

# Livelihood Assets Changes Of Community Forest Farmers On Protection Forest

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### Abstract

Community forest program on protection forest has been launched by Indonesian governance since 1998. The program accomodate local community living around to acces the state forest. They get many benefit from the state forest and use it to improve their livelihoods. Case studies was used to evaluate livelihood assets in the process of community forest management on state forest. Objective of this research are to understand the changes of livelihoods assets of community forest farmers during the community forest program. Livelihoods assets should be better to reach sustainable livelihoods.

Keywords: livelihoods assets, sustainable livelihoods, <sup>8</sup>protection forest, community forest, Indonesian's state forest.

### 1. Background

The management of state forest in Indonesia changes many times. In Soeharto era, centralized of state forest management was running. In this era, management of state forest of Indonesia, concentrated to forest companies. Indonesian governance were not included the poor people living in and around forest. This resulted recurrent conflict and worsened local poverty, whereas the state forest land itself continued to be degraded (Suyanto, et.al., 2007). After the reformation, the government empowered the community in the management of state forests.

Community Forestry Program (HKm) is a community forest empowerment program in state forest management. The Government of Indonesia started the HKm program in 1999 and is now the most widely implemented Social Forestry program in Lampung Province. A total of 149 PAK permits (Appointment of Working Areas) have been issued by the Minister of Forestry until August 2014. These permits cover a total area of 96,072.61 hectares, covering 8 districts, 149 PAK permits and 470 HKm groups with 49,620 members running in Lampung.

Research on the Impact of HKm Program on the welfare of local communities and the achievement of forest sustainability has not been done. Therefore, this research is generally intended to know the implementation and results of the Community Forestry program (HKm) in protection forests in Indonesia for local communities, local government and the preservation of protection forests. The specific objectives of this research are to know the dependence of local communities on protection forests, to know the progress of the HKm program implementation in the Protection forest in Lampung Province and the constraints in implementing the HKm program, and to analyze the impact of Community Forestry programs on the livelihoods of local people using Sustainable Livelihood Approach / SLA Sustainable Lifestyle approach) that has been adjusted.

## 2. Method

### 2.1. Study site and research time

This study was conducted in two HKm farmer group area, i.e. Beringin Jaya farmer group and Sidodadi farmer group areas. Their areas were located on Kota Agung Utara Forest Management Unit in Tanggamus District, Lampung Province. Both of farmer groups were selected for the award 1st winner of the national of forest sustainable management for HKm farmer group from the Ministry of Environment and Forestry in 2016 and 2017. The research sites are listed in Figure 1. Research was done on June-October 2017.

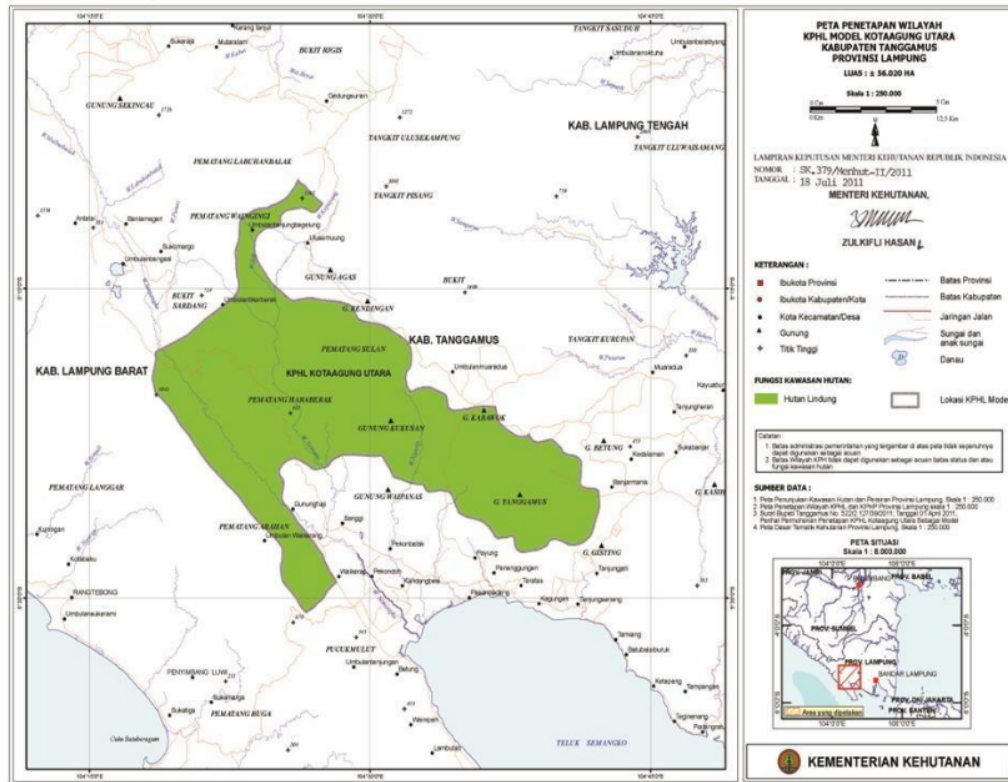


Fig 1. Location of study site (Source: Ministry of Environmental and Forestry, 2017).

### 2.2. Data, data collection and analysis

Data was collected using interview by open ended and semi structured questionnaire, direct observation, documents and archival reviews. The discussion was conducted with individual officers at their office

The study used and analyzed primary and secondary data. Primary data was collected through observation, questionnaires and direct interviews of selected respondents and key informants, related to community forest management in Tanggamus District. Secondary data is collected from several agencies such as Forestry Service, Regional Development Planning Agency (Bappeda), Central Bureau of Statistics (BPS), and other related institutions. The data obtained were processed and analyzed both quantitatively and qualitatively descriptively.

Respondents were taken as samples by purposive sampling method. According to Patton (1990), Cochran (1991) and Iskandar (2008), purposive sampling is a deliberate sampling

technique based on subjective assessment of researchers on the basis of certain characteristics considered to be related to previously known population characteristics. Total respondents are 150 HKm farmers (75 members of each Beringin Jaya and Sidodadi forest farmer group) in Tanggamus District, 10 employees of relevant agencies in Tanggamus District and 20 employees in Lampung Province.

The Sustainable Livelihood Framework approach is used to identify the expected levels of life in groups by looking at the activities undertaken by each community using capacity capability and asset ownership. Livelihood is understood as the assets, activities and access to the assets, which are mediated by institutional and social relations that together determine the living gained by individual or household (Ellis, 2000). A livelihood is the set of capabilities, assets and activities, that furnish the means for people to meet their basic needs and support their well-being (Chambers and Conway, 1992).

The SLA has been developed by DFID and was used to know the change of condition before and after existence of community empowerment program through HKm. This analysis involves the analysis of assets owned by local communities around protection forests in the form of human assets, physical assets, natural assets, financial assets and social assets. In addition the SLA approach will also analyze changes in the structure and processes related to government and private sector covering legal, cultural and political aspects.

In analyzing the management of state forests through community forestry schemes, the SLAs shall be adjusted in accordance with existing conditions in protection forests in Indonesia. It is intended that the analysis carried out in accordance with the actual conditions and the resulting conclusions can be appropriate. An adjusted SLA chart used in this study is showed in Figure 2.

### 3. Results

#### 3.1. HKm farmer activities on protection forest

The dependence of respondents on protection forests can be seen from the activities undertaken by the respondents (Table 1). All the respondents (100%) own the land and work as HKm farmers by cultivating on HKm land. The respondent owns arable land acquired by compensation to others. The number of respondents who own land between Gapoktan Beringin Jaya and Sidodadi almost the same amount. Less than 5 percent of respondents do activities such as hunting pigs and bird hunting. This is because the community realizes the importance of preserving wildlife in nature. Those who engage in pig hunting activities are caused by disruptions by wild boars to cultivated plants, especially young plants. People hunting birds aim to earn money from the sale of hunted birds and to be kept at home. Bird hunting activities are not done routinely but usually done at least 2 months. This bird hunting activity is an interlude activity for entertainment.

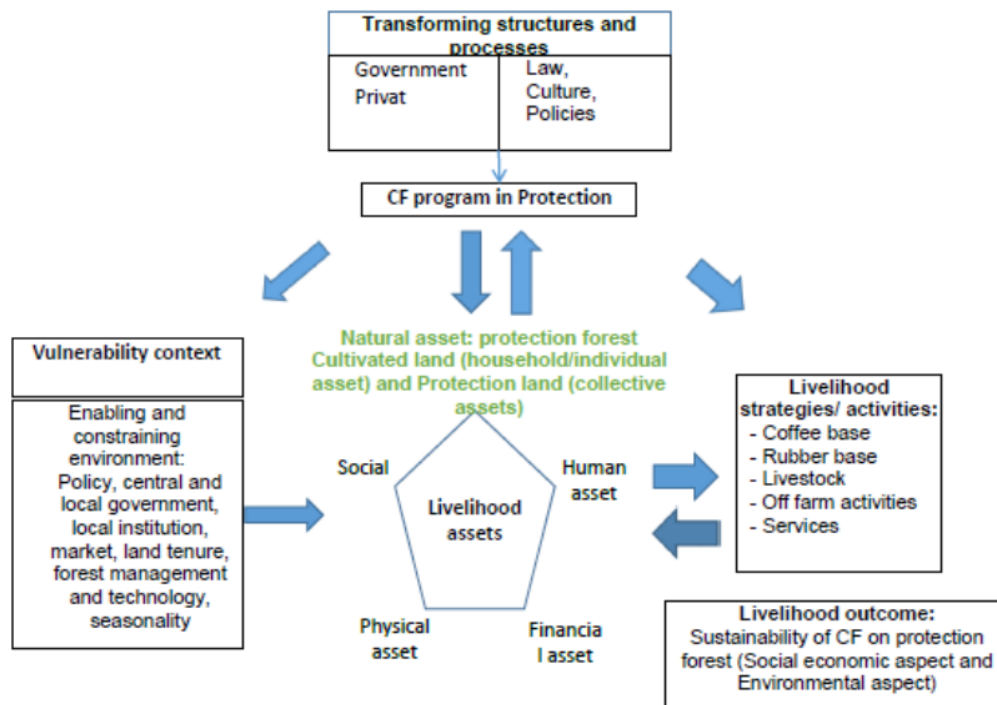


Figure 2. Sustainable Livelihoods Framework for HKm in Protection Forest

Another activity is to look for firewood and fruits. People who are looking for firewood are those who have not used gas stoves and those who claim that cooking with firewood is more tasty than gas cookers. Respondents harvested the fruits of the Multi Purpose Tree Species (MPTs) such as coffee, cacao, jackfruit, kingfruits, etc..

Table 1. Activities or livelihood of respondents

No	Aktivitas	Respondents (person)	Percentage (%)
1.	Budidaya di lahan garapan	150	100
2.	Berburu babi di hutan	2	1,33
3.	Mencari burung di hutan	3	2
4.	Mencari kayu bakar di hutan	15	10
5.	Mencari buah-buahan di hutan	120	80
6.	Bekerja sebagai pedagang	11	7,33
7.	Bekerja sebagai pegawai	4	2,67

### 3.2. HKm program implementation and its obstacles in Tanggamus District

Implementation of HKm program in Lampung Province has been running well. This is because the HKm program has been socialized since 1998 and has many HKm groups established and licensed HKM in Lampung Province. Tanggamus Regency is one of the districts in Lampung



Province which already has 5 HKm groups that have been licensed to manage HKm in 2008 (Kagungan, 2012). The successful implementation of HKm in Tanggamus District is due to the support from the government (central, provincial and district), companions (NGOs and universities) and the community / group.

Although the implementation of HKm program in Tanggamus Regency has been running well but there are still some obstacles in the implementation of HKm program, among others: the lack of escort personnel especially after the HKm management permit is given (especially related to the making of management plans, reporting activities, processing of crops and payment restribusi of HKm crops). Implementation problems HKm program appears also due to the many changes that occur in HKm policy. Dwiprabowo dkk (2013) and Kaskoyo et al (2014) stated that there has been 9 times changes in HKm policy in the period 1998 to 2011. In 2014 there is another regulation change related HKm. In 2016 Community Forest (HKm) is incorporated in or as part of the Social Forestry program.

### 3.3. Livelihoods Assets and Its Changes

<sup>2</sup> Livelihood capitals are the resources on which people draw in order to carry out their livelihood strategies (Farrington, Ramasut and Walker, 2002). Capitals are not just a thing that go into a production process but also a basis for power <sup>1</sup> act and ultimately to bring about change in society (Morse and McNamara, 2013). These asset types are human, natural, financial, physical, and social capital. Human capital is, for instance, the amount and quality of labor available, whereas natural capital comprises the natural resources from which a livelihood can be derived. Physical capital refers to the basic infrastructures and means of production, and financial capital encompasses the financial resources needed to support a livelihood. Social capital assets indicate the involvement of the household in social activities and networks for both political and economic purposes. The capital types available to individual households reflect their ability to gain access to systems, including the resource base, financial system, and agencies through which these capital types are produced.

The human **assets** used in this analysis were the average family members, formal education of the respondents, non formal training / education and the number of school children (Table 2). Following the HKm program, significant changes in human assets occurred for the non-formal training component / education that respondents had and the number of children in school. There are 2 things that change significantly in human assets that is the amount of training received by the respondents and the number of children who attend school.

These trainings include conservation farming, coffee cultivation, rubber cultivation, brown cultivation, conservation building, agroforestry, coffee processing, rubber latex tapping, mapping, institutional, and so on. This training is expected to improve the ability of respondents to be efficient in using other assets of natural assets and improve the productivity of respondents. Usually in the training there are those who provide assistance in the form of equipment for processing HKm products produced from arable land.

The number of children enrolled in school increased significantly due to the increased attention of respondents in education. Respondents assume that the higher the education level of their children will make the better life of their children later. The cost of education is derived from the proceeds from the sale of crops obtained from cultivated crops in the forest in protection forest. The proceeds of the sale are also used to finance the daily needs of the respondents

Tabel 2. Changes in human assets

No	Human Assets	Mean of human assets	
		Before	After
1	Number of family members	3,1	3,2
2	Education of household, primary school (%)	48	37
3	Education of household, secondary school (%)	44	51
4	Education of household, graduate school (%)	8	12
5	Training/non formal education (%)	12*	28*
6	Children going to school (%)	82*	95*

Note: \* Significant difference between before and after ( $p < 0,05$ )

Social assets include: number of organizations followed, members of HKm, sub-gapoktan (group), gapoktan board, trust among villages (scale 1, 2, 3), trust in village officials (scale 1, 2, 3) and gotong royong activities (Table 3). With regard to social assets, the only significant change is the trust between villagers. This is different from the results of research Kaskoyo et al (2017), where there is no significant change in social assets. Increasingly significant inter-community confidence can occur because after the respondent follows the HKm program, more frequent meetings are held to discuss matters related to the HKm program.

Meetings conducted among others discuss the preparation of programs related to HKm management activities. The preparation of the program was conducted in two stage meetings, namely the sub-level meeting of gapoktan and gapoktan level meeting (Kagungan, 2012). The meetings were held to discuss institutional, management of arable land, rules of play in gapoktan and sub gapoktan, mapping, licensing, cultivation of plants, preparation of planning, and so forth. Meetings are also held during training held by other parties.

Table 3. Changes in Social Assets

No	Social Assets	Mean of natural assets	
		Before	After
1	Number of organizations involved	2	2
2	Member of sub group	0	120
3	Caretaker of sub group	0	12
4	Caretaker of group level	0	4
5	Trust between villager/farmer (in scale 1, 2, 3)	2,1*	2,6*
6	Trust to village leader (in scale 1, 2, 3)	2,4	2,6
7	Mutual aid activities (%)	100	100

Note: \* Significant difference between before and after ( $p < 0,05$ )

Natural assets analyzed include: the area of arable land in protection forest, the size of the land owned, the number of coffee trees, the number of rubber trees, the number of timber trees in the owned land and the sense of security in managing the land and trees (Table 4). Many things are natural assets that change significantly. Cultivated area in protection forest increased significantly. The additional arable land is usually obtained by making a purchase (the term in the field is a compensation) to the farmer who moved the residence or need a cost to their daily life.

The money of respondent used for the compensation is obtained from the sale of cultivated crops in the cultivated fields in the form of coffee, cocoa and rubber. There are also respondents who get the results from the labor of the farm laborers although only a few of them. The area of land owned by farmers purchased outside state forest areas also increased significantly. Respondents are aware that managing land areas is only temporary so that they purchase land that can be managed much longer than land claimed. The land is generally located not far from where the respondent lived and planted timber trees as a savings that will be used when harvested / harvested. This is done by the respondents because the timber crops that exist in the arable land in the protection forest should not be felled. The provision is a provision of the government to keep the function of protection forest can run continuously. It also encourages the number of timber trees in the property to increase significantly. Safety in managing cultivated land and crops at the HKm site also increased significantly. This is because the legality / permission granted to manage the arable land in protection forest has been provided by the government. Respondents felt that the management of the cultivated land had been so that if any other party would use or seize the land they would be protected by the government. Prior to the HKm permit, respondents were often asked for some of their harvest by irresponsible people and this was similar to the results of research Kaskoyo et al (2017).

Table 4. Changes in Natural Assets

No	Natural Assets	Mean of natural assets	
		Before	After
1	Cultivated area inside protection forest (ha).	1,1*	1,65*
2	Private landholding outside protection forest (ha).	0,8*	1,6*
3	Amount of coffee trees (no.)	X	5395
4	Amount of rubber trees (no.)	X	118
5	Amount of wood trees inside protection forest (no.)	X	125
6	Amount of wood trees in private landholding outside protection forest (no.)	12*	26*
7	Security of cultivate land and trees (%)	30*	100*

Note: \* Significant difference between before and after ( $p < 0,05$ )

Physical assets consist of: house size, number of bamboo-walled houses, number of wood-walled houses, number of wood-walled houses and walls, number of walled houses, number of wooden houses, number of asbestos roofing houses, number of roofed houses, number of cars, number of motorcycles, number of bikes, number of HP and home appliances owned (Table 5). Almost all physical assets experienced significant changes after the respondents followed the HKm program. Home size, the number of wood-walled houses and the wall rose significantly. Similarly, the number of roofed homes, the number of cars, the number of motorcycles and HP increased significantly. The number of bamboo-walled houses, the number of wood-roofed and asbestos-roofed houses has decreased significantly. Currently mobile phone or HP can be said to be the primary goods so required by respondents for communication purposes. Physical assets owned by respondents are getting better. Respondents stated that with the HKm program they can try to be more earnest so as to obtain a lot of results which are then used to increase their physical assets.



Table 5. Changes in physical assets

No	Physical Assets	Mean of Physical assets	
		Before	After
1	House size (m <sup>2</sup> )	36*	45*
2	Amount of bamboo walled house (%)	40*	30*
3	Amount of wood walled house (%)	60	55
4	Amount of wood and brick walled house (%)	30*	42*
5	Amount of brick walled house (%)	20	23
6	Amount of wood roof house (%)	38*	20*
7	Amount of asbestos roof house (%)	35*	20*
8	Amount of tin roof house (%)	25	36
9	Amount of brick roof house (%)	52*	74*
10	Amount of car (%)	2*	10*
11	Amount of motorcycle (%)	70*	95*
12	Amount of bicycle (%)	20	15
13	Amount of mobile phone (%)	60*	95*
14	House appliances owned (%)	100	100

Note: \* Significant difference between before and after ( $p < 0,05$ )

Financial assets include: the number of cows, the number of goats, the number of savings respondents, the number of respondents who have loans, the frequency of borrowing, the average income and the adequacy of food (Table 5.7). Some financial assets changed significantly after the respondents joined the HKm programs such as the number of cattle, the number of goats, the number of savings respondents, the number of food sufficiency respondents and the number of food-deficient respondents. The number of livestock can increase significantly due to the existence of livestock support to HKm groups channeled by the central government through local and regional government through KPH Kota Agung Utara which is an extension of Tanggamus district government. The increase in the number of livestock is also influenced by the availability of adequate livestock feed that can be obtained from respondents' land.

Respondents who are short of food and sufficient food significantly changes. The HKm program implemented by the government provides the legality of managing the protection forest to the respondents. This causes the respondents to try farmers more calm so as to do better planting, maintenance and harvesting (Kaskoyo *et al.*, 2014). Overall, the change in financial assets in Beringin Jaya and Sidodadi gapoktan significantly more than the changes that occur in HKm gapoktan in Lampung Barat and Way Kanan (Kaskoyo *et al.*, 2017).

Table 6. Changes in Financial Assets

No	Financial Assets	Mean of financial assets	
		Before	After
1	Amount of cow (no.)	1*	6*
2	Amount of goat (no.)	50*	61*

No	Financial Assets	Mean of financial assets	
		Before	After
3	Household with saving (%)	63*	73*
4	Household with loans (%)	52	54
5	Number of loans per year (%)	3	5
6	Mean annual income (Rp)	X	56.725
7	Food surplus (%)	51	54
8	Food sufficient (%)	64*	72*
9	Food shortage (%)	35*	24*

Note: \* Significant difference between before and after ( $p < 0,05$ )

#### 4. Conclusion

The results showed that:

- The community's dependence on protection forests is very high, where all (100%) of respondents have HKm cultivated land in the working area of KPH Kota Agung Utara.
- The implementation of HKm program in Lampung Province especially in Tanggamus Regency, including the most advanced in Indonesia.
- There are still many encountered by the community constraints in the implementation of HKm program. In addition to licensing, constraints are also faced by respondents post licensing, which is related to institutional continuity, processing results, making HKm management plans, land resource development, marketing results, standardization of quality results and cooperation with other parties in order to develop HKm results.
- The HKm program has a positive impact on the respondents and regional development. Many livelihood assets are undergoing significant changes that can improve the standard of living of HKm participants.

#### 5. Recommendations

Further research is needed related to the marketing and processing of crops produced by the participants of HKm. In addition, it is necessary to conduct research related to the potential of forest resources that can be developed by HKm community such is environmental services

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