

The Understanding of Household Livelihood Diversity on Production Forest Areas: A Preliminary Survey on Social Studies

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ARTICLE INFO	ABSTRACT
Keywords: Farmer; forest area; household; livelihood diversity; preliminary survey Article history: Received 2023-10-16 Revised 2024-02-06 Accepted 2024-02-11 Published 2024-03-01	Forest resources play an essential role in supporting the livelihoods of forest farming households. Households in this area depend heavily on forest-related activities as a source of income and livelihood. However, forest farming households are often faced with various challenges and uncertainties due to climate change, market fluctuations, limited access to land ownership, lack of infrastructure and technological support, and developments in socio-economic conditions that change the values and structure of people's lives. This study is a preliminary survey as an initial process of collecting information and data before carrying out the primary research. This preliminary survey aims to gain an initial understanding of the diversity of forest farmer household livelihoods. Data was collected through a rapid study of 30 households in Gandu Village. Then, data was identified according to information needs and planning the next steps. The results of this study show that forest farming households in Gandu Village diversify their livelihoods in both the agricultural and non-agricultural sectors. The diversity value in the non-agricultural sector shows an average figure of 2.1, which means that each household does not only depend on one source of income. However, they will diversify the number of livelihoods in the amount of 2.1 to meet their household's living needs. The findings of this preliminary survey can become initial data and contribute to further research.
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1. INTRODUCTION

In many rural areas worldwide, forest resources play an essential role in supporting the livelihoods of forest farming households. Households in this area are highly dependent on forest-related activities for their income and livelihoods. They are directly involved in wood harvesting, non-timber forest product collection, agroforestry, and small-scale agriculture. They farmed, raised livestock, and combined the cultivation of perennial crops with agricultural practices. Agroforestry systems, such as annual crops

grown in the shade or intercropped with perennial crops, provide food security, diversify income sources, and improve ecosystem services (Langat et al., 2016).

However, forest farming households are often faced with various challenges and uncertainties due to factors such as climate change (Habib-ur-Rahman et al., 2022), limited market access and fluctuations, limited access to land ownership, lack of infrastructure and technological support, the development of socio-economic conditions that change the values and structure of people's lives (Faure et al., 2019). Climate change can significantly impact forest farmers because causing irregular changes in rain patterns, increasing temperatures, or drought can disrupt agricultural cycles, reduce crop productivity, and threaten water availability. These changes result in crops being damaged or experiencing a decrease in productivity due to unstable weather conditions. Climate changes also impact price fluctuations and market demand for agricultural products, non-forest timber or other forest products. Changes in consumer needs, changing market trends, and product competition can directly impact forest farmer incomes and the welfare of forest farmer households (Habib-ur-Rahman et al., 2022).

The next challenge is that many farmer households have limited access to forest management and need legal land ownership. This challenge causes legal uncertainty and hinders their ability to use land effectively and access necessary services and support. Forest farming households are often involved in land conflicts with other parties, including large industrial companies, the government, or other community groups. Land conflicts can impact uncertainty over land ownership and use, disrupt the sustainability of agricultural or forest-based production, and even result in losing access to essential resources (Faure et al., 2019).

The unavailability of basic infrastructure and limited access to modern technology are challenges currently faced by forest farmers. A lack of good road networks and poor accessibility to rural areas and forests can hinder forest farmers from transporting their agricultural produce to markets or accessing essential resources and services (Kaiser & Barstow, 2022). On the other hand, rural technology innovations, such as agricultural machines, automatic irrigation, or data management systems, can increase productivity, efficiency and quality of agricultural production. However, forest farming households often need more access to and knowledge regarding modern agricultural technology. Lack of training and support in adopting new technologies can hinder progress and increase agricultural sustainability. The unavailability of basic infrastructure and limited access to this technology can affect their productivity, efficiency and livelihood sustainability (Mwangi & Kariuki, 2015).

Forest farming households often face challenges and uncertainty caused by socio-economic development that can change the values and structure of community life. Migration and Urbanization, or population movement from rural to urban areas, can affect forest farming households. Many members of rural communities have shifted to work in non-agricultural or non-forest sectors in urban areas (Ma et al., 2019). This movement could result in a decline in forest farmers and changes in rural areas' social and economic structure. These changes also affect society's cultural values. Traditional values associated with forest-based living may change or be displaced by values more driven by the market or modernity (Chen et al., 2014; Padoch et al., 2008). This change may affect the sustainability and sustainability of their traditional livelihoods. In response to these challenges, livelihood diversification emerged as a strategy to increase the resilience and welfare of forest farming households (Ellis, 1998, 1999; Scoones, 2009).

Livelihood diversity refers to expanding and varying income-generating activities to reduce dependence on a single source of income. This strategy involves engaging in a wide range of economic activities, both within and outside the forestry sector, to reduce dependence on a single resource or market and increase resilience, reduce vulnerability, and increase overall livelihood security (Ayana et al., 2022; Niehof, 2004). In forest farming households, diversifying livelihoods offers opportunities to adapt to changing circumstances, mitigate risks, and capitalize on emerging trends and market demands. Factors such as decreasing forest resources, market fluctuations, population growth, changing consumption patterns, and environmental degradation contribute to the need to diversify livelihoods (Kimengsi et al., 2019). These drivers create challenges and opportunities that shape the strategy and outcomes of diversification efforts. Diversification can result in increased income, food security, reduced vulnerability

to shocks, increased social capital (Santosa et al., 2023), and increased access to resources and services (Alemu, 2023). However, it can also present challenges, such as increased competition, risks associated with new ventures, and potential trade-offs between economic, social, and environmental goals.

Several studies provide an overview of livelihood diversity and its relevance to forest farming households (Lin & He, 2021; Moktan et al., 2016; Tesfaye et al., 2011). This study highlights the importance of understanding livelihood diversities drivers, outcomes, and implications for sustainable development, poverty alleviation, and regional natural resource management (Gautam & Andersen, 2016; Salimah & Muflikhati, 2016; Wood et al., 2016). This research investigates the various income-generating activities undertaken by forest farmers and explores how to diversify livelihood activities within and outside the forestry sector.

A preliminary survey of livelihood diversity among forest farming households needs to be carried out as an essential step to understand the dynamics of livelihood strategies and their impact on forest-dependent communities. These findings will contribute to developing evidence-based policies and interventions to improve forest farmers' resilience and well-being, ensure sustainable development, and promote the conservation of forest and ecosystem resources.

2. METHODS

This study is a preliminary survey as an initial process of collecting information and data before conducting research. This preliminary survey aims to obtain an initial understanding of the household livelihood diversity in forest areas, then identify data according to the need for more detailed information and plan steps for primary research or intensive surveys (Rubiyanto & Hirota, 2022).

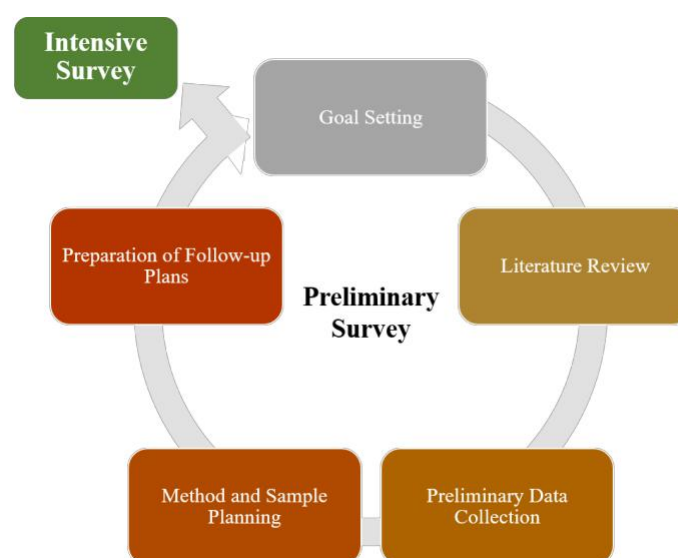


Figure 1. Preliminary survey steps

The preliminary survey stage begins with determining objectives, which are used to establish clear goals for the preliminary survey, such as an initial understanding of the population being studied, the problem to be solved, or the information needed. Once the objectives are set, and the problem to be solved is known, review the relevant literature to understand the research topic. The aim is to help identify existing knowledge and uninvestigated areas. Then, the next step is to collect initial data through initial interviews, field observations, or document studies to obtain an initial understanding of field conditions, factors that influence the problem to be researched, and the actors involved. They are planning the research methods that will be used in the following research or project and determining the appropriate sample size to obtain representative information. The final step is that the researcher formulates a follow-up plan based on the preliminary survey results. It includes subsequent steps, such as designing research instruments, further data collection, data analysis, and necessary actions.

2.1. Subject Area

This survey research was conducted on forest farmer households who implement agroforestry cultivation by planting plots on the island of Java. Agroforestry cultivation by planting plots is mainly carried out by people who live in villages around forests located in Rembang Regency, Blora Regency and Tuban Regency, so this research focuses on these three areas. One hundred fifteen villages have village lap forests (HPD) and implement agroforestry (Rubiyanto et al., 2023). From the 115 villages, 5 potential villages were taken (Table 1) and narrowed down again by selecting sample villages by determining one representative and potential village for conducting a survey.

Table 1. Determination of Village as Preliminary Survey

No	Villages	Districts	LHPD	Household	Livelihood as Farmers	Characteristic	Social and Culture
1.	Karas	Sedan	359,0	2152	20%	Lowland	Cultural acculturation
2.	Wonokerto	Sale	902,2	1828	65%	Lowland	Local wisdom is maintained
3.	Tahunan	Sale	1377,7	1384	40%	Hillsides	Cultural acculturation
4.	Gandu	Bogorejo	369,0	693	90%	Surrounded by hills	Local wisdom is maintained
5.	Tegaldowo	Gunem	114,0	1303	85%	Surrounded by hills	Local wisdom is maintained

Source: Secondary Data, 2023

Gandu Village is located in Bogorejo District, Blora Regency or directly borders Rembang Regency. Geographically, Gandu Village is situated on the slopes of the Kendeng Mountains, where most of the village area is rice fields and forests. The natural potential of Gandu Village provides opportunities for the majority of the community (90%) to earn a living as rice or forest farmers.



Figure 2. Preliminary survey Location

2.2. Collecting Data

Data collection via a semi-structured questionnaire was conducted in March 2023, giving short questions to 30 randomly selected farming households. The ten questions asked included: "How many family members here are farmers?", "What do you do besides being a farmer?" (Table 2).

Table 1. Research question this study

Code	Question List
Q1	Is being a boarding house the primary source of income for your family?
Q2	Are there any members of your family here who are female boarders?
Q3	Do you have a plot of land with more than 2500 m ² ?
Q4	Is your access to land easy?
Q5	Do you/your family members attend LMDH?
Q6	Are there more than one type of plant that you plant in a season?
Q7	Did you get NTFP product?
Q8	Is the income from the plot sufficient for the family's needs?
Q9	During your cultivation time, do you look for another job?
Q10	Do you/your family have any work other than being a boarding house worker?

Source: Quesionaire, 2023

Apart from that, we also conducted in-depth interviews to find out about implementation and income in agroforestry practices.

Respondents in this study were forest farmers. Based on secondary data on the definitive plan for group needs (RDKK) held by KPH Kebonharjo regarding land plot ownership, 386 households own land plots. This data shows that 55.7% of the people of Gandu Village own plots of land and work as forest farmers.

2.3. Analysis Data

Data analysis in a preliminary survey is a crucial step to interpret and understand the results of the data that has been collected. Even though preliminary surveys are generally more concise and less in-depth than primary research, data analysis is still needed to obtain initial insights to plan the next steps. Figure 2 explains the general steps in preliminary survey data analysis.



Figure 3. Data analysis steps in the preliminary survey

The data that has been obtained is then data cleaned to ensure the accuracy and quality of the data that has been collected so that it can help ensure that the data used for analysis is valid and reliable. The data is then processed through basic statistical descriptions to provide a general description of the data that has been collected, including statistics such as average, median, standard deviation, or percentile. In the next step, the data can be visualized in graphs, diagrams, or other visualizations to describe the data in a way that is easy to understand. Finally, interpret the findings so that they can answer the research questions or preliminary survey objectives.

3. FINDINGS AND DISCUSSION

3.1. Forest resource and management in Indonesia

Indonesia is a country rich in forest resources, faces the challenge of managing these resources sustainably while meeting the needs and rights of local communities. Social forestry is an approach that

aims to empower local communities by giving them access and rights to manage and utilize forest resources. It recognizes the importance of involving communities in decision-making processes and promoting active participation in sustainable forest management.

Social forestry initiatives have gained prominence in recent years. The government has implemented various programs, such as Community-Based Forest Management (PHBM) and Community Forestry, as described in Law Number 41 of 1999 concerning Forestry and Perhutani Supervisory Board Decree No. 136 of 2001 concerning Joint Forest Resource Management. This policy is aimed at giving communities legal rights to forest areas. This initiative allows local communities to engage in agroforestry, sustainable logging, non-timber forest product collection, and ecotourism while adhering to sustainable resource use and conservation principles. Social forestry has several goals to achieve including: First, it seeks to address the social and economic problems facing local communities, such as poverty and lack of livelihood opportunities, by giving them access to forest resources to generate sustainable income. Second, promote conservation and sustainable forest management, recognizing the vital role of local communities in protecting and restoring these ecosystems. Third, empower communities by giving them legal recognition and rights to forest areas, ensuring their participation in decision-making processes, and strengthening their capacity to manage their resources effectively.

While social forestry initiatives are promising, challenges remain in their implementation. Clarifying tenure and rights issues, securing legal recognition for community-managed forests, and overcoming bureaucratic hurdles remain significant challenges. Additionally, ongoing concerns include ensuring fair distribution of benefits, resolving conflicts between different stakeholders, and monitoring and enforcing sustainable practices. In efforts to overcome challenges and maximize the potential of social forestry, it is essential to strengthen institutional frameworks, increase capacity-building efforts, and encourage multi-stakeholder collaboration. Integrating traditional knowledge and practices into forest management strategies, investing in community-based monitoring systems, and promoting sustainable value chains for forest products are also necessary steps to ensure the success of social forestry in Indonesia. Overall, social forestry in Indonesia presents an opportunity to reconcile forest conservation with the socio-economic needs of local communities. By empowering communities and involving them in decision-making processes, Indonesia can achieve sustainable forest management and improve the welfare of its forests and communities.

The results obtained from the research have to be supported by sufficient data. The research results and the discovery must be the answers or the research hypothesis stated previously in the introduction part.

3.2. The Livelihood on Forest Areas

Community livelihoods in forest areas refer to how rural communities depend on forests for survival, income, and cultural practices. These communities rely on forests for various resources and services, including wood non-timber forest products such as food, firewood, and medicine. Forests often play an essential role in supporting the livelihoods of rural communities, especially in areas where alternative sources of income are limited. The livelihood of people in forest areas is closely related to the community's social, economic, and cultural structure. Forest-based activities such as hunting, gathering, farming, and craft production contribute to their financial well-being. Additionally, forests often have cultural and spiritual significance for these communities, forming an integral part of their identity and traditional knowledge systems.

Efforts to support community livelihoods in forest areas require a multi-aspect approach. These efforts include promoting sustainable forest management practices that ensure the long-term availability of forest resources. Strengthening community-based forest governance and securing land tenure rights for rural communities is critical for their empowerment and active participation in decision-making processes. Diversifying income sources through agroforestry, ecotourism, and value-addition processes can increase economic resilience. Additionally, integrating traditional knowledge

systems and supporting capacity-building initiatives can help preserve cultural practices and promote sustainable resource management.

3.3. Trends in the Studies of Livelihood Diversification in Indonesia

Previous researchers in Indonesia have carried out several studies on livelihood diversification in the last two decades. Pujiriyani et al., (2019) qualitatively investigated social changes in rural areas due to the shift in farmers' activities to non-agrarian activities associated with livelihood diversification and its implications for rural rectification. Economic diversification has created new rural areas characterized by increasing prosperity, and agriculture is no longer the dominant source of income. Livelihood diversification provides opportunities for vertical social mobility for poor rural communities. Restratisation occurred, marked by the emergence of migrant groups as a new social class that shifted the upper-class position previously occupied by landowners and their descendants.

Table 2. Trends in the Studies of Livelihood Diversification in Indonesia

Author	Title	Study Area	Targets	Approach	Key Findings
(Pujiriyani et al., 2019)	Rural hierarchy of prosperity: a study of livelihood diversification and its implications on rurality	Wotan Village	Community	Qualitative; case study approach	Economic diversification has created new rural areas characterized by increasing prosperity, and agriculture is no longer the dominant source of income.
(Kalita et al., 2020)	Livelihood diversification as a strategy of livelihood among farm household: a study with special reference to border village of udalguri district	Udalguri District	Households	Quantitatif: Descriptive statistic	Analysis of livelihood diversification patterns of rural communities reveals that rural households are adopting multiple livelihood options while farming as a sole livelihood option has declined significantly. They prefer non-agricultural work and migration of family members along with small-scale agriculture
(Izzudin et al., 2022)	Community livelihood diversification as a result of mining industry activities: a case study of soligi village, south halmahera	Soligi Village	Community	Quantitative: Descriptive statistics	This study shows that physical and natural capital are essential livelihood assets for the residents of Soligi Village, and mining has diversified community employment into non-permanent mining employees.
(Schwarze & Zeller, 2005)	Income diversification of rural household in central Sulawesi, Indonesia	Vicinity of Lore Lindu National Park	Households	Quantitative: regression via the tobit model and Shannon equity index measurement	Agricultural activities account for 68% of total household income. The Tobit model evaluating the determinants of nonfarm income diversification shows that socioeconomic

Author	Title	Study Area	Targets	Approach	Key Findings
					status and access to formal financial markets have a positive impact. Measurement of the Shannon equity index shows that access to social capital and the occurrence of crop failure both have a positive effect on the Shannon equity index. In contrast, socioeconomic status and distance to the road have a negative impact.
(Muis et al., 2017)	Studying the livelihood diversification of landowner farmer in tondong tallasa subdistrict of kepulauan pangkajene and district	Community tallasa subdistrict of pangkajene and kepulauan district	Community	Quantitative: descriptive dan inferential statistics	Four factors influence land-owning farmers to become workers planting rice. The three most significant factors are the culture of inviting friends/relatives, liking to work for other people, selecting to work in groups, and certainty of income.

Source: Review, 2023

A study by Kalita et al. (2020) tried to study the livelihood diversification patterns of farming households living in villages near the Indo-Bhutan border. Based on qualitative analysis, the livelihood diversification pattern of rural communities reveals that rural households adopt multiple livelihood options. In contrast, farming as a sole livelihood option has decreased significantly. They prefer non-agricultural work and migration of family members along with small-scale agriculture.

A different study is shown by Schwarze & Zeller, (2005). He provides two aspects in the study of income diversification: diversification as a shift from agricultural activities and a mixture of increasing income activities. Results show that 68% of household income is generated from agricultural activities. The Tobit model assesses the factors influencing non-farm income diversification, and finds that socioeconomic position and access to formal financial markets have a good influence. The Shannon equity index can be measured, and it reveals that while socioeconomic level and distance from roads harm the Shannon equity index, access to social capital and the likelihood of crop failure also have a favorable impact.

Izzudin et al., (2022) investigated changes in the livelihoods of the Obi Island community experiencing diversification due to mining and pressure from migrant residents. The research results show that even though nickel mining on Obi Island changes people's way of life, people can still prosper if they make maximum use of their natural and physical resources. Job diversification, which involves doing part-time work in businesses and maximizing one's current position, is one strategy for achieving rural prosperity. However, this research has shortcomings, such as the inability to measure the impact of occupational diversity on local fishermen and farmers.

Muis et al., (2017) identified the factors that trigger land-owning farmers to become workers planting rice and found the difference between expected income and actual income to determine the role of opportunity costs in 4 villages in Tondong Tallasa District. The results show that four factors influence land-owning farmers to become workers planting rice. The three most significant factors are the culture of inviting friends/relatives, liking to work for other people, selecting to work in groups, and certainty of income.

3.4. The importance of the research and the expected results

We divided forest farmer respondents based on gender, age group, education level, and size of land ownership in Gandu Village (n=30). Respondents in this study had a gender ratio of 46.67% (n=14) men and 53.33% (n=16) women. This study shows that the number of female forest farmers in Gandu Village dominates more than male forest farmers.

Forest farmers in Gandu Village have an average age of over 31 years, with a percentage of 96.67%. However, 46.67% was contributed by forest farmers aged 51 years and over. This study shows evidence that the average age of forest farmers living in Gandu Village (> 50 years) is relatively high. Meanwhile, the education level of forest farmers shows that the average forest farmer in Gandu Village still has low education, namely no school/no graduate (16.67%) and elementary school (66.67%). This data shows that most forest farmers only have a low level of education, namely completing elementary school or not attending school.

Table 5 also shows the average area of land ownership owned by forest farmers. They call it *persilan* land. We divide it into three regions with an average of <2500 m², 2500 m², and >2500 m². This decision is based on the average plot size given by KPH Kebonharjo to forest farmers, which is 2500 m². Gandu village forest farmers have a middle land ownership area of >2500 m² with a percentage of 46.67%. Apart from that, 30% of forest farmers have a land area of 2500 m². This study shows that forest farming households in Gandu village are larger or above average. Geographical conditions have an essential role in this study.

Table 3. Demographic of respondents who participants in this survey

	Category	Number of Respondents	Percentage
Gender	Male	14	46.67%
	Female	16	53.33%
Age	<30	1	3.33%
	31-50	15	50%
	>51	14	46.67%
Level of Education	No School	5	16.67%
	Elementary	20	66.67%
	Secondary	4	13.33%
	High School	1	3.33%
	College	0	0%
Land Ownership	<2500 m ²	7	23.33%
	2500 m ²	9	30%
	>2500 m ²	14	46.67%

Source: Primary Data, 2023

Based on the results of data collection from 10 questions (Q1-Q10), which are explained in Table 2 and asked to 30 forest farming households in Gandu Village. The data that has been obtained is then processed and visualized as in Figure 4.

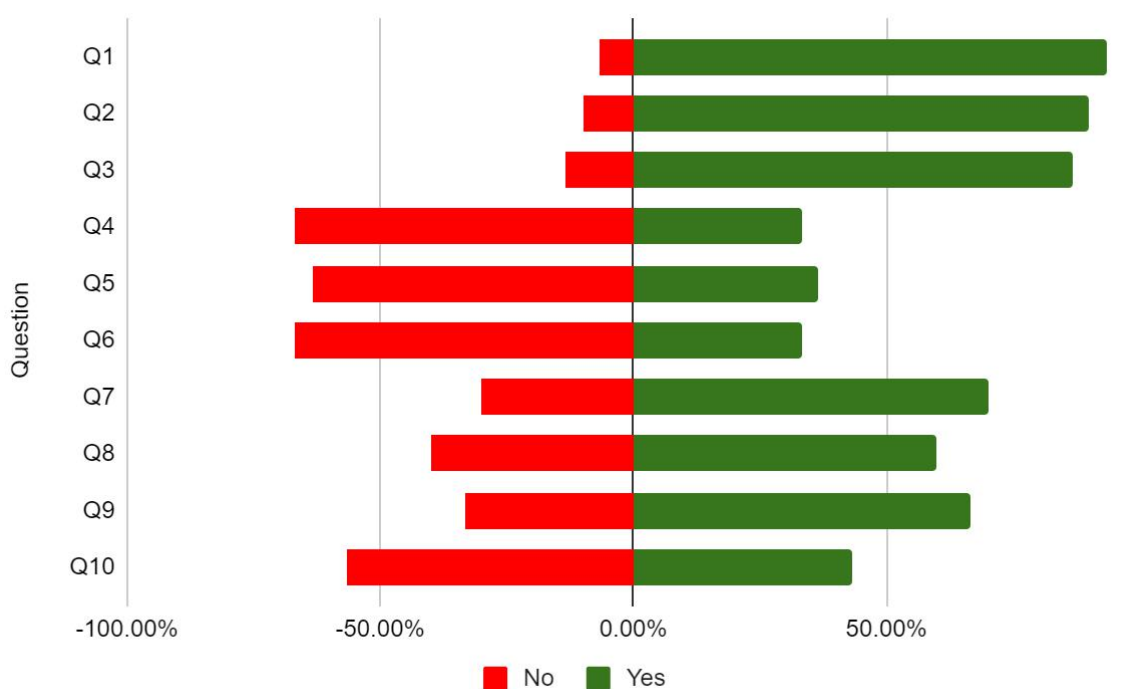


Figure 4. Visualize the responses

Question Q1 (Is being a forest farmer your family's main livelihood?) shows that 93.37% stated that forest farming was their household's main livelihood, and the remaining 6.63% stated that being a forest farmer was their side job. This study shows that most homes in Gandu Village are still very dependent on natural forest resources. Meanwhile, question Q2 (Are there any members of your family who are female forest farmers?) aims to find out how women participate in forest farming on *persilan* land. The results of the field data show that of the 30 households surveyed, 90% of households with women participated in them. This data illustrates that women still experience high amounts of forest farming on *persilan* land. The portion of work given in forest farming to women does not require a lot of energy, such as weeding grass, sowing seeds, and harvesting (picking corn cobs).

Question 3 (Q3: Do you have a plot of land with an area of more than 2,500 m²?) was conducted to see how much land each household owns the average property of land. The results show that around 86.67% of forest farming households surveyed have a land area of more than 2500m². Meanwhile, question Q4 (Is your access to land plots easy?) shows that 66.67% of forest farmers need help accessing land plots in the forest. This answer is influenced by the requirements for owning a property of land that still needs to be met. These conditions include having cleared forest land (after it has been cut down), being a member of the LMDH, not owning a *persilan* land, having the ability to manage the land, and never having been involved in a case of forest timber theft. This answer aligns with the question (Q5: Do you/your family members participate in LMDH?), showing that 63.3% of forest farmers do not participate in LMDH institutions.

Question 6 (Q6: Is there more than one type of crop that you grow in a season?) indicates agricultural diversification. Agricultural diversification is a concept where farmers expand or develop the variety of products they plant or produce on their agricultural land. Survey results show that only 33.3% of forest farmers diversify the types of commodities they plant (Figure 5). Question 7 (Did you get NTFPs?) shows that 70% of them got NTFPs in the form of animal feed grass, fruit, and grasshoppers. This factor indicates that apart from getting agricultural products on *plots of persilan* land, forest farmers also get NTFPs for their living needs, both for consumption and sale.

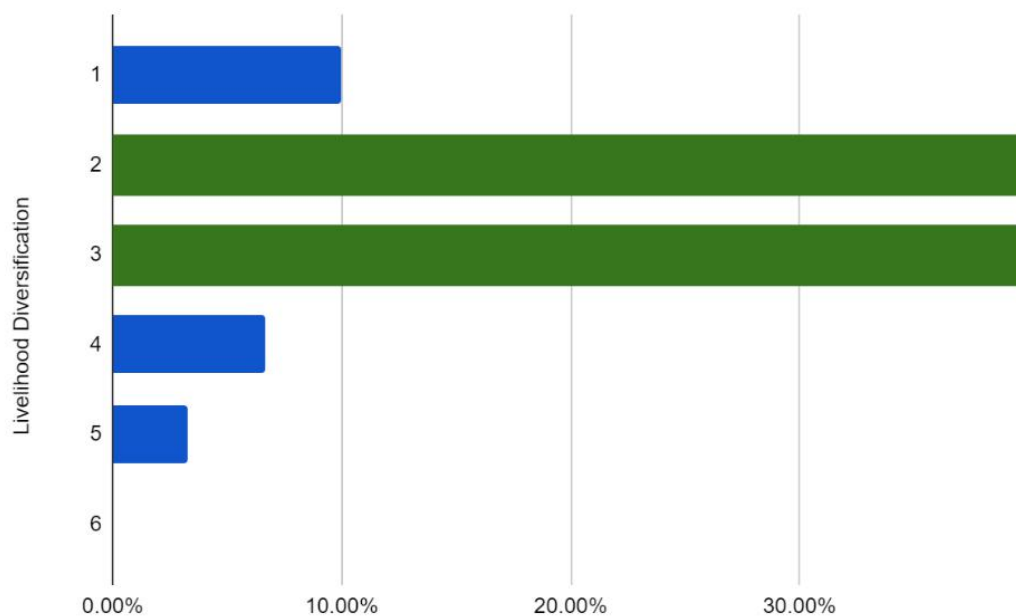


Figure 5. Livelihood Diversity in Gandu Village

Question 8 (Is the income from the plot sufficient for family needs?) provides an answer that 60% of forest farming households earn enough income to support the family. Meanwhile, 40% answered that the plot proceeds were insufficient to support their family. This result aligns with the answers to question 9 (When you are cultivating, do you look for other work?), which shows that 66.67% of them look for further work in between not working on the plot. Meanwhile, in question 10 (Do you/your family have a job besides being a boarding house?), 43.3% indicated that they implemented a livelihood strategy, namely diversifying the number of livelihoods in one household. The results of this study show that forest farming households in Gandu Village diversify their livelihoods in both the agricultural and non-agricultural sectors. The diversification value in the non-agricultural sector shows an average figure of 2.1, which means that each household does not only depend on one source of income. However, they will diversify the number of livelihoods in the amount of 2.1 to meet their household's living needs.

3.5. Discussion

Preliminary surveys are vital in the initial stages of research because they have a fundamental role in helping researchers understand the research context and environment better (Ma et al., 2019). With the initial understanding obtained through a preliminary survey, researchers can determine research boundaries, identify critical aspects that need research, and plan the most appropriate data collection methods and tools on intensive survey (Minoura & Hiramatsu, 1997). In addition, preliminary surveys also allow researchers to remember data sources that may be relevant, making it easier to plan information collection. Preliminary surveys are an essential foundation that allows research to be more structured, efficient, and practical, producing more valid and meaningful findings. Research that has a solid basis for understanding the problems to be investigated so that it can make more significant contributions in the field of knowledge, especially in understanding the diversity of household livelihoods in rural areas.

Understanding the diversity of household livelihoods is crucial to developing effective development policies and programs. The diversity of livelihoods reflects the economic and social complexity of society (Peng et al., 2022). In many communities worldwide, households have multiple sources of income, including agriculture, livestock, handicrafts, microenterprises, and formal sector employment. Understanding this diversity helps governments, development agencies, and non-governmental organizations design programs that can strengthen these sources of income and promote

economic sustainability (Rubiyanto, 2022). In addition, understanding the diversity of livelihoods enables identifying and managing poverty and sustainable development.

In many cases, households with multiple livelihoods are more resilient to various economic pressures. They can adapt to changing conditions such as dry seasons or crop failure because they have different alternative livelihood options (Harvey et al., 2014). Understanding this diversity helps identify households that may be more vulnerable and require exceptional support to overcome poverty. Apart from that, this diversity can play an essential role in preserving local culture and wisdom (Fajriyah et al., 2023), which is a valuable asset in the era of globalization.

Production of forest policies can have significant social consequences, especially on indigenous and local communities, who are often the most affected. By understanding the impact of these policies, we can work towards fairer policies that consider the interests and well-being of all parties involved. A deeper understanding of livelihood diversity can also ensure that more sustainable and inclusive economic alternatives and opportunities are available to affected households. Thus, understanding the diversity of household livelihoods and the impacts of production forest policy has implications beyond the local area. This step creates opportunities to advance environmental sustainability and social justice more broadly, positively impacting global society and the environment (Santosa, 2023).

4. CONCLUSION

Preliminary surveys are an essential foundation that allows research to be more structured, efficient, and practical, producing more valid and meaningful findings. An initial survey of livelihood diversity in forest farming households needs to be carried out as an essential step to understand the dynamics of livelihood strategies and their impact on forest-dependent communities.

The results of this study show that forest farming households in Gandu Village have a diversity of livelihoods in both the agricultural and non-agricultural sectors. The diversity value in the non-agricultural sector shows an average figure of 2.1, which means that each household does not only depend on one source of income. However, they will diversify the number of livelihoods in the amount of 2.1 to meet their household's living needs.

These findings play an important role in further research, especially in highlighting the livelihoods of communities in production forest areas so that they can provide input for the development of evidence-based policies and interventions aimed at increasing the resilience and welfare of forest farmers, ensuring sustainable development, and promoting the conservation of forest resources and ecosystem.

In its implementation, this research still has several limitations, namely (1) Limitations in data availability which can affect the depth and representation of research results because the area studied is located surrounded by hills so it has limited access or is difficult to reach. (2) The relatively small sample size means that the survey method is unable to accurately capture all aspects of household life, which can affect the validity and reliability of the findings. This research also suggests continuing this research to find out the community's livelihood strategies in general and measure the livelihood assets owned by each household living in production forests.

Acknowledgments: We thank the farmers in Gandu Village, Bogorejo District, Blora Regency, who have participated in our research as interview informants and survey respondents. Furthermore, the KPH Kebonharjo field team deserves special appreciation for the support of our research from the start. This research is a National Competitive research funding grant under the "Master's Thesis Research" scheme by the Ministry of Education, Culture, Research and Technology of the Indonesian Republic.

Conflicts of Interest: "The authors declare no conflict of interest."

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