Livelihoods survival strategy of sharecropper household in Sumbawa District, West Nusa Tenggara and Tasikmalaya Districts, West Java

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Abstract. Sharecroppers need their own strategy of livelihood survival due to low income from the farming of dry land and paddy field. This paper aims to evaluate the strategy of livelihoods survival of farmers at two research plots located in Cukangkawung village, Tasikmalaya District and Labuhan Badas Village, Sumbawa Districts. The research Ade was conducted in February and April 2017. The data were collected through observation and interviews with 30 farmers in Cukangkawung and 30 farmers in Labuhan Badas and analyzed descriptively. The result revealed that farmers in both locations showed different strategies of livelihood survival, although identical in characteristic. It was due to tenurial factors. The Cukangkawung’s farmers practice agroforestry in both village and private lands, while the Labuhan Badas farmers only in the state land. The Cukangkawung’s farmers earned income by implementing a set of strategies by intensifying and extensively farming business, increase value-added, get a transfer from children, and make an investment, while Labuhan Badas farmers neither able to intensify farming business nor increase added value. They also decrease the consumption of food, clothing, and medicines. They broaden friendship, create brotherhood, and help each other to make lending and borrowing money easier. It is strongly recommended for local government to facilitate farmers to access the new business center through training, business meeting, and linking to the market to improve farmer livelihood.

1. Introduction
The community in Labuhan Badas Village, Sumbawa Regency, NTB and Cukangkawung Village, Tasikmalaya Regency, West Java generally work as the farmers either in dryland or in wetlands (rice fields). However, not all farmers carry out farming activities in their own land; some of them carry out farming activities in leased land. This condition occurs in Sumbawa farmers who work in the state land, namely Labuhan Badas, Production Forest Management Unit/Kesatuan Pengelolaan Hutan Produksi (KPHP) Puncak Ngengas, Forest Management Resort/Resort Pengelolaan Hutan (RPH) Batulanteh also farmers in Tasikmalaya who work on the village and the private land.

The low productivity of land at two research locations has made the farmers’ income minimal and unable to meet their consumption needs, which then forces them to work outside the agricultural sector. Instinctively the farmer will carry out both activities together (agricultural and non-agricultural) to meet household needs. However, practically these activities cannot be separated from norms or rules which are prevailing in society. The rules aim to avoid conflict and tension between individuals, between groups and between individuals and groups. Many villagers ignore the rule/norm...
by letting their livestock such as cows, goats, and chicken illegally enter the garden belong to the neighbor and ruin the crops. The stone collectors also ignore the environment value during collection activities, resulting in the landslide occur along the riverside. Based on that information, the farmers, therefore, have optional activities called the strategy of livelihood survival to fulfill their household needs. The chosen strategy must strengthen the farmers, economically and financially [1, 2].

According to [3], livelihood survival strategies are all efforts, tactics, mechanisms, and manipulations that are built by individuals or groups (households) to survive and, if possible, consolidate or increase the level of their socio-economic life (strengthening or accumulation strategies). Livelihood survival strategies are classified into a single strategy (agriculture or livestock) and mixed strategy (a combination of agriculture, migration, and other entrepreneurship outside agriculture). Various strategies for livelihood survival can be employed by farmers when they have financial capital, while the socio-economic conditions of the farmers themselves strongly influence the capital. The value of capital owned by farmers also makes the choice of livelihood survival strategies by a family is also diverse [4].

This paper will describe the livelihood survival strategies of forest farmers at two different locations, i.e., Cukangkawung and Labuhan Badas villages. Due to socio-demographic differences, the livelihood survival strategies employed by farmers in both locations could be different too. This information is expected to be adopted as a reference for making policies to improve the livelihood of poor farmers.

2. Methodology
2.1. Location and time
The researches were conducted in two locations, namely Labuan Badas Village (Sumbawa Regency, West Nusa Tenggara) and Cukangkawung Village (Tasikmalaya Regency, West Java). These activities were carried out in February 2017 (Tasikmalaya) and in April 2017 (Sumbawa).

2.2 Data collection
The data were collected from the research plots of the Institute for Research and Development on Agroforestry Technology. The community in the research plot of Cukangkawung is practicing the agroforestry system by involving 30 local farmers. They develop an agroforestry system at two locations, i.e., in the village land and their own land (private land) during the same period. Meanwhile, in the Labuhan Badas research plot, the community practices agroforestry in state forest areas only; there is no private land.

The respondents consisted of 30 farmers in Cukangkawung research plots and 30 farmers in Labuhan Badas research plot who practiced the agroforestry system. Primary data were directly collected from respondents through observations and interviews using questionnaires and in-depth interviews assisted by local facilitators. Primary data consisted of livelihood capital and conditions of current livelihood survival strategies employed by farmer households. Meanwhile, the secondary data consisted of information, as well as literature related to research activities, collected from the village office, sub-District and other related offices, and farmer groups.

2.3 Data analysis
The collected data were then descriptively analyzed to determine the livelihood survival strategies employed by farmer households in Cukangkawung and Labuhan Badas Villages.

3. Results and Discussion
3.1. Characteristics of sharecroppers
The socio-demographic characteristics of farmers consist of age, education, and the number of the family covered described in Table 1 below.
Table 1. Socio-demographic characteristic of sharecroppers.

| No | Description                          | Sharecroppers | Sharecroppers |
|----|--------------------------------------|---------------|---------------|
|    |                                      | Cukangkawung¹ | Labuhan Badas²³ | N=30          | N=30          |
|    |                                      | %             | %             |               |               |
| 1  | Ages                                 |               |               |
|    | a. Productive (15-64 years)          | 90.3          | 100           |
|    | b. Unproductive (<15 or >64 years)   | 9.7           | 0             |
|    | Total                                | 100           | 100           |
| 2  | Education Level                      |               |               |
|    | Not attend formal education          | 0             | 36.7          |
|    | Elementary school                    | 64.8          | 53.3          |
|    | Junior High School                  | 22.5          | 3.3           |
|    | Senior High School                  | 9.6           | 3.3           |
|    | Diploma and above                    | 3.2           | 3.3           |
|    | Total                                | 100           | 100           |
| 3  | Number of the family covered         |               |               |
|    | Small family 1-3 people              | 77.5          | 80.0          |
|    | Medium family 4 - 6 people           | 22.5          | 20.0          |
|    | Big family over 6 people             | 0             | 0             |
|    | Total                                | 100           | 100           |

Sources: 1. Adopted from [3]
2. Adopted from [13]
3. Primary data 2017

The sharecroppers in Tasikmalaya and Sumbawa Districts show some identical socio-demographic characteristics, especially the age level, education category, and the number of families covered. More than 90% of their age was categorized as productive, and more than 50% of their educations were categorized as elementary school level. At both locations, we were even found a graduate diploma. Their family was also included in the small family size, with the number of the family covered between one to three persons. Based on this condition, the demographic characteristics of sharecroppers in Tasikmalaya and Sumbawa District are sharing many similarities. However, the condition of arable lands owned by sharecroppers in the two locations has differences, as shown in Table 2.

Cultivated land is one of the socio-demographic characteristics which distinguish the two research locations. It can be seen in Table 2 that cultivated land is very different. The average landholding of a farmer in the Tasikmalaya District is only 7,400 m², which consists of 2,100 m² village land and 5,300 m² private lands. Meanwhile, the average landholding of a farmer in the Sumbawa District is more extensive than a farmer from the Tasikmalaya District, i.e., 10,300 m² which consists of state land alone. Farmers in Sumbawa are allowed to work on the state land with the condition that they must maintain the trees that already grow on the land.

Farmers could freely harvest the production of non-timber forest products (NTFP) on the state land (Sumbawa District) and the village land (Tasikmalaya District). However, the timber production from state land (Sumbawa District) is not allowed to be used by farmers, while the one on the village land (Tasikmalaya District) has to be shared with the village office.
Table 2. The land use in the study locations per household.

| No | Description                  | Tasikmalaya, West Java | Sumbawa, NTB |
|----|------------------------------|------------------------|--------------|
| 1  | Agroforestry                 |                        |              |
|    | - Private property           | 1,800                  | 0            |
|    | - Village land               | 2,100                  | 0            |
|    | - KPHP concession area       |                        | 10,100       |
|    | - Rented land                | 0                      | 0            |
|    | Sub total                    | 4,000                  | 10,100       |
| 2  | Housing and home garden      |                        |              |
|    | - Private property           | 300                    | 0            |
|    | - Village land               | 0                      | 0            |
|    | - KPHP concession area       |                        | 200          |
|    | - Rented land                | 100                    | 0            |
|    | Sub total                    | 400                    | 200          |
| 3  | Paddy field                  |                        |              |
|    | - Private property           | 1,800                  | 0            |
|    | - Village land               | 0                      | 0            |
|    | - KPHP concession area       |                        | 0            |
|    | - Rented land                | 1,100                  | 0            |
|    | Sub total                    | 3,000                  | 0            |
| 4  | Fish pond                    |                        |              |
|    | - Private property           | 29                     | 0            |
|    | - Village land               | 0                      | 0            |
|    | - KPHP concession area       |                        | 0            |
|    | - Rented land                | 0                      | 0            |
|    | Sub Total                    | 29                     | 0            |
| 5  | Cattle pen                   |                        |              |
|    | - Private property           | 6                      | 0            |
|    | - Village land               | 0                      | 0            |
|    | - KPHP concession area       |                        | 0            |
|    | - Rented land                | 11                     | 0            |
|    | Sub Total                    | 17                     | 0            |

Sources: 1. Analyzed from primary data 2017
2. Analyzed from [6]

According to [5], cultivated land does not always reflect real control of farmers over land because the farmer can utilize the land by renting, profit sharing, and even pawning. The area of cultivated land by a Sumbawa farmer is larger than that of a Tasikmalaya farmer. However, the feeling of comfort by the farmer will be different, which will contribute an impact on yield productivity. [6] and [7] Reported that the average income received by a farmer in Tasikmalaya from agriculture was IDR. 10,050,355, while the average of income received by a farmer in Sumbawa was IDR. 3,379,267.

3.2 Livelihood survival strategies employed by household farmers
The livelihood survival strategy is the way for households to build a living system, how to survive, or improve the status of life [8]. The livelihood survival strategies employed by farmers in the research locations are grouped into three groups, namely:
3.2.1. Active Strategy. An active strategy is a strategy that optimizes all the potential of farmers and families [9]. Farmers usually optimize all their potential by running agricultural businesses effectively and efficiently using technology, labor, or expanding agricultural land to optimize revenue. The agricultural intensification strategy carried out by the farmers in Sumbawa and Tasikmalaya was cultivating fertile soils through an agroforestry system, mixing trees with other plants (seasonal plants, fruits, nuts, and food plants). In arable land, especially in the RKPH Kanar Luk area KPHP Puncak Ngengas Batu Lanteh Sumbawa, farmers must cultivate or maintain trees in the state land as a part of the agreement.

The agroforestry system practiced by Sumbawa farmers is a mixture of agricultural crops (rice, peanuts, lebui, and corn) with timber trees (Tectona grandis, Swietenia macrophylla, Anacardium occidentale, Tamarindus indica) [6]. Meanwhile, the system practiced by Tasikmalaya farmers is mixing between crops such as cassava (Manihot utilissima), banana (Musa spp), cardamom (Elettaria cardamomum), coffee (Coffea arabica) and fast-growing trees species (Falcataaria moluccana and Manglieta glauca). Tasikmalaya farmers do not grow rice on the village land, but grow rice on their own land, mainly on rice fields. Rice is the main food for people so that the farmers will always cultivate it.

The strategy implemented by farmers is focused on an effort to fulfill the food needs of farmers and their families. Rice is the main food for all farmers in the research location; therefore, its production is prioritized to supply the needs of the household. Farmers only sell the production surplus, and then many will be kept as savings. When the production is a deficit, then the farmers will buy or borrow from neighbors.

The farming technology employed by the Sumbawa and Tasikmalaya farmers is less optimal compared to other techniques because it cannot cope yet the hilly land condition (Tasikmalaya) and takes much energy to reach farm (Sumbawa). Moreover, the tree species introduced to Tasikmalaya farmers are not local species, and it makes the farmers hesitate. The farmers still use traditional techniques to cultivate trees on the land [10]. Likewise, for the use of labor, the farmers prioritize to involve family member because it is more economical, and indeed farmers do not have the budget to pay labor wages. The Tasikmalaya farmers use non-family labor, usually in mutual cooperation, especially for growing rice in the fields.

Extensification is a livelihood strategy by expanding agricultural land through the purchase or expansion of arable land. The strategy undertaken by farmers in Tasikmalaya to increase their income is by purchasing land in other locations for agriculture purposes such as rice fields and livestock. However, Sumbawa farmers cannot carry out an extensification strategy because they are unable to purchase new land or expand their cultivated land. This is because the income earned is only enough to meet daily needs. Therefore, farmers in Sumbawa are more likely to maximize intensification and multiple livelihood strategies. The designation of land in the state forest made the land cannot be expanded for agriculture because the farmers in Sumbawa have promised to protect the forest area of RKPH Kanar Luk.

Another active strategy undertaken by farmers of Tasikmalaya is by increasing the added value of their agricultural products. All proceeds from agricultural activities carried out by farmers will be sold to get profits to meet family consumption and business development. To generate added value, most of Tasikmalaya farmers do not sell agroforestry products in the form of raw materials, but in the processed form. For example, the non-timber forest products (NTFPs) such as cassava and banana are sold in the form of chips, namely pisang sale (a popular traditional food in Indonesia) and flour. The processing of raw materials into various products provides added value for farmers. Meanwhile, farmers in Sumbawa are unable to further process agroforestry products, so that farmers sell NTFPs in raw condition because they want to get money quickly.

Due to less income from agricultural businesses, farmers try to increase it by looking for other jobs or making other strategies to diversify incomes (multiple incomes). This effort is carried out by mobilizing family as laborers (father, mother and children). The jobs are usually practiced around the village so that the farmers unnecessary to migrate far from home. They can simply arrange the time of
working so that they do not have to leave the agricultural activities because agriculture is the main livelihood for farmers.

Non-agricultural jobs by Sumbawa farmers are usually performed as stone and sand collectors, village officers, truck drivers, trader, construction workers, and driver of a motorbike taxi. While the non-agricultural jobs by Tasikmalaya farmers consist of being village officers, trader, construction workers and employees [11, 7]. Based on the number of work types carried out by farmers, non-agricultural work by farmers in Sumbawa are higher than the ones in Tasikmalaya. Income from the agricultural sector of Tasikmalaya farmers is higher than income from the agricultural sector of Sumbawa farmers because doing business in their own land makes Tasikmalaya farmers can harvest trees at any time.

Also, the conflict occurred in the state forest area (Sumbawa) have made the farmers feel uncomfortable and makes the farming business is less optimal. To fulfill their economic needs, the families of farmers in Sumbawa carry out double livelihood survival strategies by optimizing the businesses' chances that are available around their environment.

Many children (25 % of Tasikmalaya and 21 % of Sumbawa) live and work far from their parents, but they are regularly able to send money to their parents [5]. The investment strategies carried out by farmers in research locations are very diverse, but usually through production factors such as purchasing rice fields (Tasikmalaya) and raising livestock (Sumbawa). Investment is an important asset that can be used as a source of income in the future.

The conditions of the environment tend to influence farmers' decisions in choosing investment assets. We found there was a different decision of farmers from two locations in making an investment. The Sumbawa farmers prefer to invest livestock, while the Tasikmalaya farmers prefer to purchase productive land. However, still, there is a similar decision to invest, mainly in the education of their children. Their status as students make all children very rarely go to the fields in the morning but in the afternoon or evening. All farmers want their children to have a better life in the future. Besides, they also maintain good relations between the communities in one hamlet (RT), practice mutual cooperation activities to take care of sick people, attend any type of ceremonies, neighborhood watch (siskamling), environmental sanitation, and build village roads.

3.2.2. Passive strategy. A passive strategy is a strategy carried out by farmers and families in the form of actions to minimize family expenses. According to [14], active and passive strategies are often carried out together, namely, more actively increasing income but also at the same time trying to reduce consumption. The consumption patterns carried out by farmers in the study locations are not much different, namely consumption for food, housing, clothing, tuition fees, social activities (attending celebrations, religious celebrations etc.), health, fuel, and other activities (savings and recreation). The difference is usually in the number of costs incurred for each consumption item. About 56% of farmers in Sumbawa and 38% of farmers in Tasikmalaya have never bought vegetables because the vegetables are available around the house. Likewise, the consumption of animal protein, whereas many as 25% of farmers in Tasikmalaya do not need to buy it because it has been fulfilled from their own livestock such as freshwater fish and chicken. Even, 75% of farmers in Sumbawa never buy animal protein.

Purchasing clothes is rarely decided by farmers in research locations since the need for clothing is usually fulfilled by gifts from their families. Similarly, the purchase of household furniture is very rarely done; it can be said that Sumbawa farmers never bought them. Even if they have to buy household furniture, usually because the previous item has been broken/damaged or lost.

Reducing costs for consumption is a strategy carried out by farmers and their families so that the sustainability of life can be continued. Nevertheless, investment for social activities such as attending celebrations, circumcision, religious celebrations are un-avoided. For farmers in Tasikmalaya, expenditure on charitable gifts can be regarded as savings that can be taken back again when farmers hold a ceremony and neighbors bring the comparable farmer gifts.
3.2.3. Networking strategy. Networking strategy is a strategy to establish formal and informal relationships and institutional environments [10]. This strategy requires social capital, which can drive a person's intuition, interests, and willingness to help each other in family life and society [4]. The farmers in practicing this strategy must foster good relations with neighbors and other wider communities. For Sumbawa Farmers, neighbors are the closest relatives because 100% of farmers are migrants so the bond between neighbors is well established. Different situations occur in Tasikmalaya farmers because they are local residents and close to their relatives so that closeness to neighbors is an ordinary sense. This condition can be seen from the activities carried out by farmers in the two research locations, such as when traveling and leaving home. Almost all of Sumbawa farmers (90%) trust their neighbors when leaving their homes, but most of Tasikmalaya farmers (63%) more trusting of their family. Lending and borrowing money, goods, and daily necessities (rice, oil, salt, etc.) to neighbors are also more frequently carried out by Sumbawa farmers (74%) compared to Tasikmalaya farmers (31%). When they face a problem, therefore, the Sumbawa farmers feel more secure, because the neighbour will help, which makes comfortable living in the village because the community accepts its existence. As a substantial social capital, trust among Sumbawa farmers is more reliable than the one among Tasikmalaya farmers. These characteristics indicate that the Sumbawa farmers are more homogenous than Tasikmalaya farmers. Besides, access to the market for Sumbawa farmers is weaker than the one of Tasikmalaya farmers. Therefore, assistance in developing forest is more suitable to Sumbawa farmers, while assistance to develop home industries is more suitable to Tasikmalaya farmers.

The network strategy is usually carried out by farmers in the marketing aspects of agroforestry products. Farmers and families devote all the information to trade their forest products. Unfortunately, the role of farmer groups (Gapoktan) is still limited in the marketing of agricultural products. The farmer group always provides information related to the marketing network for all members of the farmer group.

3.3. The dependency of farmers on forest

The main factor which influences the interaction between farmers and forest is the economy. Previous studies showed that the dependency types of farmers on forest could be classified into several reasons as follows: the forest as a food source, as energy (fuel), and as housing materials resources [12, 13]. The interaction between farmer and forest drives the farmers’ strategy in the utilization of forest for commercial purposes. The utilization of forest area by farmers are shown in Table 3.

| Type of utilization | Farmers in Tasikmalaya | Farmers in Sumbawa |
|---------------------|------------------------|---------------------|
| Income resources    | Agricultural products: | Agricultural products |
|                     | sengon, manglid,      | corn, rice, soybean, peanut, cashew, |
|                     | cinnamon, papaya, banana, | mango, banana, livestock |
|                     | corn, peanut, rice, fish, livestock | |
|                     | Annual income: IDR 10,050,355 | Annual income: IDR 3,379,267 |
| Houses              | No house               | In the forest area   |
| Fuel                | Firewood               | Firewood             |
| House materials     | Timber from private forest | Buy from timber stall |

Sources: analyzed from primary data, and modified from [11].

Farmer's livelihood, especially those who live in the state forest area of Sumbawa, mostly depend on forest resources. People were more likely to depend on forest resources if they worked in the professions the professions ate farmers in Tasikmalaya not only lean on forest resources but also non-forest resources such as public services. They even get higher income from the non-forest sector than
from the forest sector. This is because their capital for running the profession does not totally depend on forest resources, and the average of their education levels are relatively higher than farmer from Sumbawa. According to [15], education and age factors influence the dependency level in the forest. By having a better educational background, farmers who live in their own land (Tasikmalaya) can find a strategy to get additional income from the non-forest endeavor. Conversely, farmers who live in the state forest area almost totally depend on forest resources and have very limited access to the outside of the forest. They spend all energy to exploit natural resources from the state forest area, such as collecting stones from the river and being a truck driver.

It was revealed that almost all economic activities of Sumbawa farmers were conducted in the state forest area. They rarely interact with people from outside of the state forests, and when (if any of) their business are finished, they will be back to their daily living in the state forest area. This condition is very different from Tasikmalaya farmers who frequently interact with others. This different condition, therefore, creates a different livelihood survival strategy.

4. Conclusion
The farmers will make any attempt to fulfill all the consumption needed by exerting all their potential resources. Agricultural business is the main job in both locations. However, the incomes from the main job are not sufficient to meet consumption needs. The farmers, therefore, must make several choices of economic actions to meet their needs. The choice of actions taken is the most optimal strategy that can be employed by farmers and their families. The livelihood survival strategy carried out by farmers is a combination of active, passive, and network livelihood strategies.

Farmers of Tasikmalaya and Sumbawa, in general, have identical livelihood survival strategies, with some differences due to differences in economic, social and environmental conditions. The active livelihood strategy in Tasikmalaya is practiced in the form of agricultural extension, and increasing value-added agricultural products. Meanwhile, the network strategy carried out by Sumbawa farmers is practiced in the presence of strong neighborhood links so that everyone is considered as family members. Although farmers more prioritize individual networking in both locations (Sumbawa and Tasikmalaya), however, the utilization of institutional networks by Sumbawa farmers is more optimal than the ones by Tasikmalaya farmers.

Government efforts to improve the livelihood of farmers must be continued because it is the right of every citizen to be able to live a decent and prosperous life. A possible way that can be conducted by local government is by improving access to information, funding sources and technology, and by utilizing web facilities that have reached remote areas of the country so that farmers can quickly receive and send information. To further strengthen farmer livelihood, it is necessary to support facilities for business activities such as technical assistance, workshops, business meetings, and bringing the market closer to producers (farmers).

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