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# Participatory socio-economic mapping of singosari village, Talang Padang District, Tanggamus Regency

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**ABSTRACT**

Mapping socio-economic conditions in rural areas is used to see community needs and potential resources in order to find out which sectors need to be implemented and improved. This study aims to analyze the participatory mapping of socio-economic conditions in the village of Singosari, Tanggamus. This research uses a quantitative-descriptive method with a case study approach supported by qualitative data. The population in this study amounted to 464 heads of households and the sample was 30 households. In this study, the respondents and informants were farmer households and village government officials. Data collection was carried out through primary data through surveys, interviews, participatory observation, documentation, and literature studies on data related to participatory socio-economic mapping in rural areas. Data analysis used the interactive model Miles, Huberman and Saldana, and assisted with Microsoft Excel for processing survey data. The findings in this study are that the Singosari village has a variety of resources, both socio-economic and ecological. Even though the village has limitations in terms of education and health facilities, on the other hand, it has the potential for dryland farming which can be developed and become the focus of agricultural development program interventions. Recommendations/implications for the findings are that the results of the socio-economic mapping contain socio-economic data of villagers so that they can be used as a valid reference for making policies/programs. Socio-economic data is presented according to existing categories, arranged systematically, with explanations of the relationships between these categories, and can be read.



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## 1. INTRODUCTION

This research aims to examine the mapping of participatory socio-economic conditions. The socio-economic condition is a very dynamic and complex aspect. Nevertheless, socio-economic mapping is very important to do to provide an initial picture of the social, economic, and cultural conditions of the community in an area that will be the target of a community social program. Referring to the context of the 2014 Village Law, village governments have the authority to build their own villages

(Ariyanto, 2022). Thus, it is important to carry out socio-economic mapping initiated by village governments in Indonesia at this time.

Based on Law No.6 of 2014 Concerning Villages, village governments are required to have regional and spatial maps as well as an overview of the poverty conditions of the population which are the evaluation criteria in submitting village development plans and budgets. For this purpose, socio-economic mapping is used to determine the condition of the people living in the village because those who have an interest in village development, including matters of territory, spatial planning and infrastructure are the villagers themselves. Village development is not merely an activity to build infrastructure, but must first rely on interests and needs of the villagers. According to Thomson et al. (2014); Bartolucci et al. (2022); Adego (2022); and (Konvitz, 2001) that regional development policies must not ignore the mapping of socio-economic conditions through the participation of local actors in the countryside.

This socio-economic mapping was carried out in the village of Singosari, Tanggamus. Singosari Village is one of the villages in Talang Padang District which has potential in the agricultural sector. Based on Singosari Village Regulation No. 6 of 2021 concerning the 2022 Village Government Work Plan (RKPD), that most of the Singosari village area is dry land which is one of the productive areas producing rice, snake fruit, cocoa, coffee, bananas, corn and pepper. With the various potentials of the region, villages do not yet have written data on socio-economic conditions, even though this is very important as an archive of development planning documents at the village level and moreover in reference to development program interventions from outside the region.

Various studies examining the mapping of socio-economic conditions have been carried out. Studies that examine socio-economic mapping through GIS for land cover (Swetnam et al., 2011) and groundwater potential (Ghosh & Jana, 2018), fuzzy cognitive maps (FCMs) for social resilience (Singh et al., 2020) in achieving sustainable socio-economic development. Studies on socio-economic mapping also highlight poverty and education (Arnu et al., 2020), unemployment, juvenile delinquency and health (Yunis et al., 2020) resulting in social and economic disparities. Apart from that, it is also about mapping socio-economic conditions towards business development (Dilham & Putra, 2016) to anticipate conflict on an ongoing basis (Siami & Asmorowati, 2022). Mapping village potential in terms of public facilities, tourist attractions, amusement parks, sports facilities, buildings, roads, rivers, and agriculture (Pelly & Wiyono, 2019).

From several previous studies, socio-economic mapping still focuses on methodological aspects, social issues in general, and business development. Mapping of socio-economic conditions also needs to be done on the livelihood conditions of the rural population which are dominant in the agricultural sector. Therefore, researchers in this study highlight the mapping of socio-economic conditions by taking into account the livelihood conditions of farmer households. As in several previous studies that have been conducted on the agricultural sector, namely: the agricultural sector is able to produce food crops of good quality (Suharti et al., 2022), utilize the potential of agriculture (rice fields) and plantations (rubber and fruit plantations) as the main income of the population (Firdaus, 2022), constraint conditions in land fertility, pests and diseases, climate, and institutions in agriculture (Nuryati et al., 2020), and the dependence of the agricultural sector for the income of the middle to lower class farmers (Sutrisno, 2019). However, the difference in this study is that it will focus on examining the socio-economic mapping of dry land agriculture, the family household unit and its dynamics in their livelihoods.

Based on the background described above, the main issues that will be studied and subsequently become the main objectives of this research are: What is the general description of Singosari village?, What is the description of the agrarian structure of Singosari village?, and How is the description of the socio-economic conditions of Singosari village through participatory mapping?

At the theoretical level, this research is expected to contribute findings/ideas to the study of rural development in Indonesia, particularly participatory socio-economic mapping in mapping conditions and parameters locally. The impact of small and localized development interventions (Chesterman et al., 2019) requires mapping according to local conditions. Meanwhile, practically, it is

hoped that the results of this study can become a reference or initial recommendations in agricultural development practices with a local parameter perspective for relevant stakeholders. In addition, it can be a recommendation for village government intervention in development and the availability of socio-economic data in villages.

## 2. RESEARCH METHOD

This research uses a quantitative descriptive method with a case study approach to explore and detail the development of a situation and context (Denzin (ed) & Lincoln, 2005: 299-306) (Suryabrata, 2016: 80). To support quantitative data, qualitative data is used in describing and understanding the meaning (Creswell, 2014) given by informants and the results of interpretation of quantitative data presentations. The data used in this study are primary and secondary data. Primary data collection is done by participatory observation, interviews, socio-economic surveys, and documentation. Meanwhile, secondary data was obtained from literature studies and village government archive documents.

Participatory observation was used for natural resource transects to obtain a picture of land use. In this participatory mapping the researcher traveled around the hamlet accompanied by the head of the local hamlet. Then, the researcher conducted a socio-economic survey to collect data related to household profiles, land ownership/control, agriculture, as well as household income (agricultural and non-agricultural) and expenditure.

This research was conducted in Singosari Village with a population in this survey totaling 464 heads of households (based on Singosari Village Government 2022) and samples were taken using the slovin formula (Firdaus, 2021) as many as 30 samples of household heads, according to the opinion (Singarimbun & Effendi, 1995) (Bailey, 1994) that the minimum number in the trial questionnaire is at least 30 respondents and the distribution of values will be closer to the normal curve. The error rate in determining the sample is 17.6%. Although in social research it is recommended to use an error rate of 10% with the consequence of a larger number of samples. Given the limited number of researchers (only one researcher) and the scope of the survey in villages based on the area divided into six hamlets, the researchers took a higher error rate so that the sample size could be reduced. Therefore, it can be said that the results of this survey are still rough, so it is highly recommended to carry out a follow-up survey with a lower error rate and more adequate research staff.

Respondents were determined by purposive sampling based on certain characteristics. The survey targets were households whose stipulations referred to KK data because both in the Village Profile and in the description of the RT head, all of them used KK units, not RTs, even though 1 RT could contain more than 1 KK. The main criterion for RT is the number of basic consumption channels or kitchens. If more than 1 household lives in one house, but is still in the same household consumption channel, then it is considered as 1 household.

Furthermore, data collection through interviews is used to support the quantitative data obtained from the survey. The informants are village heads, hamlet heads, and farmers. The determination of informants was carried out purposively because they were considered to have the necessary information for researchers (Creswell, 2008: 214). Researchers conducted interviews in passing and in practice in the form of just chatting. Fill in the interview questions related to the topic of public facilities in the form of village infrastructure and the living conditions of residents on dry land.

Finally, secondary data was obtained using literature studies and documents kept at the village hall. Literature studies are used to enrich and corroborate (support or refute) field findings. This literature study was conducted using reference keywords including: "mapping", "social economy", "participatory", and "village potential". Then the researcher looked for article references with the help of the Publish or Perish software version 8 with a total range of approximately 200 articles and used Google Scholar via the https://scholar.google.co.id/ link. Finally, the researcher selects relevant articles from 200 articles and compiles the previous research matrix and concludes it (Ariyanto, 2023a) (Ariyanto, 2023b). Meanwhile, archival documents kept at the village hall are village profiles and

Village Government Work Plans (RKPD) regarding maps, socio-demographic and economic information.

This study used interview guide instruments, questionnaires for household surveys, and observation guides using natural resource transect guidelines . The interview guide contained: 1) patterns of farming, 2) patterns of livelihood strategies, and 3) patterns of labor relations in agriculture. The observation guide contains: 1) how is access to land use in Singosari village? and 2) what is the description of the potential resources in Singosari village?. Thus, the observation guide is structured in the geographical, demographic and ecological context of the village. The survey questionnaire contains: 1) agrarian structure (ownership/control of land), 2) income (agriculture and non-agriculture), and 3) household expenses (clothing, food, and housing; health; education; agricultural expenses, unexpected expenses).

To process survey data assisted by Microsoft Excel in the form of tables and graphic data representation. Data analysis of the interactive model Miles, Huberman and Saldana (Miles et al., 2014) from the results of field research with the following stages: 1) data collection: using valid instruments; 2) data condensation: by simplifying all parts of field notes; 3) data presentation: done in the form of narrative text, graphs and tables; and 4) drawing conclusions: based on field notes and secondary data sources. Meanwhile, checking the validity of the data is done by triangulating data sources (Bandur, 2014: 242-243). Researchers used triangulation of data sources to compare the results of the survey with the results of interviews and observations. From the results of the comparison it is hoped that there are similarities or why there are differences.

## 3. RESULTS AND DISCUSSIONS

This section will describe field findings and data interpretation as well as discussion of the results of other studies that have been written. The results of this research and discussion will be presented in the form of narratives, tables and pictures (graphs, diagrams). In accordance with the research method, here will be described about: 1) Maps, Geographical and Population Information; 2) Environmental Conditions and Village Infrastructure; 3) Population Livelihood Activities; and 4) Socio-Economic Profile of Singosari Village Households.

**Maps, geographical and population information.**

Spatial data mapping is the focus of attention of many institutions because real objects in the field in a wide range can be visualized with precision in the field. Many villages do not have spatial data; one of them is Singosari Village. Therefore, an inventory of spatial data is important to do (Pelly & Wiyono, 2019) for sustainable development (Cusens et al., 2022). The character patterns of the two landscapes in the Singosari village shape the diversity of resources for the livelihood activities of the residents. There are dry land gardens/agriculture (more dominant) and paddy fields (*boloran*). If we take a quick look at the senses, we can see that the highlands consist of the people's plantations. However, if we take a closer look, more than that, this diversity has implications for who and how can benefit from it (Wiradi, 2009). Based on natural resource transects, obtained in the form of a land use map as follows.

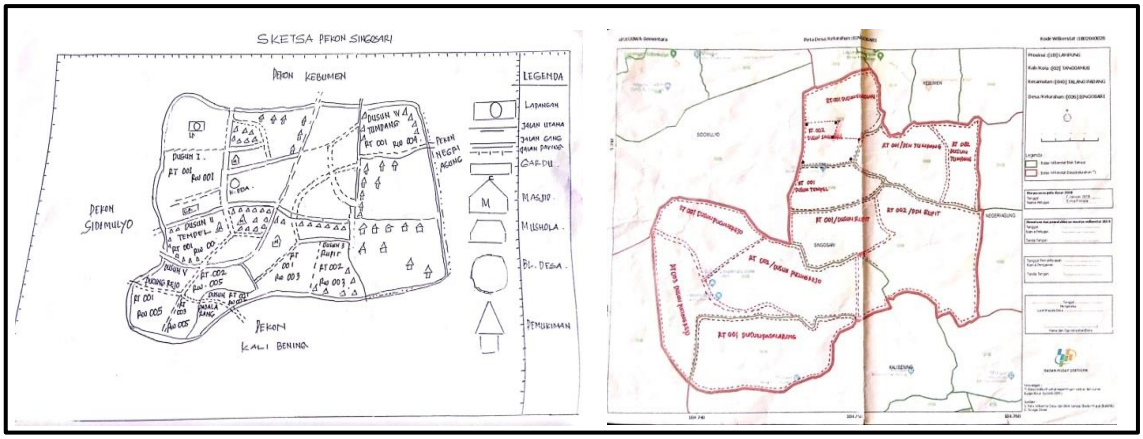


Figure 1. Map of Singosari Village (Singosari Village Government 2022; Resource Transect 2023)

Based on the map above, we can see that observing the landscape patterns in Singosari and imagining the changes will provide a representation of ecological changes as a consequence of the political-economic dynamics that take place in terms of land tenure. Viewed from the tenure aspect, these areas are divided into two ownership statuses: privately owned land of the pekon community (yards, dry land agriculture, and *boloran*/rice fields) and land belonging to outsiders. Furthermore, in Singosari Rural document No. 6 of 2021 concerning the 2022 Village Government Work Plan (RKPD) that the area of dry land agriculture (*kebon*) is 95.455%, paddy fields (*boloran*) is 1.136%, and settlements are 3.409%. This ecological diversity must of course be balanced with the urgent need to design and implement appropriate land management options (Miheretu & Yimer, 2017).

Table 1. Information on Singosari Village in General

| | | | | | |
|---|---|---|---|---|---|
| **The village area** | 1250 km² | | | | |
| **Demograph-ics** | Total population | | | Number of Heads of Families | |
| | 1664 soul (based on Village Profile 2022) | | | 464 Head of the family (based on Village Profile 2022) | |
| **Village boundaries** | East : Negeri Agung Village<br>North : Kebumen Village (Sumberejo District)<br>West : Sidomulyo Village (Sumberejo District)<br>South : Singosari Village | | | | |
| **Village description** | No | Hamlet | An Area | Number of Neighborhood Units | Number of Heads of Families |
| | 1 | Singosari | | 2 | 192 |
| | 2 | Tempel | | 1 | 127 |
| | 3 | Rupit | | 2 | 187 |
| | 4 | Tumpang | | 2 | 48 |
| | 5 | Pucungrejo | | 3 | 47 |
| | 6 | Padalarang | | 2 | 41 |
| **Land use** | Paddy field area of 10 ha<br>Dry land agricultural area (*kebon*) with an area of the 840 ha<br>Residential area of 30 ha | | | | |
| **Village topography** | Area Contour | | Percentage | Information | |
| | Mountainous | | - | - | |
| | Hilly | | - | - | |
| | Flat | | - | - | |
| **Weather and climate** | The climate of Singosari village, like other villages in Indonesia, has a tropical climate with two seasons, namely dry and rainy. | | | | |
| **Distance to village** | Distance from sub-district | | Distance from county town | Distance from provincial city | |
| | 4 km | | 38 km | 68 km | |

**Source:** Singosari Village Government 2022

Based on the table above, we can see that Singosari is a highland village. It is in this physical space that 1,646 residents live, divided into 464 household heads (KK). With a village area of 1250 km² (the largest village in the Talang Padang sub-district with a percentage of 26.23% of the sub-district area), the population density in Singosari is 1 person/km². Singosari Village has the potential to be developed in the dry land agriculture sector. Meanwhile, based on the distance to the center of the capital city and when viewed from the traffic of goods and people in the context of the regional economy, Singosari village is practically not remote.

**Environmental conditions and village infrastructure.**

The landscape of the Singosari village is a highland area. In general, settlements are located in or surrounded by hollows (*boloran*), as well as boundaries between hamlets. The highest part is a residential area and dry land agriculture, and the lowest is a basin (*boloran*) which is managed into rice fields, ponds and planted with crops. The type of soil color is black with a slope of 90°.

In all areas of this highland village there are many flowing rivers (small rivers). or they are said to be *boloran*. This flow is also a form of regional boundaries between hamlets and boundaries between villages (still using natural boundaries). In Padalarang hamlet, some residents use this river as a place to wash clothes, and some use it as a location for making fish ponds. Referring to the village profile for 2022, there are 12 water sources in the form of springs, 397 dug wells, and 4 rivers.

The Singosari village already has clean water. The earliest water infrastructure development was in Pucungrejo hamlet, then followed in other hamlets. The development of water infrastructure has become a village priority program from year to year. Then at the start of the Covid-19 pandemic, the budget that had been planned to build waterways in the Singosari hamlet had to be postponed and used for Covid-19 assistance. Then, in 2023, the construction of the aqueduct will be realized. Thus, the development of water infrastructure needs to consider the additional supply of access to and management of resources in water-scarce landscapes (Strauch et al., 2021), such as in Singsosari.

Road infrastructure in general can be categorized into 4 types, namely main axis roads (cross-district roads), roads between hamlets, neighborhood roads, and farm roads. Judging from the responsibility for the financing of its development, the main axis roads (roads of the sub-districts) are the responsibility for the financing of the construction of the district Public Works Office. Meanwhile, roads between hamlets and neighborhood roads are village roads, so their construction is under the responsibility of the village government.

Singosari Village has many paved roads, roads between hamlets. Based on the village profile in 2022, the village already has 3 km of dirt roads, 5 m of stone roads and 25 km of asphalt roads. Cross roads in Padalarang and Pucungrejo hamlets are inter-district roads (already paved), connecting between the Talang Padang sub-district and the Sumberejo sub-district. Cross-district roads are also often used as traffic for collectors of agricultural produce that will be brought to the other side (Java). Then, the road in Tumpang hamlet becomes a connecting traffic between the Kalibening village and Kebumen village, and many four-wheeled vehicles pass it.

The farming road was built due to a food security program which was allocated 20% of village funds. The construction of this farm road was carried out in every hamlet, except for Padalarang hamlet. This is because the area is small and there is no agricultural land for local residents, so there is no strategic location to build farming roads. Based on the story from the head of the Padalarang hamlet, he previously suggested that the construction of a farming road be carried out next to the house of the hamlet head with the reason that there was an agricultural business, namely fishing ponds and crops. Other village officials rejected this because it led to privately owned fishing pond businesses and to prevent social jealousy in the community.

For lighting infrastructure, according to Mr. Sigit (the village head), electricity came to the village around 1994 (when Mr. Sigit was still in junior high school). Residents installed new electricity in several houses, and already have refrigerators and TVs. In the past, I used a hydropower plant (hydropower) which was sourced from the Sidomulyo river. Making ditches by damming rivers, Mr. Sigit remembers when he joined the mutual cooperation. Hydropower comes from non-governmental organizations and there are companies. There is a monthly fee that joins the PLTA. Usually at night

the flame is on until 21.30 WIB. There are no people who have their own diesel. Then, there are diesel engines that turn on electricity until 21.00-21.30 WIB. Gradually, around 10 years, people have batteries. Charging the battery is usually in Tegal Binangun and Talang Padang. For educational infrastructure, the following is information:

Table 2. Educational Infrastructure Information

| Educational level | School name | Since | Location | Education personnel |
|---|---|---|---|---|
| Early Childhood Education (PAUD)/ Kindergarten (TK)/ RA | PAUD/Harapan Bunda Playgroup | 2010 | Singosari Hamlet | |
| | Al-Azka Kindergarten | 2016 | Pucungrejo Hamlet | |
| Elementary School/Madrasah Ibtidaiyah (SD/MI) | State Elementary School 1 Singosari | Before 1985 from the Presidential Instruction | Singosari Hamlet | |
| | State Elementary School 2 Singosari | Before 2019 | Pucungrejo Hamlet | |

**Source:** Observation 2023; Personal Communiction with Sigit Fajriyanto 2023

Based on the table above, we can see that educational facilities within the village are Early Childhood Education (PAUD) and Elementary School (SD). PAUD are located in Pucungrejo hamlet and Singosari hamlet (next to the Singosari Village Hall). While the elementary schools are in Singosari hamlet (SD 1) and Pucungrejo hamlet (SD 2). Because there are no junior and senior high schools in the village, many Singosari children who after graduating from elementary school will continue at the Kebumen Islamic Middle School, in Desa Kebumen (the next village). In Singosari Village there is only 1 PAUD (PAUD/Harapan Bunda Playgroup) which belongs to the village, built in 2010, located in Singosari hamlet. There is also a self-help kindergarten (TK Al-Azka) in Pucungrejo hamlet, built around 2016. As for the SD, there is one in the Singosari hamlet (SD 1 Singosari) built before 1985 from the Presidential Instruction and SD 2 Singosari, in Pucungrejo hamlet.

Likewise for high school, the options for continuing high school education are: Kebumen Islamic High School (in the Kebumen village) or Talang Padang 1 Public High School in the Talang Padang village (quite far from the Singosari village, about 2-3 km). There is no junior high school in the village. Usually, after graduating from elementary school, they will continue at Kebumen Islamic Middle School, in Kebumen village (next village).

Every hamlet in Singosari village has a house of worship, namely a mosque and prayer room. Overall, the number of mosques/musollah in Singosari village is 10 with details (8 mosques and 2 prayer rooms): Singosari Hamlet has the Al Mubaroq Mosque and TPA Nurul Iman, Tempel Hamlet Ar-Rahman Mosque, Rupit Hamlet has the Baitul Muttaqin Mosque and a prayer room, Hamlet Overlapping there is the Al-Ikhlas Mosque and Baitul Mutaqin Mosque, Babussalam Mosque and Al-Ikhsan Mosque in Pucungrejo Hamlet, and in Padalarang Hamlet there is the At-Thoha Mosque.

The Village Office Complex (Singosari Village Hall) is in Singosari hamlet, in the complex there are many Singosari residential areas, near the mosque, and next to it is PAUD. According to Mr. Sigit, there used to be lots of coconut trees on the land that was used as the village hall, and when he was a child it was used as a place to play. This land used to be a grant from the family of the village head himself, so that when division was to be carried out from Kalibening village, Singosari village already has its own village hall as one of the conditions for dividing village areas. At the end of 2022 (November), Singosari village will receive a village hall building renovation program. Renovations in the form of roof replacement (wood and tiles replaced with mild steel), wall paint, and ceiling. The aid budget comes from the Revised APBD of Lampung province.

Another public facility is a soccer field. Singosari village has a soccer field located in Singosari hamlet, next to the house of the village head (Mr. Sigit). The soccer field is quite large, although the land is not evenly distributed. Previously, the village head had piled up and leveled it. Even with these conditions, this field can be used as a sports facility for the village community. This field is also often used as a training ground for the village community every evening. Once even hired by another village

for training and held a friendly tournament. For a field permit, you have to meet the Persis administrator, in Tumpang hamlet.

Besides being used as a place to play soccer, this field is also always used when there are celebrations on national days, for example, Mother's Day, the anniversary of Singosari Village. In the past, when the Village Anniversary was held, this field was used as a stopover for officials from the sub-district to provincial levels, from the Sub-District Head, the Regent and the Governor. Officials are invited and come when there is a bazaar of agricultural products as well as an agenda for healthy walking activities, and Village Anniversary competitions. During the Village Anniversary yesterday, February 2, 2023, a competition was held for children and mothers. When there was a local band (from the village community itself) it was attended by the Head of the Talang Padang District and the Deputy Regent of Tanggamus. Then the next day, a healthy walk, the carnival, and tumpeng tradition were also attended by the Tanggamus Regent.

Apart from the football field, there is also a Sports Building in Singosari hamlet owned by Mr. Sani. In the village there is also a tennis table at the village hall, a badminton court in Singosari hamlet, and a volleyball court in Rupit hamlet. Regarding this sport, every evening many people besides soccer practice on the Singosari field, many residents play volleyball such as in the Rupit, Tempel, and Pucungrejo hamlets in front of the hamlet head's house as well as in several residents' houses. Meanwhile, badminton has become the favorite sport of the people of Singosari, from children to the elderly, they often play badminton in their yards in the afternoon and that's in almost all hamlets.

**Population livelihood activities.**

Most of Singosari villagers work in agriculture. The style of agriculture in the Singosari village is generally carried out through an intercropping system, with the main crops being coffee, pepper, palm trees and cocoa. While the intercropping plants are usually tales, cassava, bananas, and pulses. All of those crops are grown in dry land farming/land farming. In addition, residents also plant corn (no intercropping). In the yards of people's houses, there are always trees (obtained from the food security program), although some have planted them in the garden, but their growth is not good. For banana plants, it is usually about 3 months from the planting period that they can be harvested, with a harvest period of ½ - 1 month. Taro plants as intercrops can be harvested when they reach 8 months – 1 year. Corn plants can be harvested when they reach 4 months. Meanwhile, the avocado plant in the yard of this house can be said to have quite high economic value. During the fruiting season, many collectors come to buy avocados, some buy on a wholesale system and per kg.

Annual crops such as coffee, pepper, palm trees and cocoa are the main source of income for the people of Singosari. In Pucungrejo sub-village, Aren trees provide the largest contribution to daily income in the agricultural sector. Almost every house has a business producing palm sugar and fro. Meanwhile, in other hamlets, palm trees are still rare, such as in Rupit, Padalarang, and Tumpang hamlets. Even if there is, they prefer to sell (buy up) raw and fro or share the palm sugar, because they do not have the ability to process it. This intercropping pattern in Singosari forms a diversity of landscapes, this diversity is similar to that of the highlands in the study (Baliton et al., 2020) of upland farming communities cultivating vegetables and coffee. Moreover, the coffee plant plays a role at a local scale in livelihoods and ecological diversity (Maskell et al., 2021); (Permadi et al., 2021).

Coffee, pepper and intercropping crops have become income from the agricultural sector in every hamlet. The commercial crops are grown on land in an intercropping pattern. Socio-economic factors (number of livestock, household size, plot size, farming experience, off-farm income) have a significant impact on intercropping and crop rotation, as well as the use of chemical fertilizers (Abera et al., 2020). Even though the plant is an annual income, even once the harvest is good enough. However, in the hamlets of Singosari and Tempel many grow snakefruit. Snakefruit is also a good income for them. Previously, Singosari village is known as a producer of pondoh snakefruit, but now this plant commodity is decreasing.

For lowland, rice plants in *boloran* only exist in every hamlet, except in Rupit. However, much of the land/vacant land is not used for growing rice. With various obstacles in the land such as the number of pests and diseases, and animal attacks (eg rats, chickens and rice-eating birds). In addition,

the soil is less potential/not good for rice plant growth. However, until now a large population of Pucungrejo is still planting rice. They plant rice twice a year. When the transition of post-harvest crops, there is land that is left alone and some are planted with crops. Likewise, in Tempel hamlet, on *boloran* land which is not planted with rice, they plant crops.

In addition to these food crops, residents also plant coconut trees and woody plants such as the sengon, meranti and teak. However, many of these perennials have been cut down to make houses for the people (self-use). Even though these perennials if used as commercial crops provide high income, as found (Arvola et al., 2019); (Fraval et al., 2018) in the highlands of Tanzania, that perennials have opened up new livelihood opportunities for small farmers. In Pucungrejo the hamlet there are still several teak trees. In the Singosari village there is no forest land. However, the head of Tempel hamlet owns land in the regional forest. There planted coffee with an area of 2 ha. The way to get the land was because there used to be acquaintances there, then the land was offered, and it was bought for 10 million. Mr. Purnomo (the head of Tempel hamlet) has been managing and harvesting coffee plants from 2017 (5 years). Thus, Mr. Purnomo often goes there and sometimes can stay in the hut for almost 1 month during the coffee harvest.

Some residents of Singosari also have fish ponds, but only for their own consumption. Most types of fish in their pond are carp, goldfish, and catfish. However, in Padalarang hamlet, fish ponds are used as the main source of income by the head of the hamlet, Mr. Heri. In addition to fish ponds, the Singosari people in each hamlet have goats. They look for food from the yard and on their farm, lots of fodder (ramban) like johar, etc. With a variety of dry land agricultural commodities and the support of goat farms in every resident's house, livelihood diversification by integrating agriculture-livestock has the best potential for upland farming households (Mekuria & Mekonnen, 2018).

The following table shows the variety of work carried out by the villagers of Singosari, both those located in the village and outside the village:

Table 3. Variety of Work of Singosari Residents

| Various jobs in the village and its surroundings | Variety of jobs abroad |
|---|---|
| Farmers (cultivating their own land) | Laborers (construction workers, factory workers, domestic helpers) |
| Farmers (cultivating their own land) — farm laborers | Seamstress |
| Farm workers | Farmer (in the forest area) |
| Employees (teachers, village officials, midwives) | |
| Small Business (forging manufacturers, palm sugar producers, cake manufacturers) | |
| Traders (grocery stalls; baskets (collectors) of bananas, corn, avocados, palm sugar; goat blanched) | |
| Chicken farmer | |
| Service | |
| Carpenters, builders, bricklayers; | |
| Retired civil servants Indonesian National Armed Forces and Indonesian Police | |
| LVRI retired | |

**Source:** Personal Communiction with Sigit Fajriyanto 2023; Personal Communiction with Singosari Farmer 2023; Singosari Village Government 2022

Based on the table above, we can interpret that aside from being farmers, the work outside the village that the Singosari people undertake is generally wage labour. The types of work include farm labourers, construction labourers, factory labourers, housemaids, private employees, petty traders and workers in the service sector as well as civil servants. The distribution of these types of work tends to be evenly distributed in each category of farmers. This means that the jobs performed by household members from the top-level farmer category do not have to be jobs that are more established than the lower-level farmers, for example, jobs as civil servants and village officials. Sources of wages come from a variety of non-agricultural jobs in the village, namely: farm labourers, logging labourers, bricklayers (construction labourers), carpenters (household furniture makers), civil servants and village officials. As the results of the study (Wiesmann, 1992) show that the household livelihood strategy is carried out

by integrating the sectors of crop agriculture, livestock production, non-agricultural wage labor, and family networks (remittances).

**Socio-economic profile of singosari village households.**

This section presents the socio-economic profile of the villagers' households. This profile is a description of the socio-economic conditions of the households (RT) of the population with various characteristics that describe the socio-economic conditions of Singosari village. The first to third sections will describe the proportion of the working and unemployed population, job classification, and work locations. This is done in order to get the employment structure of Singosari residents. Then, the fourth and fifth sections, are explained about the proportion of land ownership based on land use, and the variety of access to land. This description is to describe the agrarian structure and access to resources owned by Singosari village. Finally, this section describes the proportion of household income and expenditure. This description is useful as a reference for the types/characteristics of Singosari farmers (subsistence or commercial) for agricultural commodities in the village.

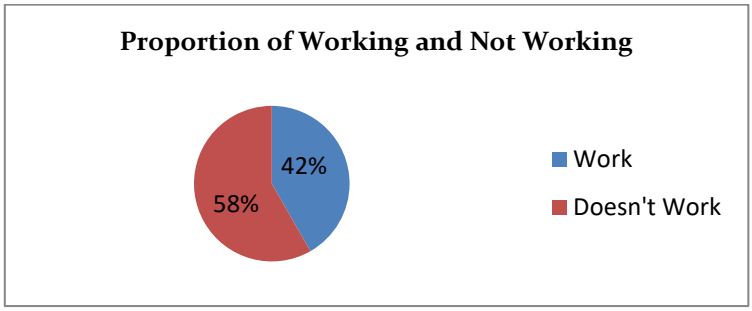


Figure 2. The proportion of working and non-working household members in the Singosari village

Based on the table above, in general, the proportion between people who work and people who do not work in the Singosari community surveyed is 42% to 58%. Meanwhile, if we look at the average number of household members, it is around 5 people with the smallest household. While the average working in each house 2 people. In simple terms, if there are 3 household members in one household, it cannot be ascertained that 2 of 3 members are working. Besides that, the survey data also shows that the number of members on a family is quite large, on average 1-3 children. Thus, the structure of the workforce is dominated by non-productive groups, in other words, the average number of people of non-productive age and/or non-productive age is greater than that of productive age.

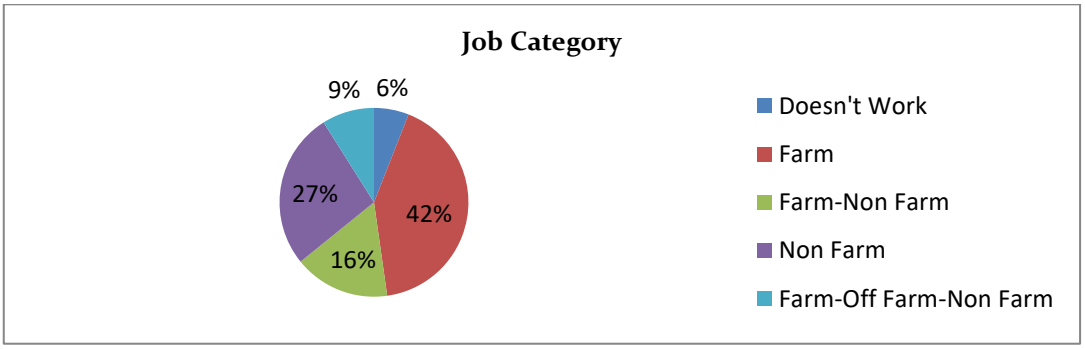


Figure 3. The proportion of Variety of Work Categories

The diagram shows that 64% of the people of Singosari village work in the pure agricultural sector (including farm laborers, odd jobs, animal husbandry and fisheries). Meanwhile, 16% of households have a combination of work between agriculture and non-agriculture. For example, the husband works farming and wife trades, or the husband is a civil servant and the wife works farming and so on. Meanwhile, 27% of working households are not at all related to agriculture. Meanwhile, 6% of households work in agricultural, non-agricultural and non-agricultural sectors but support agriculture,

such as agricultural transport workers/motorcycle taxis. This combination could be in the form of a husband, for example, becoming a motorcycle taxi driver for agricultural products such as coffee and bananas, wife farming while the children migrate to become laborers/employees overseas. Meanwhile, 27% of households that do not work our elderly people, but live alone while those who support their lives can come from their children and or the results of a number of agricultural assets; early childhood, and those who are still in school. Income from outside agriculture (non-farm) occupies more than a quarter percent of the types of work in Singosari. This is similar to the results of research (Tankou et al., 2017) that in all villages the sustainability of agriculture depends on the intensity of non-agricultural inputs in the production system and other socio-economic factors, especially for small farmers (Córdova et al., 2018).

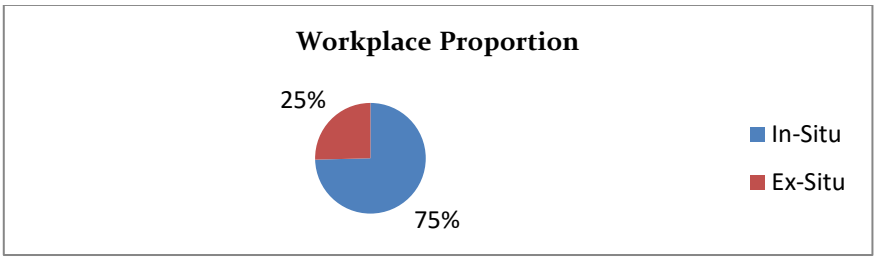


Figure 4. The proportion of Work Locations in All Household Categories

Within the 30 families that were polled, there were 12 people were employed. If 12 people who work represent the entire Singosari village community, we will find that 75% of the workforce from Singosari village work overseas. However, if we take the margin of error from the survey which was conducted with an error rate of 17%, then the rate of migrants from the Singosari village might be in the 75% portion, in other words, the migrant work rate in Singosari village can be said to be a large portion.

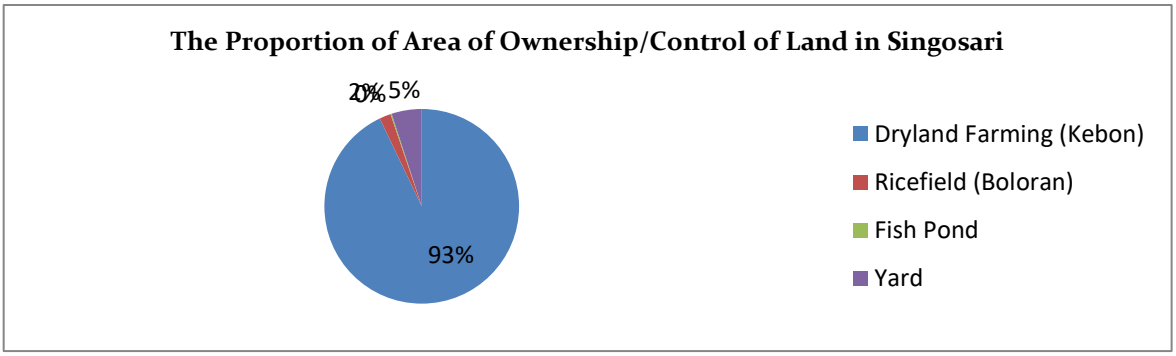


Figure 5. The comparison of the Proportion of Land Ownership/Control

If we look at the diagram above, we will find that the largest portion of the type of land owned by the Singosari village community is on dry land such as dry land agriculture/gardens (93%) and 5% yards, which, when added together, is almost as a whole, namely 98 %. Meanwhile, for *boloran*, it is used for rice fields and fish ponds, both of which add up to only around 2%. Access to dry land and yard use dominates the employment and income structure in Singosari with the characteristics of commercial farmers. However, this is inversely proportional to the study in the highlands of Myanmar, (Kmoch et al., 2021) said access to plants and forests to meet their subsistence needs. This suggests that the relationship between upland communities (farmers) and markets is mediated by topography and ecologies that vary in capital accumulation (income) (Sugden et al., 2018); (Siraw et al., 2020).

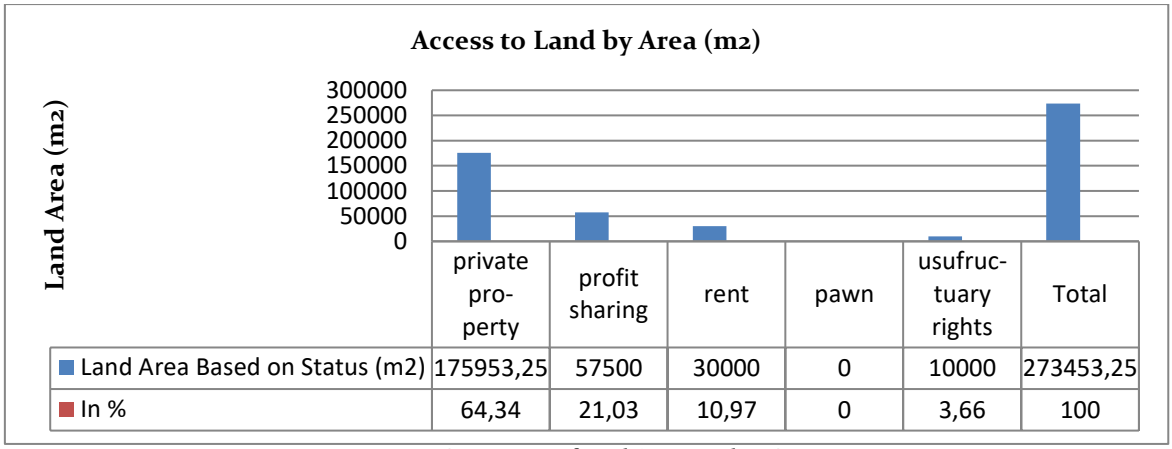


Figure 6. Comparison of Land Area Based on Status

The diagram above shows that, the largest land ownership status in the Singosari village is private property, namely 175,953.25 m² (17.59 ha) equivalent to 64.34% and profit-sharing for paddy fields and dry land covering an area of 57.500 m² (5,75 ha) equivalent to 21.03%. While the lease and use rights are only 30.000 m² (3 ha) and 10.000 m² (1 ha) respectively, equivalent to 10,97% and 3,66%, the status of a pledge is not found.

To see the proportion or comparison between the amount of income and the average expenditure of households in the Singosari village, we can see it in the following diagram:

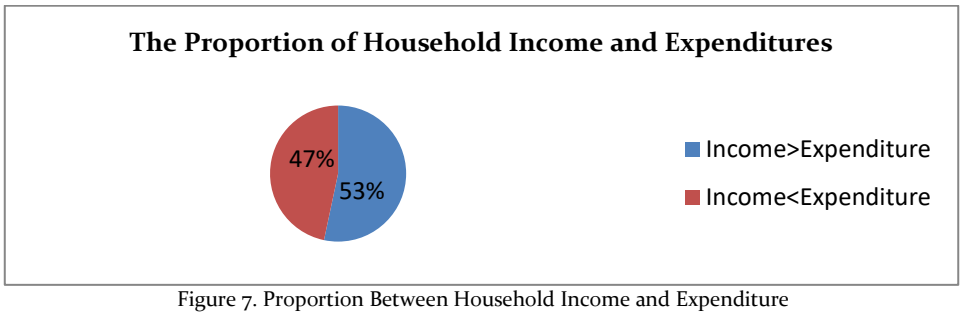


Figure 7. Proportion Between Household Income and Expenditure

The diagram shows that more households in Singosari village have greater income than expenses. This is because households with less income are not small, reaching 47%. With the margin of error that I have in this survey of around 17%, it is still possible for households in Singosari Village to have a lower income level compared to spending more from the survey data. The amount of this income is the sale of agricultural products. The characteristics of Singosari farmers are commercial, so that the types of plants planted also adjust to the market. As is the case with the study conducted (Arce et al., 2019) that access to land and market-oriented commodities significantly influences the management of smallholders and landscapes differently than levels of consumption. Apart from being supported from agriculture, it is also income from goat farming. This is similar to the results of the study (van de Steeg et al., 2010) in the Kenyan highlands where farming systems are characterized and classified based on the criteria for the cultivation area of food crops, cash crops, and use of fertilizers.

## 4. CONCLUSION

Based on the presentation of the results and discussion section above, several points can be concluded from the main findings: the Singosari village has a variety of resources, both socio-economic and ecological. Singosari Village has resource potential in a combination of two landscape patterns (dry land and paddy fields). The structure of the population's employment which is dominated by non-productive residents and the variety of livelihoods inside and outside the village in forming tenure relations. In terms of agrarian structure and access, the people of Singosari generally owned their own

land and cultivated it themselves, and sharing practices developed. Finally, household income is greater than expenditure, this is due to the dominant source of livelihood from the agricultural and livestock sectors in Singosari. These descriptions are of course very useful for the village government in intervening development programs in their villages, as well as for the private and private sector when they will provide agricultural development programs to Singosari village.

The contribution of this research is to be able to contribute findings or ideas to the study of rural development in Indonesia, especially participatory socio-economic mapping in mapping conditions and parameters locally. In addition, it becomes an initial reference or recommendation in the practice of agricultural development with the perspective of local parameters for relevant stakeholders in intervening development programs in villages. Thus, the availability of this socio-economic data can be used to see the needs and potential of community resources in order to determine which sectors need to be implemented and improved.

The implication of this research is the results of the socio-economic mapping contain socio-economic data of the villagers so that they can be used as a valid reference for making policies/programs. Socio-economic data is presented according to existing categories, arranged systematically, with explanations of the relationships between these categories, and can be read. This does not mean that the villagers do not have knowledge about the conditions of the residents and their own village. The villagers are the ones who know best about their living conditions. However, like humans who have deficiencies, there could be a misunderstanding among the villagers themselves. Or, perhaps the knowledge possessed cannot be known more broadly and clearly because it is not presented in writing. In order to be known, the knowledge possessed by the villagers must be presented in the media that can be read. One of them is in the form of a socio-economic map.

From this map, it is hoped that the village government can see the problems more clearly, or objectively, so that when planning development programs, the programs designed can really depart from existing realities/problems and with the right program targets. Even if the program implemented later does not go according to plan, this could be due to the fact that this research has not considered other factors. However, this can be improved by learning from mistakes and doing better research so that the program designed is right. At least the program and its planning are no longer based on mere assumptions or opinions, which are subjective, individual and untested, but depart from existing facts.

As material for reflection, this means that there is a long homework for the village to be able to develop itself independently. It would be great if a participatory mapping program like this could be done every year. The data collection can be useful for the village and researchers. The researcher also suggested that the village could recruit new individuals, especially from the youth group, to be included if there was a training or data collection program so that they could then be involved in participatory research programs. From this experience, researcher can revise a method that is more precise and efficient in carrying out socio-economic mapping and social planning for trials next year.

Finally, the limitation in this study is that it still focuses on socio-economic mapping with a sample that is not too large due to limited survey staff, and recommendations for further research are the need for mapping of surrounding villages considering the geographical conditions of hilly villages with a variety of potential resources and the need for there is a further study of sustainable livelihood patterns for the development, empowerment and intervention of development programs in rural areas.

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