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Impact of Community Forestry Policy on Farmers in Rinjani Protected Forest Area

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Abstract

The aim of this research is to know: (1) the economic conditions of the community forestry (HKm) farmers seen from the income and the poverty level; (2) the social conditions of the HKm farmers seen from the education level and the behavior changes; and (3) the change of social economic conditions of the HKm farmers in 2008-2015. This research is conducted from April to July in 2015 and located in four HKm groups of Rinjani protected forest area (RTK I). The data collection is conducted by the interviews with questionnaire to 102 HKm farmers using the Slovin's formula with 10% of significant degree. This is implemented in descriptive analysis. The research result shows that: (1) the average income of the HKm farmers is Rp 1,739,677 per month/ha and 59.8% of farmers are above the poverty line; (2) the farmers are increasingly aware of education (there are only 5.9% members of farmer's family who are uneducated) and the lack of firewood utilization (there are only 23.5% farmers who are still using the firewood); and (3) in the period of 2008 to 2015 the average income of the farmers per month increases at 52,03%; the poverty level decreases at 46.5%, and there is a behavior change in which the dependence on the forest resources in the form of firewood decreases

Key words : *community forestry, income, poverty, behavior change*

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INTRODUCTION

Raswita and Made in Yuliana (2015) said that the increase in and the growth of the regional economy will give an impact on the increase in the regional social welfare. One effort in the regional economic empowerment is through the forestry development activities. The development of community forestry (HKm) is one of the efforts to increase the social income and also to protect the environment preservation (Rajati, et al., 2006). Community forestry (HKM) is a policy issued by the government in order to give opportunities to the society to participate in the management of forest land for the social welfare. Forests and poverty are the major issues related to the governance and policy.

No doubt that poverty is widely available in the rural communities, especially around the forest (The World Bank, 2006). The World Bank (2006) reports that over the years the forest has provided benefits to the people's lives and become the contributors to the state revenue. The HKm policy is an effort to bridge the forest and poverty issues. The HKm policy gives opportunities for the people around the forest to manage the forests, for example, with the pattern of agroforestry. The people are also given the rights in utilizing the forest products, especially the non timber to fulfill their needs.

West Nusa Tenggara (NTB) is one of the provinces with high poverty rate, which is ranked 29 in Indonesia with the number of poor people in 2014 reached 17.05% (Central Bureau of Statistics, 2015). The West Nusa Tenggara Province, particularly Lombok island, is a location that has a lot of developing community forestry activities. The information obtained from the Forest Service of NTB Province (2014) stated that until 2013 throughout NTB contained 14836.5 hectares areas of KHm, 32% of them already have had a permit from the Community Forestry Utilization Business (IUPHKm), while 68% are still in the stage of filing the IUPHKm. The people's enthusiastic in the HKm forestry activities is marked by the increasing acreage of HKm that is followed up with facilitation by some escort agency for filing the IUPHKm.

The community forestries in NTB are mostly in the dry forest with the patterns developed associated with the consumption of food and livestock through the development of agroforestry. Some researches of the development of the agroforestry patterns on the dry land showed that the patterns have contributed significantly to the people's income (Worku, et al., 2014) and to the environment (McIntosh, et al., 2015). The research on the practice of agroforestry in HKm particularly in Lombok Island has also been conducted among others are related to the ecology and environmental services (Roshetko & Mulawarman, 2002; World Agroforestry Center, 2010; Ritonga & Rochana, 2013); the increase in the social incomes (BPK Mataram, 2008; Nandini, 2013; Winata, et al., 2015); and also the social cultural of the people (Mukhtar, et al., 2010; Magdalena, 2013).

The success of a policy pursued by the government for the public purposes such as the community forestry (HKm) is known from the evaluation of the HKm impact on the society. According to Teitelbaum (2014), there are three things that become the focus in the HKm activity evaluation those are the participation in management, the local economic benefits. and the diversity in the

utilization of forest, but the socio-economic conditions of the society is the most widely studied in HKM. Since the HKm programme has been developed by the government in 1995 until today, a study of socio-economic conditions of society at HKM is still continued to strengthen whether the HKm activity is feasible to be developed or simply as a model only. Some researches suggested that the income from HKm contribute significantly to the total public revenue (Purwita, et al., 2009; Hogarth, et al., 2013; Worku, et al., 2014) Even according to Khanal (2011); Gutomo, et al., (2015) and Siddik, et al., (2013), the community forestry programme like HKm is able to reduce the poverty and inequality of the social welfare.

The existence of HKM has helped the people to be able to change the social and economic conditions to be better (Khanal, 2011; Dhruba Bijaya, et al., 2015). Such conditions do not last forever, but there is a fluctuation in the increased revenue. The Forestry Service of West Nusa Tenggara (2007) states that of the evaluation of the HKm activities carried on the JIFPRO (Japan International Forestry Promotion and Cooperation Center) activity, it is known that the increase in the social income in the HKm is only temporary, which is about 1-3 years and later it will decrease again. This is one reason for the farmers that the income of the community forestry practices like the community forestry (HKm) cannot be the mainstay of fulfilling the necessaries of life (Nurrohmat, 2000). The amount of revenue from HKm is determined by many things, including the type of commodities produced (Febryano, 2008), the management pattern, the number of workers (Premono and Lester, 2013), the acreage, the working hours (Winata, et al., 2015), and also the institutional performance of HKm (Mutaqin, 2013).

The research related to the socio-economic conditions of the HKm farmers in Rinjani protected forest areas has been performed by BPK Mataram in 2008 with the location and farmer groups that are similar to the respondents of this research. The research was performed when the HKm activity has been developing for more than 5 years but the farmers did not work the land intensively. This research was conducted to further examine the role of community forest (HKm) in Rinjani protected forest areas to the changes of socio-economic conditions of the society, especially the HKm farmers. The goals of this research is to determine the economic conditions of the HKm farmers from the income and poverty levels; the social conditions of the HKm farmers from the level of education and behavior change; and the changes in socio-economic conditions of the HKm farmers in the period of 2008-2015.

Forests have an important role in life. According to the Acts No. 41, 1999, the forest ecosystem is defined as a form of landscape with biological natural resources dominated by trees in their natural environment, in which one and the other cannot be separated. As an ecosystem, the forest and its functions cannot be separated from the human role in utilizing the natural resources for the benefit of life and environment (Awang, 2003). Many of the rural communities who live around the forest still depend on the utilization of the forest resources, either directly or indirectly, by making the forest products as goods and services that are economically profitable. The utilization of the forest resources is conducted hereditarily and creates a form of

local wisdom that makes the utilization of the forest resources able to run continuously.

The people's lives around the forest mostly are included in the category of poverty which income is less than 2 USD / capita / day (The World Bank, 2006; Vedeld, et al., 2012; Schwarze, et al., 2007). The utilization of the forest resources has not been able to contribute significantly to the economy of the family so that the condition of poor people will remain poor. Vedeld, et al. (2012) mentioned that the forest products derived from the protected forests only contribute to the family income of 2-20%, while Schwarze, et al. (2007) mentioned that only 21-30% of the people who actually earn income from the sale of the forest products. Some of the reasons that cause the forest products have not been able to contribute to the local economy of the society are the rule of the collection of forest resources especially in the protected areas that often becomes the limiting factor and the source of conflict, the lack of diversification of forest products so that the forest products are still cheaply valued, and the lack of institutional that facilitates the utilization of the forest products (Vedeld, et al., 2012; Schwarze, et al., 2007; Rahut, et al., 2015). To overcome this condition, the government introduced a policy of forest management that is called the community forestry (HKm).

Poverty can be defined as a condition in which people cannot fulfilled their needs. Many definitions of poverty are issued by the experts, but to illustrate the poverty of society in Indonesia refers more to the criteria of poverty released by the Central Statistics Agency (BPS), which states that people are called poor if they are below the poverty line. The concept of poverty according to the BPS is the ability of a person or a household to fulfill the basic needs in the form of food and non-food needs that is measured from the expenditure side. The poverty line (PL) is calculated based on the sum of Food Poverty Line) and Non-Food Poverty Line (NFPL). The Food Poverty Line is the expenditure value of the minimum food needs that is equivalent to 2,100 Kcal / capita / day. The Non-food Poverty Line is the minimum needs for residence, clothing, education, and health (CBS, 2015).

Besides using the poverty number as a limitation of the poor people, BPS also has issued 14 criteria for the poor people as follows (CBS, 2015):

(1) The floor area of the residential building is < 8m² per person.
(2) The type of floor of the residential building is made of earth / bamboo / cheap wood.
(3) The type of the residential wall is made of bamboo / thatch / low-quality wood / wall without plaster.
(4) Having no the facilities to defecate
(5) The source lighting of households not using the electricity.
(6) The source of drinking water is derived from wells / unprotected water springs / river / rainwater.
(7) The fuel for daily cooking is firewood / charcoal / kerosene.
(8) Only consuming meat / milk / chicken once a week.
(9) Only buying a new set of new clothes in a year.
(10) Only being able to eat as much as once / twice a day.
(11) Not being able to pay the medical fees at public health centers / polyclinics.
(12) The source of income of household heads are: farmers with land area of 500 m², farm workers, fishermen, construc-

tion workers, plantation labor and or other employment with the income < 600,000 / month

(13) The highest level of education of household head: no school / not completed the Elementary School / graduated from the Elementary School.

(14) No saving / goods easily sold with a minimum price of Rp 500,000 such as motorcycles, gold, livestock, motor boats, or other capital goods.

Of the 14 criteria, if at least nine criteria are fulfilled, then people is included in the poor households.

Poverty is one of the parameters that are often used in evaluating the impact of activities, including the forest management. Many studies have suggested a link between the forest management activities such as the communities forestry and the effort of poverty reduction (Khanal, 2011; Gutomo, et al., 2015; Siddik, et al., 2013). The well-managed forests will perform its functions in a sustainable manner to give greater opportunities to produce sustainable forest products to fulfill the social needs.

The government has issued many policies to reduce the poverty, and one of the policies that aims to reduce the poverty of the society living around the forest is the HKm policy. The HKm policy has existed since 1995 and then of the regulation side has been amended several times that is from the Decree of the Minister of Forestry No. 622 / Kpts-II / 1995, the Decree of the Minister of Forestry No. 677 / Kpts-II / 1998, the Decree of the Minister of Forestry No. 31 / Kpts-II / 2001, and the Regulation of the Minister of Forestry No. P.37 / Menhut-II / 2007 (Dipokusumo, et al., 2011). In the Regulation of te Minister of Forestry No. P.37 / Menhut-II / 2007, HKm is defined as the state forest which utilization is primarily intended to empower the local communities. The forest communities are given opportunities and access to the optimal utilization of the forest resources for their social welfare.

A policy is a step undertaken by an institution to achieve certain goals that is arranged based on the law (Cochran, et al., 2009). The policies issued by the government certainly have a purpose in line with the development. Budiman (1995) stated that improving the social life of the society and the citizen among others is indicated by the economic growth, the equity, the quality of life, the environmental damage, and the sustainable social justice. The economic growth is often related to the productivity of the people or the country concerned, as determined by the Gross National Product or GNP and the Gross Domestic Product or GDP. Related to the economic growth, the poverty levels of society is one indicator of the success of development. Siregar and Wahyuniarti (2007) stated that the economic growth has a significant influence on the decrease in the number of poor people. The development can be said to be successful if the economic growth increases and the number of poor people decreases.

Another thing to be an indicator for the success of development is the changes of social structures and behavior (Todaro, 1977). Development is related to to social change. One indicator that the society has undergone a social change is the behavioral change in the society (Farley, 1990 in Sztompka, 2007). Ogburn (1922) mentioned that the social change is strongly related to the social culture. Culture itself can be defined as a system of ideas and taste,the human actions and work in social life that make them learn (Koentjaraningrat, 2003). The utilization of

forest resources conducted hereditarity such as the utilization of medicinal plants and the collecting of firewood from the forest is a form of culture, or often called as a local wisdom. Although it provides many benefits for the community, but the utilization of forest resources can continually threaten the forests. The success of community forestry (HKm) as an instrument of development policy can be realized one of which is by a change of behavior in utlizing the forest resources (Sapkota & Oden, 2008).

The evaluation of government policies including HKm can be done through the policy analysis, related to the success or failure in the implementation of policies in achieving the policy goals (Cochran, et al., 2009). The analysis of the policy in principle is to see how the planning, implementation, and impact of the policy. The analysis of policies related to the environment is often conducted using the Environment Impact Assessment (Garb, et al., 2007) or it is often called the Environment Impact Analysis (EIA/AMDAL). In AMDAL, the whole impact of an activity is estimated both from the ecological and socio-economic side of the society, then evaluated at the end of the activity. In the activity that does not prepare the AMDAL document specifically, the evaluation can be seen from the achievement of the goals that had been set at the beginning of planning policy.

One of the goals to be achieved by HKm is to improve the social welfare so that the indicators that will be seen is the socio-economic conditions of society. The economic conditions seen include the income and poverty, while the social conditions seen is the change in people's behavior. The changes in behavior will only occur if giving a positive view to the family (Suwarno, 2012). Some areas in Indonesia have conducted an evaluation of a comprehensive of HKm condition that the mechanism is regulated by local regulation. As for the aspects evaluated are biophysical, economic and institutional (Nandini, 2013).

RESEARCH METHODS

The research was conducted in April-July 2015. The research location is in the HKm area that is located in Rinjani protected forest area (RTK I), Central Lombok Regency, which includes Batukliang District and North Batukliang District (Figure 1).

The data is collected via the interviews with the respondents that are the HKm farmers using the questionnaires. The respondents in each HKm are determined randomly stratified (stratified random sampling) based on the formula of Slovin (Sevilla, et al., 2007) with a significance level of 10%. The total number of respondents is 102 farmers who then are divided by weighted according to the proportion of farmers in each group of HKm.

The economic variables collected include the types of product, the operational cost, the income per month, the regular expenditure per month, and the utilization of community forestry (HKm) products. The social variables collected are the level of education and the social behavior in utilizing the resources.

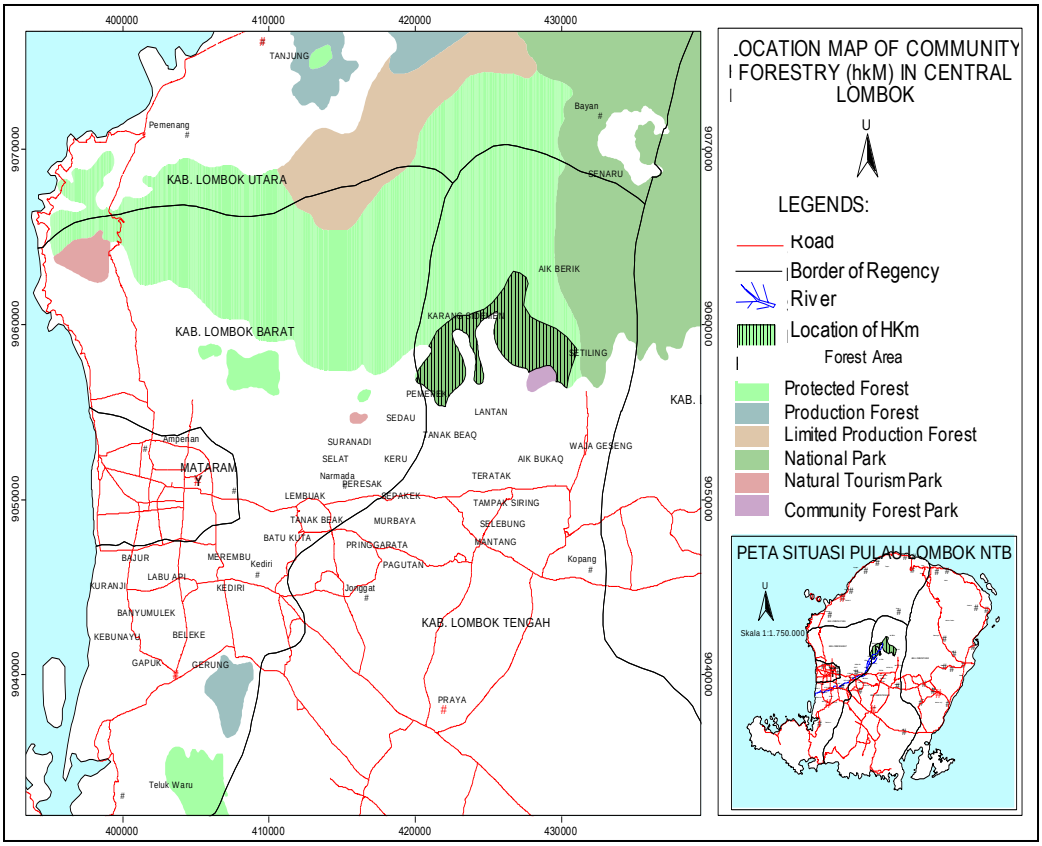

Figure 1. Location of research

The economic conditions of the HKm farmers can be seen from the income and poverty levels. Income is a good revenue of the society obtained from the HKm or non-HKM and then reduced by the incurred costs. The income is calculated based on the following formula (Andayani, 2006):

$$\text{TR (R)} = \sum_{i=1}^{n} QP_Q \quad (1)$$

$$\text{TC (C)} = \text{Fixed Cost} + \text{Variable Cost} \quad (2)$$

$$\text{Income} = \text{TR} - \text{TC} \quad (3)$$

Explanation:

TR : total revenue
P_Q : product price
Q : product amount
n : amount of plant types
TC : total cost

Furthermore, based on the income, it can determine the HKm contribution to the income. The HKm contribution to the income is calculated from the percentage of income earned from the HKM to the the total revenue.

The analysis on poverty is conducted by using the concept of poverty according to the Central Statistics Agency (BPS), which is the ability of a person or a household to fulfill the basic needs in the form of food and non-food needs from the measured of the expenditure side. Determining the level of poverty is conducted by using the minimum income limit per capita per month for the rural communities in NTB in 2014 that is Rp 285,205 per capita / month (Central Bureau of Statistics, 2015).

The social conditions of the HKm farmers are known from the changes of educational level and social behavior in utilizing the resources. The analysis is performed by the qualitative descriptive. The changes in social conditions of the society

are determined by comparing the percentage of social conditions in the year 2008 to 2015.

RESULTS AND DISCUSSION

The research location is in Rinjani protected forest area (RTK 1) that is located on the slopes of Mount Rinjani with a slope of 15-40%. In accordance with the Government Regulation No. 6 of 2007 on Forest Management and Forest Management Planning Arrangement and Forest Utilization, then the location of the slope must use the soil and water conservation techniques when it will be used, but if in fact only 19.6% of the HKm farmers who use the conservation principles in the form of planting with certain types such as bamboo (Bambusa spp.) and dadap (Erythina lithosperma) that are useful for the protection of water sources, and the application of a simple terrace. The total area of HKm existing in Rinjani protected forest areas is 1,809.5 hectares, which is divided into four groups of HKM. The annual average rainfall obtained from the observation stations of Mantang in 1985-2014 is 2,154 mm / year. The type of soil that dominates is reddish brown mediterranean that is derived from the hard limestone core material. This type of soil has a moderate permeability and is sensitive to erosion (Sartohadi, et al., 2014) so that in the areas with a large slope and quite high rainfall it needs to be aware of the erosion.

The land cover conditions in the research location is quite good with a density ranging from moderate to dense vegetation. In the HKm land, the dominance of MPTS (Multi Purpose Trees Species) plants such as hazelnut (Aleurites mollucana (L) Willd), jackfruit (Arthocarpus heterophyllus), avocado (Persea gratissima Gaertn), rambutan (Nephelliun lappacium L.) and durian (Durio zibethinus) are more than the forest plants. The forest plants that are widely available in the research location include mahogany (Swietenia mahagoni), klokos shrimp (Callophyllum innophyllum), pulai (Alstonia scolaris), dadap (Erythrina lithosperma) and kapok (Ceiba pentandra). Another plants dominating are coffee (Coffea sp.), banana (Musa sp.), cocoa (Theobroma cacao), and also various types of lower plants.

The average land area tenure is 0.5 to 0.9 ha / farmer. The pattern of land management carried out mostly do not use the intensive silvicultural techniques. The land cultivation and the plant maintenance are still conducted traditionally by way of clearing without fertilization, the pest control, the pruning, and the thinning of plants. Some researches suggest that the pattern of silviculture applied intensively can affect the crop productivity (Ashton, et al., 2014; Toit, et al., 2010; Villegas, et al., 2009). Without the application of the intensive silviculture, the possibility of crop productivity in the HKm will not be maximized because there is no interference of technology, and this will give influece on the income of te HKm farmers.

Institutional Of Hkm On Research Location

The HKm area in Rinjani protected forest areas consists of four (4) groups of HKm those are the HKm of Gapoktan Wana Lestari in Karang Sidemen Village (Batukliang District); the HKm of Gapoktan Lantan in Lantan village, the HKm of Gapoktan Darus Shidiqien in Setiling Village, and the HKm of Gapoktan Rimba Lestari in Aik Berik Village located in North Batukliang District. The fourt HKm have had the IUPHKm that was received in 2010 (Table 1).

Table 1. HKm Institutional in Research Location

No	Location	Width of Provision (Ha)	Permission Holder	Number of Determination	Name of Management Head	Number of Members (KK)
1	Lantan Village, n North Batukliang District, Central Lombok Regency	394	KSU Mele Maju	IUPHKm No. 38 year 2010 date 10 February 2010	Lalu Irwandi	599
2	Karang Sidemen Village, North Batukliang District, Central Lombok Regency	403	Gapoktan HKm Karang Sidemen Village	IUPHKm No. 39 year 2010 date 10 February 2010	Shaleh	741
3	Aik Berik Village, North Batukliang District, Central Lombok Regency	840	Gapoktan HKm Rimba Lestari	IUPHKm No. 155 year 2010 date 16 April 2010	Marwi	1.680
4	Setiling Village, North Batukliang District, Central Lombok Regency	217,5	Majlis Ta'lim Darus Shidiqien Desa Setiling	IUPHKm No. 160 year 2010 date 19 April 2010	H. Nurhijaz	435

Source : Forest Services of Central Lombok, 2014

At the beginning of the formation, the HKm existing in Rinjani protected forest area was managed by Koperasi Pondok Pesantren Darus Shidiqien by Ddecree of the Head of Regional Office of the Ministry of Department of Forestry and Plantation of West Nusa Tenggara Province No. 06 / KPL-4/2000 with an area of 1,042 hectares, hereinafter is designated as the work area of HKm based on the Decree of the Minister of Forestry No. 436 / Menhut-II / 2007 with an area of 1809.5 hectares with the number of farmers of about 3,455 people.

Institutional is one factor that determines the success of development activities that involve the society such as the community forestry (HKm), besides the norm resources contained in the society (Salman, 2005). At the time of the research, the activities related to the HKm have been greatly reduced. The running activity are monitoring the activities by the group management of the HKm related to the transfer of the right ownership of the land management of HKm to other parties that are not the members of the HKm group (known as a compensation). Some transfers of right management of HKm occur on the HKm land because of the urgent need so that the farmers are forced to relinquish their land with a certain value according to their needs. It has been a concern of the Forest Service because the IUPHKm that has been issued is binding and cannot be transferred to other parties that were not listed in the nomination document of IUPHKm.

The institutional of HKm in the research location has developed not only as an institution that is associated with the HKm activities but also has developed into a social institution. Various activities related to the social community such as mutual coopera-

tion, death, marriage, and a variety of both religious and national celebrations are managed by a group of HKm through the funds collected voluntarily. The level of social participation in the group activities of HKm, both related to HKm and social community is quite large, reaching 100%, but the pattern of participation of the members of farmer groups still depends on the leadership of farmer groups although the members of farmers are always involved in any decision-making. According to Preety (1995), the pattern of participation is called the functional participation (cooperation). In the functional participation, the farmers are grouped into a group that is deliberately established for a specific purpose but the decision remains with the leaders and other parties having interest on the goal.

Characteristics of Respondents

The respondents selected are the farmers engaged in the community forestry (HKm) activities in Rinjani protected forest areas since the beginning of the establishment. The characteristics of respondents is described in Table 2.

Based on the interview, it is known that the most of respondents are still in the productive ages. The respondent having the youngest age is 27 years old while the oldest one is 70 years old. The youngest respondent continues to work on the HKm land that belongs to her mother, who in general is the widow, while the oldest respondent is still working on the community forest (HKm) land because he has dependents of family. The average number of the family's dependents of respondents is smaller compared to the research results of BPK Mataram (2008), which has the average number of the family's dependents of 5 people. The number of dependents determine the amount of expenditure and income of the farmers (Winata, et al., 2015) so it can be presumed that the income of the HKm farmers in the research location in 2015 is better than the one in 2008.

Besides the number of dependents, the type of the respondents' main employment is also suspected of giving influence to the revenue from the HKm. This is related to the working hours that should be conducted in the land management as proposed by Winata, et al. (2015). Most respondents have the main employment as the farmers (74.5%), both the HKm farmers and / or outside the HKm such as the farmers of rice, garden, or yard. The type of employment of the respondents can be seen in Table 3.

Table 2. Characteristics of respondents in the research location

HKm Location	% based on ages			% based on educational level					Average of family's dependents
	<35 years	>35-50 years	>50 years	No School	Elementary School	Junior High School	Senior High School	College	
Setiling	15,0	40,0	45,0	30,0	40,0	5,0	25,0	-	4
Aik Berik	28,9	39,5	31,6	28,9	52,6	13,2	2,6	2,6	3
Karang Sidemen	16,7	41,7	41,7	20,8	50,0	8,3	16,7	4,2	3
Lantan	20,0	60,0	20,0	20,0	65,0	10,0	5,0	-	3

Source : processing primary data, 2015

Table 3. Types of respondents' main employment

HKm Location	Employment				
	Farmers	Officers	Workers	Traders	Others
Setiling	14	-	2	3	1
Aik Berik	30	1	5	-	2
Karang Sidemen	16	2	4	1	1
Lantan	16	-	4	-	-
Amount	76	3	15	4	4
%	74,5	2,9	14,7	3,9	3,9

Source : processing primary data, 2015

Economic Conditions of HKm Farmers

The economic conditions of the HKm farmers are described by the people's income and poverty levels. Based on the interview, although the majority of respondents have the main employment as the farmer (Table 3), almost 60% of the total respondents also have other income outside the farmers whether as workers, traders, drivers, or mechanic. This means that most respondents do not depend on HKm. Some respondents stated that the revenue from HKm has not been able to fulfill the household needs because the acreage is too small of about 0.25 to 0.4 ha / farmer. The research results revealed that the income of the HKm farmers in Rinjani protected forest areas is an average of Rp1,739,677 per month / ha as presented in Table 4. These revenues are much greater than the ones in 2008, in which the average per month is Rp 905,130 (BPK Mataram, 2008), or there is an increase of 52.03%.

The calculation of the poverty level greatly depends on the number of family members of the respondents. The average number of family members of the respondents is four people. The analysis result shows that the average income of the farmers in the research location is Rp 495,179 per capita / month. With reference to the criteria of the Central Bureau of Statistics in 2014 of the poverty in NTB especially in Central Lombok Regency, the average income per capita of the HKm farmers in the protected forest areas of Rinjani is not included in the category of being poor. The analysis result shows that the number of the HKm farmers in the protected forest areas of Rinjani that are below the poverty line is 40.2% while those above the poverty line is 59.8%. This means that the people are able to fulfill their basic needs is more than those who are not able to fulfill their basic needs.

Table 4. Average income of respondents per month / ha (USD)

HKm	Revenue from				Expenditure / month (Rp)	Average Income (Rp)
	HKm		Non HKm			
	(Rp)	(%)	(Rp)	(%)		
Setiling	2.395.929	67,3	1.161.864	32,7	1.192.692	2.365.102
Aik Berik	1.400.920	49,9	1.406.079	50,1	1.289.761	1.517.237
Karang Sidemen	2.042.405	61,0	1.303.646	39	1.322.253	2.023.798
Lantan	951.700	44,1	1.059.746	55,9	958.875	1.052.571
Average HKm	1.697.739		1.232.834		1.190.895	1.739.677

Source : processing primary data, 2015

In 2008, the average number of family members of the HKm farmers in the protected forest areas of Rinjani is 5 people, so that the average income per capita per month is Rp181,026 per capita / month. The revenue is slightly above the poverty threshold in 2008 that is set by the BPS to NTB that is Rp178,740 per capita / month. However, based on the analysis, it is known that in 2008 most of the HKm farmers in Rinjani protected forest areas are below the poverty line (86.7%) and only 13.3% that is above the poverty line. In other words most of the HKm farmers are unable to fulfill their basic needs. Based on this condition, it can be seen that in the period of 2008-2015 a reduction in the percentage of the total population below the poverty line is about 46.5%. This condition is consistent with the results of research of Khanal (2011) and Dhruba Bijaya, et al. (2015) stated that the presence of HKm has been able to change the socio-economic conditions to be better, which is to reduce the number of people living below the poverty line.

Based on the research, the revenue from the HKm gives a significant contribution to the farmers' income that ranges from 44-67%, while the other one from the non-HKm ranges from 32-55% (Table 4). The revenue from the HKm that give the largest contribution is from bananas, coffee and durian. Overall, the banana contributes an average of 54.8%, the coffee of 11.3%, and the durian of 8.6%, while 25.3% as the rest come from various other products such as avocado, coconut, jackfruit, betel leaves, fern and firewood. In 2008, banana and coffee plants also become the leading product of the HKm land that give a significant contribution to the revenue of the HKm land. The existence of banana plants on the HKm land is very important to the HKm farmers because it can provide the results of 3 to 5 times of harvests in a year, while the durian becomes a leading because of its delicious taste and expensive price so it becomes the prima donna for the HKm farmers. The coffee is a crop that still can grow in shade and gives benefit economically and ecologically especially on the big sloped land (Budidarsono and Wijaya, 2004) so a lot of coffee becomes the sideline crop in the HKm land.

Hairiah, et al. (2006) suggested that the coffee-based agroforestry patterns does not only contribute to the conservation of soil and water, but also to maintain the reserve of carbon (C) although the value is still below the reserve C in the forest. The planting of bananas, coffee and durian intensively often become the source of conflict in the HKm area (Dipokusumo, et al., 2011). The existence of such plants often threaten the existence of perennials that need to be controlled in a good way in order to make the composition of plants in the HKm remain as they are of 30% of MPTS and 70% of the perennials or to make a stratification as contained in the Regulation of the Minister of Forestry No. P.37 / Menhut-II / 2007 on the HKm that the preservation of forests remains intact considering the HKm location in the protected forest areas.

Social Conditions of HKm Farmers

The social change of the HKm farmers cannot be separated from their economic conditions. The revenue from HKm since 2008-2015 has changed most of the social conditions of the society that originally were below the poverty line to be above the poverty line. One indicator that the society has undergone a social change is the behavioral change in the society (Farley, 1990

in Sztompka, 2007). The increase in the HKm farmers' income that is capable to change the status of below the poverty line to be above the poverty line is also characterized by the behavioral changes, including the changes in the pattern of fuel use, from the firewood into the LPG or biogas (Sapkota & Oden, 2008). Sapkota & Oden (2008) mentioned that behavior changes indicate the increase in the farmers' welfare and the reduce in the dependence on the forest that bring positive influence for the sustainability of the forest ecology. Based on the results of the research, in 2008 there were more than 90% of farmers that were still using the firewood (BPK Mataram, 2008), while the results of the current research has revealed that only 23.5% of the farmers that are still using the firewood. Along with the behavior changes of the farmers in using the firewood fuel, it is expected that the condition of forests in the protected areas of Rinjani will be continuously preserved.

Besides the increase in the revenue, it is presumed that the behavior changes are also influenced by the level of education of the farmers and their family members (Démurger and Fournier, 2011). The level of education is one of the aspects that affect the quality of human (Ancok, 2003), which is characterized by the social mindset. The research of Siregar and Wahyuniarti (2007) mentioned that there is a significant correlation between the poverty and education. The research results show that only 5.9% members of the farmers' family who do not go to school. The highest level of education of the respondents' family members in 2015 has increased compared to 2008 (Table 5) so it gives opportunities of information transparency and the greater knowledge for shaping the mindset and behavior changes.

Table 5. Percentage (%) of the highest educational level of the respondents' family members

Highest education	2008	2015
Not going to school	11,1	5,9
Elementary School	64,4	21,6
Junior High School	6,7	34,3
Senior High School	13,3	32,4
University	4,4	5,9

Source : processing primary data, 2015

The other behavioral changes are submitted by the local community leaders and 9.8% of the respondents stated that the environment around the forest is more secure from the theft. Before the HKm existed, the theft of livestock often occur because of the poor society, but after the HKm has been able to give a substantial contribution to the social income, the theft is much reduced and the people no longer worry about the security of their livestock. The HKm contribution to the income has also reduced the people's habit of looking for a loan to fulfill their needs. The research results show that there are still 6.8% of the farmers who have loans / debt to fulfill their needs, while another 93.2% stated that the HKm has helped them avoid the habit of borrowing money. In other words, the HKm farmers in the protected forest areas of Rinjani has been able to create their independence, by depending on the income derived from HKm.

CONCLUSION

The HKm activities in the protected forest areas of Rinjani have helped an increase in the economic conditions of the HKm farmers, which are indicated by thr income and poverty level. The average income of the HKm farmers in the protected forest areas of Rinjani is Rp1,739,677 per

month / ha. The products produced from HKm have given a significant contribution on the income, so that 59.8% of the farmers are above the poverty line.

The HKm activities also make the social conditions of the HKm farmers better, which is characterized by the behavioral changes such as the shift in utilizing the firewood fuel to be the LPG, the increase in the level of education, the environment safety, and the habits of owing to fulfill their needs. The farmers are increasingly aware of the importance of education; only 5.9% of members of the farmers' family who do not go to school. The use of firewood has decreased; only 23.5% of the farmers are still using the firewood. This has helped to reduce the dependence on the forest resources so that the forest conservation is expected to be more preserved.In the period of 2008-2015 there is an increase in the average income of farmers amounted to 52.03%, a decrease in poverty rate of 46.5%, and the behavioral changes that lead to the less dependence on the use of forest resources. Thus, the development of the community forestry (HKm) in the protected forest areas of Rinjani is a positive thing that can be developed further.

REFERENCES

Ancok, D. (2003). *Modal Sosial dan Kualitas Masyarakat.* Pidato Pengukuhan Jabatan Guru Besar pada Fakultas Psikologi Universitas Gadjah Mada, Yogyakarta.

Andayani, W. (2006). *Modul Analisis Usaha Tani Pola Hutan Rakyat.* Yogyakarta: Fakultas Kehutanan Universitas Gadjah Mada.

Ashton, M., I. Gunatilleke, C. Gunatilleke, K. Tennakoon, and P. Ashton (2014). Use and cultivation of plants that yield products other than timber from South Asian tropical forests, and their potential in forest restoration. *Forest Ecology and Management 329*, 360-374.

Awang, S.A. (2003). *Politik Kehutanan Masyarakat.* Yogyakarta: Centre for Critical Social Studies bekerja sama dengan Kreasi Wacana.

Badan Pusat Statistik. (2015). *Kemiskinan*. htttp://www.bps.go.id. Diunduh 12 Nopember 2015.

BPK Mataram. (2008). *Kajian Teknis Pengelolaan Hutan Kemasyarakatan di NTB: Studi kasus HKm di Pulau Lombok.* Mataram: Balai Penelitian Kehutanan Mataram.

Budidarsono, S., dan K. Wijaya. (2004). Praktek Konservasi Dalam Budidaya Kopi Robusta dan Keuntungan Petani. *Agrivita 26 (1)*, 107-117.

Budiman, A. (1995). *Teori Pembangunan Dunia Ketiga.* Jakarta: PT. Gramedia Pustaka Utama.

Cochran, C. E., L.C. Mayer, T. Carr, and N.J. Cayer. (2009). *American Public Policy: An Introduction*. USA: Wadsworth Cengage Learning.

Démurger, S. and M. Fournier. (2011). Poverty and firewood consumption: *A Case Study of Rural Households in Northern China*. *China Economic Review 22*, 512-523.

Dhruba Bijaya, G., C. Sheng-Kui, G. Qijie, X. Zengrang, W. Ling-en, J. Bhandari, L. Xiaojie, G. Liwei, and C. Xiaochang (2015). *Can Community Forestry Play a Major Role in The Socio-economic Enhancement of Poor Users in Nepal*? *Bulgarian Journal of Agricultural Science, 21 (No 2)*, 378–383.

Dinas Kehutanan Provinsi Nusa Tenggara Barat. (2007). *Pembentukan KPH di Provinsi NTB.* Mataram: Dinas Kehutanan Provinsi Nusa Tenggara Barat.

Dipokusumo, B., H. Kartodihardjo, D. Darusman, dan A.H. Dharmawan. (2011). Kajian Dinamika Kebijakan Hutan Kemasyarakatan dan Alternatif Penyelesaian Konflik Kepentingan pada Kawasan Hutan Lindung di Pulau Lombok. *Agroteksos Vol.21 No.2-3* , 165-176.

Febryano, I.G. (2008). Analisis Finansial Agroforestri Kakao di Lahan Hutan Negara dan Lahan Milik. *Jurnal Perennial, 4 (1)*, 41-47.

Garb, Y., M. Manon, and D. Peters. (2007). Environmental Impact Assessment: Between Bureaucratic Process and Social Learning. In F. Fischer, G. J. Miller, and M.S. Sidney (eds), *Hand Book of Public Analysis: Theory, Politics, and Methods* (pp. 481-491). Boca Raton: CRC Press.

Gutomo, B.A., R. Yulianti, J. Suryanto, A.D. Ekaputra, T. Saptono, dan H. Muis. (2015). *Sumbangan Hutan Kemasyarakatan dan Hutan Desa Terhadap*

Pendapatan dan Pengurangan Kemiskinan. Jakarta: The Partnership for Governance Reform, Kerjasama LIPI dan Kemitraan.

Hairiah, K., H. Sulistyani, D. Suprayoga, Widianto, P. Purnomosidhi, dan R.H. Widodo. (2006). Litter layer residence time in forest and *Coffee Agroforestry Systems in* Sumberjaya, West Lampung. *Forest Ecology and Management 224*, 45-57.

Hogarth, N. J., B. Belcher, B. Campbell, and N. Stacey. (2013). *The Role of Forest-Related Income in Household Economies and Rural Livelihoods in the Border-Region of Southern China. World Development Vol. 43*, 111–123.

Khanal, B. (2011). *Is Community Forestry Decreasing Inequality Among its Users? Study of Impact of Community Forestry on income distribution among different users groups in Nepal. International Journal of Social Forestry (IJSF), 4 (2)*, 139-152.

Koentjaraningrat. (2003). Cetakan Kedua. *Pengantar Antropologi Jilid I.* Jakarta: Rineka Cipta.

Magdalena. (2013). Peran Hukum Adat dalam Pengelolaan dan Perlindungan Hutan di Desa Sesaot, Nusa Tenggara Barat dan Desa Setulang, Kalimantan Timur. *Jurnal Penelitian Sosial dan Ekonomi Kehutanan Vol. 10 No. 2*, 110-121.

McIntosh, P.C., S. Asseng, and E. Wang. (2015). *Profit and Disk in Dryland Cropping: Seasonal Forecasts and Fertiliser Management. Building Productive, Diverse and Sustainable Landscapes; Proceedings of the 17th ASA Conference, 20–24 September 2015*. Hobart, Australia: www.agronomy2015.com.au.

Mukhtar, Sumarno, dan K. Hidayat. (2010). Pengelolaan Program Hutan Kemasyarakatan Berbasis Kearifan Lokal : Studi Kasus Di Kawasan Hutan Lindung Sesaot Lombok Barat. *Wacana Vol.13*, 132-151.

Mutaqin, Z. (2013). Analisis Kelembagaan Kelompok Hutan Kemasyarakatan (HKm) di Hulu DAS Sekampung (Studi Kasus pada Gapoktan Hijau Makmur). *Jurnal Ilmiah ESAI Volume 7, No.2* , 1-8.

Nandini, R. (2013). Evaluasi Pengelolaan Hutan Kemasyarakatan (HKm) pada Hutan Produksi dan Hutan Lindung di Pulau Lombok. *Jurnal Penelitian Hutan Tanaman Vol.10, No.1* , 43-55.

Nurrohmat, D.R. (2000). Analyses of socio-economic and product's marketing of Social Forestry participants in KPH Surakarta. *Jurnal Manajemen Hutan Tropika Vol. 6 No. 1* , 51-59.

Ogburn, W. F. (1922). *Social Change.* New York: Heubsch.

Premono, B. dan S. Lestari. (2013). Analisis Finansial Agroforestri Kayu Bawang (*Dysoxilum mollissimum* Blume) dan Kebutuhan Lahan Minimum di Provinsi Bengkulu. *Jurnal Penelitian Sosial dan Ekonomi Kehutanan Vol.10, No.4, Desember 2013*, 211-223.

Preety, J. (1995). Participatory Learning for Sustainable Agriculture. *World Development Vol. 23 No.8*, 1247-1263.

Purwita, T., Harianto, B.M. Sinaga, dan H. Kartodihardjo. (2009). Analisis Keragaan Ekonomi Rumah Tangga: Studi Kasus Pengelolaan Hutan Bersama Masyarakat di Pengalengan Bandung Selatan. *Jurnal Penelitian Sosial dan Ekonomi Kehutanan Vol. 6 No. 1*, 53-68.

Rahut, D. B., A. Ali, and B. Behera. (2015). *Household Participation and Effects of Community Forest Management on Income and Poverty Levels: Empirical evidence from Bhutan. Forest Policy and Economics 61* , 20–29.

Rajati, T., C. Kusmana, D. Darusman, dan A. Saefuddin. (2006). Optimalisasi Pemanfaatan Lahan Kehutanan dalam Rangka Peningkatan Kualitas Lingkungan dan Kesejahteraan Sosial Ekonomi Masyarakat Desa Sekitar Hutan : Studi Kasus di Kabupaten Sumedang. *Jurnal Manajemen Hutan Tropika Vol.XII, No.1* , 38-50.

Ritonga, W.M., dan E. Rochana. (2013). Keberhasilan Program Hutan Kemasyarakatan dalam Melestarikan Hutan. *Jurnal Sociologie, Vol. 1, No. 2*, 132-137.

Roshetko, J., dan Mulawarman. (2002). Wanatani di Nusa Tenggara: Ringkasan Hasil Lokakarya. *Prosiding Lokakarya Wanatani se-Nusa Tenggara* (pp. 1-17). Denpasar, Bali: International Center for Research in Agroforestry and Winrock International.

Salman, D. 2005. Pembangunan Partisipatoris. *Modul Konsentrasi Manajemen Perencanaan*. Program Studi Manajemen Pembangunan. Universitas Hasanuddin. Makassar.

Sapkota, I.P. and P.C. Odén. (2008). Household characteristics and dependency on community forests in Terai of Nepal. *International Journal of Social Forestry (IJSF) 1 (2)*, 123-144.

Sartohadi, J., Suratman, Jamulya, dan, N.I.S. Dewi (2014). Cetakan III. *Pengantar Geografi Tanah*. Yogyakarta: Pustaka Pelajar.

Schwarze, S., B. Schippers, R. Weber, H. Faust, M. Zeller, A. Wardhono, Z. Manfred and W. Kreisel (2007). *Forest Products and Household Incomes: Evidence from Rural Households Living in the Rainforest Margins of Central Sulawesi*. In T. Tscharntke, C. Leuschner, M. Zeller, E. Guhardja, A. Bidin (eds), *The Stability of Tropical Rainforest Margins, Linking Ecological, Economic and Social Constraints of Land Use and Conservation* (pp. 207-222). Berlin: Springer Verlag .

Sevillla, C.G., J.A. Ochave, T.G. Punzalan, B.P. Regalla, and G.G. Uriarte. (2007). *Research Methods*. Quezon City: Rex Printing Company.

Siddik, M., Amiruddin, dan N. Juniarsih. (2013). Perilaku Ekonomi Masyarakat Miskin di Sekitar Kawasan Hutan Gunung Rinjani Pulau Lombok. *Jurnal Agribisnis Indonesia Vol 1 No 1*, 27-38.

Siregar, H. dan D Wahyuniarti. (2007). *Dampak Pertumbuhan Ekonomi Terhadap Penurunan Jumlah Penduduk Miskin*. Pusat Sosial Ekonomi dan Kebijakan Pertanian. http://pse.litbang. pertanian.go.id/PROS_2008_mak3.pdf. Diunduh tanggal 2 Februari 2016.

Sztompka, P. (2007). *Sosiologi Perubahan Sosial*. Jakarta: Prenada Media.

The Assessment of Community Forestry Outcomes: a comparative analysis from Canada. *Journal of Environmental Management 132*, 257-267.

The World Bank. (2006). *Melestarikan Pertumbuhan Ekonomi, Penghidupan Pedesaan, dan Manfaat Lingkungan: Opsi-opsi Strategis untuk Bantuan Kehutanan di Indonesia*. Jakarta, Indonesia: The International Bank for Reconstruction and Development, The World Bank.

Todaro, M. (1977). *Economic Development in The Third World*. London: Longmans.

Toit, B.d., C.W. Smith, K.M. Little, G. Boreham, and R.N. Pallet. (2010). *Intensive, Site-Specific Silviculture: Manipulating Resource Availability at Establishment for Improved Stand Productivity*. A review of South African research. *Forest Ecology and Management 259* , 1836–1845.

Vedeld, P., A. Jumane, G. Wapalila, and A. Songorwa. (2012). *Protected areas, poverty and conflicts: A livelihood Case Study of Mikumi National Park*, Tanzania. *Forest Policy and Economics 21*, 20-31.

Villegas, Z., M. Penã-Claros, B. Mostacedo, A. Alarcón, J. Licona, C. Leaño, W. Pariona, and U. Choque. (2009). *Silvicultural Treatments Enhance Growth Rates of Future Crop Trees in a Tropical Dry Forest. Forest Ecology and Management 258*, 971-977.

Winata, N.G., P. Basuki, dan P. Karismawan. (2015). Analisis Determinan Pendapatan Petani Program Hutan Kemasyarakatan (HKm) di Kecamatan Batukliang Utara Kabupaten Lombok Tengah. *Jurnal Sosial Ekonomi dan Humaniora, Vol. 1 No. 1*, 33-42.

Word Agroforestry Centre. (2010). Sistem Agroforestri di Kawasan Penyangga Hutan Lindung Sesaot: Potensinya sebagai Penambat Karbon. *Policy Analisis Unit, Brief No.7* .

Worku, A., J. Pretzsch, H. Kassa, dan E. Auch. (2014). *The Significance of Dry Forest Income for Livelihood Resilience: The Case of the Mastoralists and Agro-pastoralists in the Drylands of Southeastern Ethiopia*. *Forest Policy and Economics 41*, 51-59.

Yuliani, Tutik. 2015. Pertumbuhan Ekonomi Dan Ketimpangan Pendapatan Antar Kabupaten di Kalimantan Timur. *JEJAK Journal of Economic and Policy*. 8(1),45-53.