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Research Article

Assessment of Livelihood Resilience during the COVID-19 Pandemic among Smallholder Households in Pasirtalaga Village, Karawang, Indonesia

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Abstract.
The COVID-19 pandemic as a global crisis affected the many lives in Indonesia and the farming community of Pasirtalaga Village. The primary source of livelihood in this village is agriculture and several households depend on the income of family members who have migrated. Although the direct effects of pandemic are not evident, significant changes have been observed in the daily lives of the community residents, as indicated by the loss of shipments due to layoffs of family members. The government policies imposing restrictions on community activities have also caused a decline in the economy. Based on these conditions, farmer households depend on their livelihood assets as a buffer capacity to achieve a level of resilience. Therefore, this study aimed to analyze the relationship between the five capital assets and household livelihood resilience of farmers in Pasirtalaga Village, Telagasari, Karawang. The study was carried out using a quantitative method supported by qualitative data. The results showed a directly proportional relationship between the level of ownership of living capital and households livelihood resilience of farmers in Pasirtalaga Village. This indicated that a higher ownership of living capital led to a greater level of resilience in facing the crisis due to the COVID-19 pandemic.

Keywords: COVID-19 pandemic, livelihood resilience, smallholder households

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1. INTRODUCTION

Agriculture is livelihood and a business for farmers, incorporating various aspects of life such as economic, social, and cultural dimensions [1]. Rural livelihood in this region is based on agricultural and non-agricultural sectors, with residents strongly connected to both [2]. This dual emphasis on economic activities is evident in farmer households within Pairtalaga Village, Telagasari District, and Karawang Regency. The majority of farmers experience delays in the delivery of fertilizers and pesticides [3], leading to the dependence on livelihood assets as buffer capacity to achieve a degree of resilience. Livelihood assets are divided into five capitals, namely natural, physical, human, financial, and social [4].

Natural capital comprises essential natural resources such as soil, water, and trees, which yield products crucial for human survival. Meanwhile, social capital includes networks and associations of participating forums that support their livelihood [5]. Human capital, for example, is the level of education and health status of individuals and populations, while financial capital can be accessed to buy consumer or production goods and access credit [6].

Resilience is the capacity of a social-ecological system to change and adapt continuously within critical thresholds [7]. However, transformability is the ability to venture beyond existing boundaries into new trajectories [7].

Based on the expert's opinions, the concept of resilience serves as a general framework to describe the adaptive capacity of rural communities in addressing various shocks or changes in the social, ecological, and political environment [8]. This concept is evident in the areas experiencing vulnerable conditions such as Pasirtalaga Village, Telagasari District, and Karawang Regency, where 42.6% of the population mostly graduated from elementary school. To establish a behavioral change, effective strategies are crucial as well as active engagement between the extension worker and the individual [9].

The Pasirtalaga Village faces several challenges including educational issues and crop failures, which have led to considerable losses due to the absence of a local institution to support farmers during the crisis. The phenomenon of "twilight farming," with many farmers reaching an old age, is also a particular problem that can make the agricultural sector increasingly eroded. Therefore, there is a need to strengthen the five capital assets to support livelihood resilience and positively impact food self-sufficiency [10].

2. METHODS

Qualitative data collection was carried out using in-depth interviews with informants and a separate Focus Group Discussion was organized including farmers, PKK groups, women farmers, and village elites. Field observations were carried out at the study site to determine the aquatic phenomena and examine existing documents such as village monograph data. The target population in this study were all farmer households in Pasirtalaga Village, Talagasari District, and Karawang Regency. In the quantitative method, respondents were selected to be the survey targets and the unit of analysis was households. Respondents were selected using a stratified purposive sampling method, namely Stratified Purposive Sampling [11]. Additionally, three village elites, two agriculture offices, two agricultural extension workers, and three NGOs were selected as informants.

3. RESULTS AND DISCUSSION

Over the past few years, there has been a significant shift in the primary source of income from the agricultural sector to factory workers. This transformation was attributed to the changes in land use in Pasirtalaga Village, primarily due to housing development [12]. Although the majority of households in village work as farmers, agriculture in Karawang has developed into a sub-urban due to the proliferation of industrial areas in the region. When classified based on households stratification, farmers in Pasirtalaga Village are dominated by the middle class [13]. This study examines the revival of the notion of extension, the difficulty of extension in the period of the COVID-19 epidemic, and the problems of extension in the future[9].

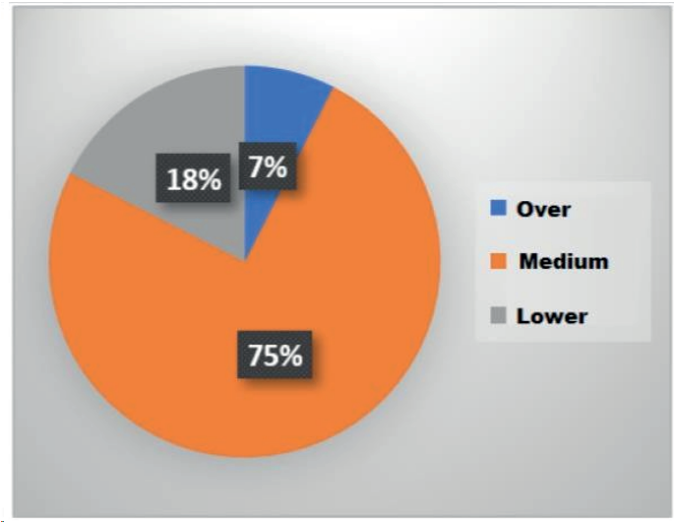

Figure 1: Composition of farmer household's groups in Pasirtalaga Village.

Based on Figure 1, 75 percent of farmer households were middle class, 18 percent belonged to the lower-class category, and 7 percent were upper-class [1]. According to total income per year, the middle, upper, and lower classes had 3-5 million, above 5 million, and below 3 million per month, respectively. The determination of households income followed a standard distribution curve by calculating the average and standard deviation. The substantial households income in Pasirtalaga Village came from the agricultural sector, which was closely related to rice field ownership and area [14]. As one of the ten leading aquaculture commodities in Indonesia[15].

Figure 2 shows that the majority of the lower-class households had narrow land, the middle class possessed narrow and medium, while the upper class had vast and medium land. The land area category was obtained by processing primary data using a normal distribution curve through the calculation of the average and standard deviation. This showed that household's income was directly proportional to the land owned by farmer households in Pasirtalaga Village in 2021. According to previous study [16], the area of land owned by households played an essential role in their welfare [17].

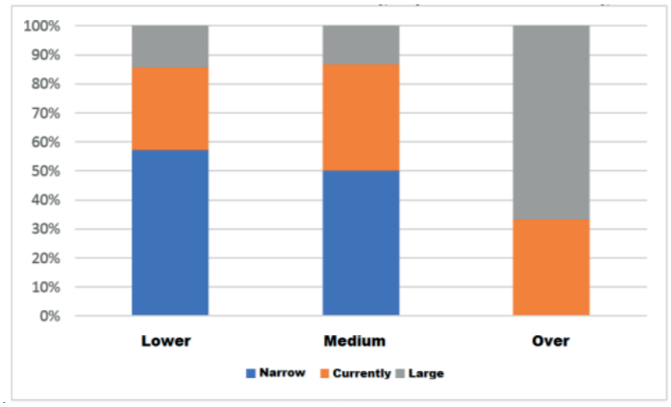

Figure 2: Composition of the Relationship Between Farmer Household's Groups and Land Area Categories in Pasirtalaga Village.

The living capital of farmer households before the COVID-19 pandemic was dominated by natural and high-value physical capital. The majority of households in Pasirtalaga Village relied on groundwater for cooking, bathing, and washing. The land in the region retained its fertility, and the air quality could be described as clean. Access to these natural resources played a crucial role in facilitating benefits for the community, including those from rivers, springs, and land. Physical capital entailed a wide range of assets, both productive and non-productive such as gold, electronic equipment, personal vehicles, and farm animals. The high value associated with this capital was because farmers in Pasirtalaga Village owned the assets, which could easily be sold during the crisis [18].

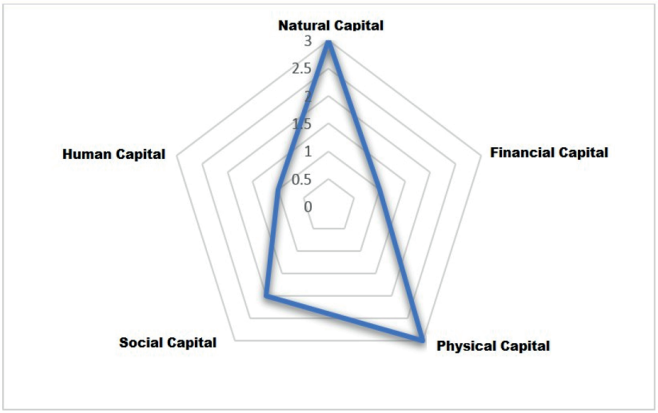

Figure 3: The Level of Ownership of Livelihood Capital Before Pandemic of Farmer Households in Pasirtalaga Village.

Social capital in Pasirtalaga Village is relatively of low value due to the increasing development. This has led to a gradual erosion of traditional traits and social cohesion, making farmers to be more individualistic. However, there are still social activities such as community service, gatherings, and recitation.

Human capital consists of the education level of the head and households members, skills, and the family workforce used for various tasks. This capital also contributes to limited education among households in Pasirtalaga Village, with several individuals possessing only one skill, namely farming. Furthermore, the majority of family members do not participate in agricultural labor.

This showed that the primary source of livelihood capital serving as buffer capacity for farmer households in Pasirtalaga Village before the COVID-19 pandemic was physical and natural capital. However, the effective management of social, financial, and human capital was yet to be optimally achieved.

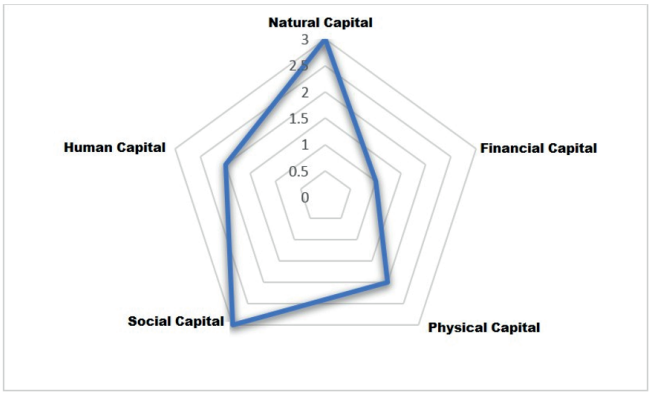

Figure 4: The Level of Ownership of Living Capital After the COVID-19 Pandemic in Pasirtalaga Village.

Social capital had increased from moderate to high due to the COVID-19 pandemic, as the majority of people helped each other when relatives or neighbors were infected with the virus. When the government issued a policy of limiting community activities, farmer households in Pasirtalaga Village found a sense of belonging primarily among their close-knit relatives and neighbors. These households also expressed hope for social assistance from the government when the activity restrictions were enforced. This phenomenon occurred due to the termination of employment (PHK) of family members working in the non-agricultural sector and the rising prices of essential goods.

Physical capital decreased after the COVID-19 pandemic because many households sold assets such as rice fields, vehicles, and gold during the economic crisis. Farmers in Pasirtalaga Village acknowledged that physical assets were purchased when economic conditions were good, to safeguard the farmers during crisis.

The analysis of the relationship between different groups of farmer households and the level of livelihood resilience in Pasirtalaga Village focused on assessing the level of livelihood resilience based on these groups. The hypothesis developed was that the higher household's group, the greater the level of livelihood resilience, and vice versa. The results showed a directly proportional relationship between the variable of living capital and the level of resilience of farmer household's livelihood. Resilience was

further evaluated based on the variety of strategies used to navigate crises and the time needed for recovery when a crisis occurs.

The living capital owned by the farmer households could be a buffer capacity during a vulnerable condition. These five capitals served as the foundation for farmer households to depend on during crisis conditions. The level of resilience showed their capacity to return to normalcy after unfavorable conditions, such as the COVID-19 pandemic. The graph below shows the composition of the relationship between the level of ownership of living capital and resilience of farmer households in Pasirtalaga Village.

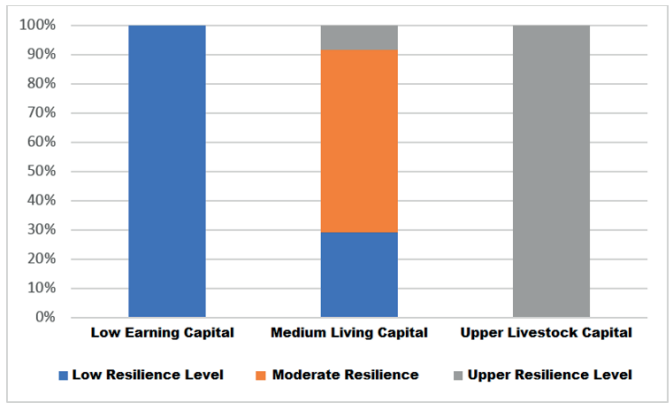

Figure 5: The Composition of the Relationship Between the Level of Ownership of Livelihood Capital and the Level of Resilience of Household's Livelihood of Farmers in Pasirtalaga Village, Telagasari District, Karawang Regency in 2021.

Based on the figure above, 100 percent of farmer households with low living capital also had a low level of resilience. This indicated a directly proportional relationship between the level of livelihood capital ownership and resilience in households with low-income capital. Furthermore, no households with low living capital had a moderate or high level of resilience. Approximately 28 percent of households with moderate livelihood capital had the same moderate resilience. Meanwhile, 60 percent with moderate income capital had a moderate livelihood resilience, and the remaining 12 percent had a high level of resilience. The results also showed a directly proportional relationship between the living capital and the moderate level of resilience. Approximately 100 percent of farmer households with a high level of living capital also had a high level of resilience. This indicated that living capital was an essential buffer capacity for farmer households to remain resilient during the crisis due to the COVID-19 pandemic. Increasing each livelihood capital, particularly those of low and medium value, led to a rise in resilience of farmer households in Pasirtalaga Village, Telagasari District, and Karawang Regency.

4. CONCLUSIONS

In conclusion, this study showed that farmer households in Pasirtalaga Village, Telagasari District, Karawang Regency experienced sudden changes due to the COVID-19 pandemic. These changes required adaptive responses from farmers in terms of health aspects and government policies such as PPKM. The number of layoffs (PHK) also increased economic vulnerability within the community, making farmer households rely on five livelihood capitals, namely natural, social, physical, financial, and human. The results showed a change in the level of ownership of living capital before and after the COVID-19 pandemic, as indicated by an increase in social and human capital. However, physical capital decreased, while financial and natural capital had a low fixed value. The relationship between living capital levels was directly proportional to the level of livelihood resilience in lower, middle, and upper-class households. This showed that living capital served as an essential buffer capacity for farmer households to remain resilient during the COVID-19 pandemic. Moreover, an increase in each livelihood capital, specifically those of low and medium value, could improve resilience of farmer households in Pasirtalaga Village, Telagasari District, and Karawang Regency.

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