behaviour, (Wulandari, 2019) stated that the Slovin formula should be used to determine an appropriate research sample size. The Slovin's formula is as follows:

$$n = \frac{N}{1 + N(e)^2} \quad \text{.....(1)}$$

where:
n= number of samples, N = total population and e = error tolerance (10%). Based on this formula, it was obtained that the number of the research sample should be 74.81 * 75 HH.

C. Analysis

The Statistical Analysis System (SAS) application was used for data analysis, namely: correlation test, factor selection and regression test. The correlation test was conducted to test the initial relationship between independent variables (xi) with the dependent variable (y). In addition, it was also to examine the relationship between independent variables (xi) in analysing

the presence or absence of autocorrelation among these independent variables. The factor selection applied a stepwise method based on a logistic regression test. Meanwhile the regression test was used to determine the significance of the relationship and the estimated regression parameter between the independent variables (Xi) and dependent variable (Y). Independent variables were divided into two groups: (1.) respondent characteristics, namely age, sex, status in CF, status in society, number of family members, education level (junior and senior high school), ethnic group (Javanese, Sundanese, and Lampungese), distance of the house to CF area, and (2.) social characteristics i.e. performance of extension education, and facilitation from outside parties (social aids), seedling aids, social capital (networks, norms and trust). Income of each respondent will be used as the dependent variable (Y). The magnitude of this variable depends on the magnitude of the other variables. In addition, it is used as the dependent variable since the purpose of the community's participation in the restoration is to earn income to meet family needs. A sustainable forest will certainly support the sustainability of forest products (Wulandari, 2019). The regression test was a multiple linear regression at 95% confidence level. The social variables collected were grouped into: specific social characteristics of respondents and other social aspects that describe the influence in protected forest management. Scoring was made to quantify certain social variables. The complete score of social variables and their ranges of scores are presented in Table 1.

Table 1. Symbol of regression model for analysing the social aspects in restoration program

Group of predictor variables	**Predictor variables**	**Symbol**	**Score**	**Unit**
Dependent	Income per year	[Y]		Rp million/year
Independent	1. Age	[AGE]		Year
	2. Sex	[SEX]	= 1 if male, = 0 if female	
	3. Status in CF	[SCF]	= 1 if Organizing Committee, = 0 if others	
(Respondent Characteristics)	4. Status in society	[SSoc]	= 1 if staff of village govt = 0 if others in Person	
	5. Number of family members	[NFam]		Person
	6. Education of HH	[D1_JSc]	= 0 = Elementary School = 1 if Junior High School, = 0 if others	
		[D1_HSc]	= 1 if Senior High School, = 0 if others	
	7. Ethnic	[D2_Sund]	= 1 if Sundanese tribe, = 0 if others	
		[D2_Lamp]	= 1 if Lampungnese tribe, = 0 Javanese	
	8. Distance of house to CF area	[D_CF]	= 0 if others in Km	
(Social Characteristics)	Extension education performance	[EEdu]	= 1 if yes, = 0 if no	
	Social aids	[Soc]	= 1 if yes, = 0 if no	
	Seedling aids	[Seed]	= 1 if yes, = 0 if no	
	Network	[Network]	= 1 if yes, = 0 if no	
	Norm	[Norm]	= 1 if yes, = 0 if no	
	Trust	[Trust]	= 1 if yes, = 0 if no	

Sources: Pulungan et al. (2015)

III.RESULT AND DISCUSSION

Most of the CF group members made efforts to conserve protected forests because they already have got the benefits, i.e. forest production was enough to meet the needs of their families. With the CF scheme, members have a legal permit to harvest non-timber forest products for 35 years from Bukit Rigis protected forest. Similar conditions were also found in the production forest in the Forest Management Unit of Bukit Punggur, Lampung Province by (Wulandari & Budiono, 2016).

1. Characteristic of Respondents

The BW CF Group was selected as the research location because it is the most active group in Lampung Province and have large area of CF management i.e. 645 hectares. Comparing to others this CF group has satisfied planning requirements as stipulated by CF regulation vis-a-vis the program implementation. The larger area of land managed by a community, the more guaranteed the results of restoration will be, because the needs of their sustainable livelihoods (Lamb, 2018).

Farming in CF was the major source of income of all respondent (Table 2.). In general, their average farm income is estimated at Rp 2,800,000–Rp7,000,000 which is about USD 200–500/month with an average land holding of 2 ha/HH. Major farm product is coffee, *Arenga pinnata* (arenga palm or sugar palm), and

Table 2. Socioeconomic characteristics of the respondents in West Lampung, Indonesia

Socioeconomic Characteristic	Individual (person)	%
Sex		
Male	71	94
Female	4	6
Civil status		
Single	0	0
Married	75	100
Widow/er	0	0
No answer	0	0
Number of family members		
1-3	10	12.9
4-6	63	83.4
> 6	2	3.7
No answer	0	0
Average	5	
Age (year)		
< 30	5	7
30-40	13	16.7
41-50	46	61.5
51-60	11	14.8
> 60	0	0
Average	44	
Number of household members involved in CF Activities		
1-3	71	94
4-6	4	6
> 6	0	0
Average	3	
Income source		
CF/Farming	75	100
Off-farm	0	0
Non-farm	0	0

fruits such as durians. Actually that income is higher than the minimum salary in Lampung Province (Rp 1,700,000 or approximately p'se use Rupiah and give approximate value in USD) USD 120 per month) and better than the poverty line stated by World Bank (Rp 26,600 or 1.9 USD per day). Previously their income was estimated at Rp 1,568,000–Rp 3,892,000 and (p'se use Rupiah and give approximate value in USD) about USD 112–278/month. Data from 90% of respondents revealed that the amount of income has increased by 80%. The amount of CF income could be attributed to the biophysical conditions of their farms as well as the scope and orientation of their forest production. According to all respondents, they will continue to strive to preserve the results of the restoration so that their family's daily needs are met.

2. Result of Regression Analysis

This research analyzed the social aspects with income as dependent variable or Y, and independent variables or X for age, sex, number of family members, education, ethnicity, distance of the house to CF area, status in CF, status in society, performance of extension education staff, and facilitation from outside parties. Result of statistical analysis showed that age, sex, education, status in CF, education, distance of the house to CF area, and social aids, networks, norms and trust had a value of P≤ 0.1 (Table 3.), thus influencing the restoration efforts carried out by the community.

3. Significant Variables to Forest Restoration in Bukit Rigis Protection Forest

A. Age of Respondents

Table 2, highlights the age of respondents in the research location is between 41–50 years,

Table 3. Results of multiple linear regression analysis

Group of predictor variables	Predictor variables	Symbol	Coef	SE Coef	T	P
Dependent	Income per year	[Y]	21.251	22.632	0.973	0.423
Independent	1. Age	[AGE]	-0.1467	0.113	-1.344	0.086*)
	2. Sex	[SEX]	2.828	5.876	0.634	0.077*)
	3. Status in CF	[S_CF]	3.109	2.879	0.697	0.081*)
(Respondent	4. Status in society	[S_Soc]	-1.388	4.175	-0.441	0.383
characteristics)	5. Number of family members	[NFam]	-1.087	1.771	-1.301	0.361
	6. Education of HH	[0_Elementr School]				
		[D1_JSc]	0.691	3.004	0.341	0.058*)
		[D1_HSc]	0.855	4.201	0.291	0.210*)
	7. Ethnic	[0_Javanesse]				
		[D2_Sund]	7.005	8.005	0.719	0.499
		[D2_Lamp]	3.188	8.679	0.685	0.228
	8. Distance of house to CF area	[D_CF]	-0.430	1.811	-0.315	0.089*)
	1. Extension education performance	[EEdu]	1.942	3.099	0.888	0.516
(Social characteristics)	2. Social aids	[Soc]	2.138	3.403	1.202	0.077*)
	3. Seedling aids	[Seed]	0.707	3.897	0.211	0.132
	4. Network	[Network]	-1.608	2.234	-0.245	0.031*)
	5. Norm	[Norm]	1.036	8.039	0.328	0.063*)
	6. Trust	[Trust]	-1.502	2.195	-0.698	0.049*)
R^2= 82.3%	**R^2(adj) = 78.1%**					

61.5% of respondents have an average age of 44 years. Based on the regression analysis when respondent's age increases, the income is reduced. The age variable has a significant effect on the restoration efforts. Age effects a person's strength in carrying out physical activities in the field, for example hoeing and others, hence it influences the results of restoration (Nurjanah et al., 2020). In addition, BW CF already has a special program for the younger generation in the village. There is a special group for young people, called *Himpunan Pemuda Peduli Hutan dan Lingkungan* (HPPHL). This youth group has forest conservation programs both direct in the forest as well as training and conservation education for youth or children. Thus, the youth in this village is familiar with forest restoration efforts carried out by their parents and are expected to increase their awareness hence the sustainability of the restored forest can be maintained.

The regeneration system from parents to children is manifested in the management of natural resources with the aim of training the skills of the regional management, especially knowledge of ecological restoration. Many studies reported that inheritance knowledge from parents to children had an influence on the success of the ecological restoration process (Yirdaw et al., 2017) and provided benefits to ecological and cultural resources (Slaton et al., 2019). Furthermore, this data indicated that these young farmers would have higher opportunities for improving their CF farms. Furthermore, other factors that affect conservation efforts in one area is the gender issues. According Kristjanson (2017) gender is influential in conservation efforts because men will certainly make different efforts from women in doing restoration because of the physical strength that is different between the two. This means, the resulting changes affects people's wellbeing.

B. Sex of Respondents

The second characteristic of the respondents that is significantly different in restoration efforts is sex. Most respondents in the research sites are male, represented by 94% (Table 1). Generally, men's duties are dominated by jobs that require a lot of physical strength (Landicho et al., 2016). Based on field observation, the role and responsibilities of women is mainly in the nursery i.e.: a) putting soil into polybag as planting medium, b) sowing seeds and c) maintaining seedlings until they reach planting age. Whereas men's roles and responsibilities include making planting holes; transporting seedlings from the nursery to the planting locations; planting, pruning branches, fertilizing, and harvesting the Non Timber Forest products (NTFP) and transporting them to be marketed. Thus, the different roles between men and women in implementing restoration and efforts to maintain its sustainability are clear.

The seriousness of efforts to maintain the results of restoration through a good division of roles between men and women will affect the welfare of the forest management communities (Wulandari & Inoue, 2018). In addition, at the research location there is also the Women Forest Famers Group (WFFG) named Melati, whose members are the wives of the BW CF members. This Women Farmer Group is known at both the provincial and national levels; having good capabilities; they manage an investment of more than 1 billion rupiah. Based on these conditions, these Women Farmer Group members are able to support their families financially and eventually are able to support the sustainability of BW CF programs, especially for processing and marketing forest products.

C. Status of Respondents in the CF Group

Status in the CF group is the third characteristic variable of the respondents which is significantly different. Seventy five respondents (33%) is also CF group administrators, such as leader and secretary. Significant difference of status of members in the CF group is being group administrator. By becoming a group administrator, that person will certainly get better facilities from

the parties concerned within the group. If the government or other external parties conduct training, of course the group administrators will be prioritized so that their management capabilities are expected to be better than the members therefore their restoration efforts are also better than the members (Wulandari & Inoue, 2018). This condition was also found by Anup (2017) in his research on biodiversity education in Nepal. In addition, with the role as group administrators, they have the authority to select CF members to participate in training or other activities that invite the CF group to participate. This means that these individuals can select members with the criteria requested by the invitees and also those who have a good commitment to carry out CF programs and conducting training on topics to other members. Thus, the status in the CF group is significant in maintaining the results of the restoration. Similar condition was found in Nigeria, community plays an important role in Sustainable Forest Management (Agbogidi et al., 2007). According to Wulandari and Kurniasih (2019), community forestry program ensure local empowerment.

D. Education of Respondent's Households

Moreover, education has an effect on conservation efforts, especially in practicing restoration techniques. This variable is the fourth significant variable to restoration in Bukit Rigis. The influence of education in a forest conservation or restoration effort can also be found in the restoration in the natural woodlands conservation program in Central Riyadh (Al-Subaiee, 2016). Interesting result found in this research is that education up to junior high school became significant to income and not for senior high school. It could be due to the majority of people that graduated from senior high school look for higher income from other jobs and go to Bandar Lampung city or elsewhere (Nurjanah et al., 2020).

E. Distance of Respondent's House to CF Area

The fifth variable is the distance from home to the CF area. It is a variable that has a significant effect in maintaining the sustainability of the restoration results. The average distance of the respondents' houses to the CF area is 4.3 km. Distance of houses to manage forest area has an effect on the success of the restoration efforts. It is a logical thing that happens in the field as mentioned in the research by Chechina et al. (2019) in the Philippines. Shorter distance to protected forests will give people more time to do restoration efforts. Bergstén and H. Keskitalo (2019) said that community will also put more concern, commitment and involvement when it comes to the care, management and control of tillage area. Furthermore Mockrin et al. (2019) also stated that the distance has significance to the volume of products of forest restoration. The farther the house is to CF area, the less is the volume of production. This can also be seen from the results of statistical analysis in this research, which show a negative coefficient value.

F. Social Aids for Respondents

The sixth, social aids are significantly different in the restoration program implemented by the BW CF. This condition is understandable because the aid programs are not only in the form of cash funds. The programs can be training as well as assistance in marketing forest products, so that they support the community's income continuously. Social aids which was facilitation from outside parties that influence the restoration efforts was also based on the results of Wulandari and Inoue's research (2018) in social forestry programs or in the context of providing capacity building training for CF group members (Wulandari & Kurniasih, 2019).

G. Social Capital of Respondents

The next variables are 3 variables that support the condition of social capital, namely networks, norms and trust. These three variables are significantly different. Significantly different community networks will be reflected by network size, multiplexity and networks constraints. Network size and wider important

information related to opportunity to innovate the CF group (Mursid et al., 2018; Wulandari & Budiono, 2016). Social networks is strongly associated with the level of social capital as its multidimensional nature that allows collective action (Wulandari, 2019).

Discussions of the results of social norms will be relevant if associated with the trust level of the members to the boards of CF in accordance with the questions that had been developed in the questionnaire. Levels of trust affect the compliance of members to a particular social entity (Wulandari, 2019). Levels of social norms of BW CF member: Adherence to the unwritten rules, government regulations, religious rules, honesty-, modesty-, and harmony in daily life. When community members have good norms in their daily behaviour they do not have the desire to do bad things, for example destruction or doing illegal activities which are against the CF agreements (Wulandari & Budiono, 2016; Situmorang, 2018).

The existence of trust among the CF members will greatly support the successful implementation of the CF program including the restoration. Trust is one of the requirements in the strengthening of social capital, and trust means that there are mutual trust between the members with other members in BW CF (Fukuyama, 2007; Wulandari & Budiono, 2016). Obviously, if CF members in the network do not trust each other, no matter how dense their network is, as well as the high number of members they have, they will not be willing to help each other and also will not share valuable information (Situmorang, 2018). Thus, as a significant factor, trust is needed to truly support the restoration efforts in Bukit Rigis.

4. No Significant Variables to Forest Restoration in Bukit Rigis Protection Forest

The status of respondents in the society has no effect on the restoration because as officials in the village administration, they are certainly very busy with village administrative matters (Wulandari & Inoue, 2018; Idayanti et al., 2012; Bergstén & Keskitalo, 2019). In addition, as village administrators, they must provide more opportunities for the community to take part in practical training related to sustainable natural resource management. After participating in the training, it is hoped that people will carry out the Training of Trainer (ToT) and practice it carefully and seriously because they have more time available than the village officials do.

All of them were married with an average family member of 5 and this variable is not significant. With an average number of 5 people per family there needs to be vigilance towards the sustainability of the results of the restoration. According to Haq et al. (2010), the more children in a family the more will it endanger the sustainability of the surrounded environment. When respondents have more children, they must have a higher income. It will endanger the forest sustainability because the respondent's livelihood depends on the forest. 83.4% of the respondents had family members ranging from 4–6 members. Based on the average number of family members, 73% of the respondents said that the CF group had enough workers from their family members for maintenance, but not enough workers for harvesting. Respondents said that the forest maintenance can be carried out by their children but harvesting can only be done by the father because they have to carry the forest harvest in sacks weighing about 50 kg each. This result is supported by Nurjanah et al. (2020) based on their research in CF program in Register 45B, West Lampung, Indonesia. Accordingly on the average there are 3 people/day of the family members who work in the CF area.

Ethnicity has no influence in maintaining the results of the restoration. Especially in Lampung Province, there are many ethnics in one forest management area. According to Dockry and Hoagland (2017), and Corrao and Andringa (2017) ethnics have an important role in supporting the preservation of forests and natural resources according to their ethnics habits. However, with the mixture of

many ethnics in an area, there is no difference anymore among the ethnics in managing forests sustainably (Puspasari et al., 2017). In the research location, there are Javanese, Sundanese and Lampungese, and there has been cooperation between those ethnics in a forest management area and they established the *Wadah Rembug Tani Hutan* (Waremtahu) group or group for forest farmers' discussion.

The role of extension workers is not significantly different in maintaining the restoration results. According to Wulandari and Kurniasih (2019), extension workers will provide various knowledge from planting, forest management, harvesting to marketing. Anwarudin and Dayat (2019) stated there is a correlation between efforts of farmer's participation and education of extension staff when conducted a program in such area. In the research location, the role of extension workers is not significantly different because this location has very few extension programs. Seedling aids are not significantly different in the restoration program implemented by the BW CF. The CF members have become experts in nursing various types of plants (Wulandari, 2019). If the community receives seedlings from the government with poor quality, the community will not plant these seedlings. They continue to plant the same types of plants but choose good quality seedlings which come from their own nurseries.

IV. CONCLUSION

The restoration program at Bukit Rigis protection forest has proven to have a positive impact both on its ecological and socio-economic aspects. Forest cover has increased by 2.58 %, and the community income increased by 80%. The existence of the restoration program provides the community with sufficient income continuously. This condition can occur because of the influencing social variables, namely age, gender, education, status in CF groups, distance from home to CF areas, social aids and social capital (networks, norms and trust). Furthermore, impacts of age and sex are significant variables. It must be underlined that the success of this restoration program in this area is due to the existence of the regeneration program in the CF area management. In Bukit Rigis there is a youth group called HPPHL, and also the WFFG Melati which has good capacity as a partner of BW towards Sustainable Forest Management. The existence of these 2 groups really supports the BW CF program in maintaining the sustainability of the restoration program at the Bukit Rigis protected forest.

The establishment of this youth group will ensure regeneration in maintaining the sustainability of restoration achievements. The role of WFFG Melati is also important because the income support from the Forest Women Group makes the BW CF members more concentrated in maintaining forest functions and utilizing the results according to the existing potential, and it means that there is no over exploitation of the Bukit Rigis protected forest.

The implication of the next research in various implementations of forestry programs must consider the social aspects. Even forest development towards the 17 goals of the Sustainable Development Goals (SDGs) also must consider the social, economic and ecological aspects simultaneously. By knowing the significance of the variables of social aspects, the next research can prioritize which social aspects should take precedence in formulating forest development strategies in such areas.

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