



Oil Palm Plantation Expansion: Changes in Agrarian Structure and Food Security of Rural Households in Kanamit Village

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ABSTRACT

Oil palm is the leading cash crop with the and most extensive cultivation in the tropics, especially in Indonesia. The area of oil palm plantations in Pulang Pisau Regency covers 17,031.63 ha, with 2,762.32 ha allocated to smallholders and the remainder to private estates. The expansion of oil palm plantations is of interest to conduct a study in Kanamit Village, which is adversely affected by the agrarian structure and its impact on food security. This research employs a mixed-methods approach, combining quantitative methods to assess food security and qualitative methods to describe changes in agrarian structure. The results show that there have been changes in land ownership, control, use, and utilization due to the entry of private estates. The food security of the community is mainly in the vulnerable category, with the proportion of food expenditure >60%, while the level of energy consumption (TKE) is <80%. The integration of agrarian structure and food security decision-making in this research can serve as a decision-making tool for stakeholders to take action in protecting the community's needs in Kanamit Village or other areas.

Keywords: Agrarian Structure; Food Security; Private Estate

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1. Introduction

Palm oil production worldwide has continued to increase since 1960, due to rising global demand for Crude Palm Oil (CPO) (Corley, 2009; Mielke, 2012). During the period from 2010 to 2021, approximately 27 million tons of palm oil production were added (PASPI, 2022). From this production increase, approximately 87-89 percent of the world's palm oil production comes from Southeast Asia, with Indonesia ranking first globally, with production reaching 45.5 million metric tons (United States Department of Agriculture (USDA), 2023). Besides CPO exports, Indonesia has begun producing various palm oil derivatives for use in biofuel, food ingredients, cosmetics, and biodegradable plastics (Antwi et al., 2023; Nabila et al., 2023; Pratama & Widodo, 2020; Purnomo et al., 2020; Saepoo et al., 2023). This achievement is evidenced by ensuring the supply of foreign exchange reaching 359.14 trillion rupiahs, which contributes 14% of the country's non-oil and gas export income, and ensures

energy sovereignty (Kipli et al., 2023; Lim et al., 2023; Nurfatriani et al., 2022; Qaim et al., 2020). This multi-sector role is felt up to the regional level, where 25 out of 38 provinces experienced positive sustainable economic growth, village development, and progressive poverty depreciation (Kunene & Chung, 2020).

The escalation of palm oil needs aligns with land expansion and brings negative impacts. The reality of land conversion to plantations is dominant in forest areas. (Choiruzzad et al., 2021; Gonzalez-Redin et al., 2020; Yuliani et al., 2020). Extreme deforestation causes changes in the ecological landscape and loss of biodiversity (Fitzherbert et al., 2008; L., 2015; Obidzinski et al., 2012). Other problems arise during conflicts between companies and local communities due to overlapping location permits, plantation business permits, and cultivation rights (HGU) in land ownership (Pasaribu et al., 2020; Rokhim et al., 2020). Palm oil plantation expansion also causes changes in agrarian structure due to changing

patterns of ownership, use, control, and utilization of land (Arkanudin & Rupita, 2020; Aulia, 2020).

The term agrarian structure refers to aspects of land ownership and distribution, as well as relationships between various actors involved in agriculture, such as landowners, farmers, agricultural workers, and government institutions (Jayne et al., 2016). The phenomenon of agrarian structure change does not merely occur naturally. It is driven by economic factors such as the high demand for palm oil in the global market and government policies that prioritize palm oil plantation expansion over other land uses (Varkkey et al., 2018). This change has significant implications for the environment, society, and sustainable development. The consequences not only affect biodiversity and ecosystem services provided by forests, but also affect the livelihoods and social dynamics of rural communities (Castellanos-Navarrete et al., 2021). Additionally, plantation expansion can worsen social conflicts and human rights violations (Abram et al., 2017). Indigenous peoples and local communities are often marginalized and their land rights are ignored in the process.

The dominance of the Pulang Pisau region as a protected forest and production forest area, with even 70% of land cover being peatland (Djaenudin et al., 2021). The area of palm oil plantations in Pulang Pisau Regency reaches 17,031.63 ha, with details of community plantations around 2,762.32 ha, and the rest owned by large private companies (Asprianta, 2022). The shocking fact is that 10,000 ha of ex-peatland development (PLG) for food estate allocation (Fitriana & Marni, 2021; Rakuasa & Latue, 2023). It has been converted into palm oil plantations due to forest fires and soil inconsistency for vegetable farming. The damage has degraded soil nutrients to become dry, tarnishing Indonesia's image as a result of cross-border air pollution in Southeast Asia (Astuti, 2020; Nurrochmat et al., 2020).

Plantation expansion in Pulang Pisau Regency also has social impacts on the Kanamit Village community. Palm oil plantation expansion has had negative impacts on the agrarian structure and household food security, affecting access to land resources. Changes in agrarian structure have the displacement of local communities due to unfair land compensation, leading to the loss of community income sources. Local food production has decreased due to the conversion of food crops to palm oil plantations. This makes community food security vulnerable within rural households. These various conditions prompted research in Kanamit Village addressing three main issues: (i) agrarian structure before and after changes in land ownership due to palm plantation entry; (ii) the impact of palm plantation entry affecting changes in agrarian structure; and (iii) rural household food security after changes in agrarian structure.

2. Research Method

Kanamit Village is located in the Kahayan River Watershed and is one of fifteen villages in Maluku District, Pulang Pisau Regency. The distance between Kanamit Village and the center of Maluku District is 14 km, while the distance to the capital of Pulang Pisau Regency is 27 km (Badan Pusat Statistik, 2024). Kanamit Village has two hamlets: Maluku Lama Hamlet and Sei Bitik Hamlet. Most people work in palm oil companies as either daily casual workers or permanent employees. The community also works as rubber and sengon tree farmers, and some individuals are skilled in rattan craftsmanship. The arrival of palm oil companies has adversely impacted the agrarian structure. Palm oil plantation expansion has led to shifts in land ownership and control, resulting from community land acquisition and the displacement of small-scale farmers. Local community livelihoods have changed and become dependent on company employment. Socioeconomic impacts are unavoidable for communities lacking access to land and adequate education. Poverty and unmet basic living needs lead to food insecurity at the household level.

A mixed-methods approach was employed to provide a comprehensive and in-depth understanding of the impact of palm plantation expansion on changes in agrarian structure and local community food security. Expansion identification was conducted through spatiotemporal remote sensing for land cover determination. This determination uses satellite imagery data from Landsat 7 in 2000 and Landsat 8 in 2025 downloaded via USGS Earth Explorer, and Bing satellite imagery in 2024 downloaded via SASPlanet. Interpretation was performed through the digitization of land cover features, particularly in plantation areas, which are the primary focus of this research. The population in this study consisted of the Kanamit Village community, located within the company's palm oil plantation area. Sampling was done with 35 respondents, which is a good sample size is between 30 and 500 respondents (Muawanah, 2019). A simple random sampling technique became the best choice, which gives equal opportunity for each element (member) of the population to be selected as a sample member (Firmansyah, 2022).

The first issue regarding agrarian structure before and after changes in land ownership due to palm plantation entry was conducted through document study, in-depth interviews, and field observations. Data collection was obtained through community leaders and village government, as well as communities affected by palm oil company plant compensation. The results obtained were spatial data of ownership, control, use, and utilization of land before and after the entry of palm oil companies. The second issue was the impact of palm oil company entry affecting changes in agrarian structure. In-depth interviews and observations

were conducted to gather information on the positive and negative impacts of palm oil plantations through local communities and current land cover conditions. The third issue concerned rural household food security after changes in agrarian structure. Data collection techniques through

questionnaire filling to household communities represented by 35 respondents. Results obtained were household income and expenditure data, and nutritional consumption linked to household food security in Kanamit Village.

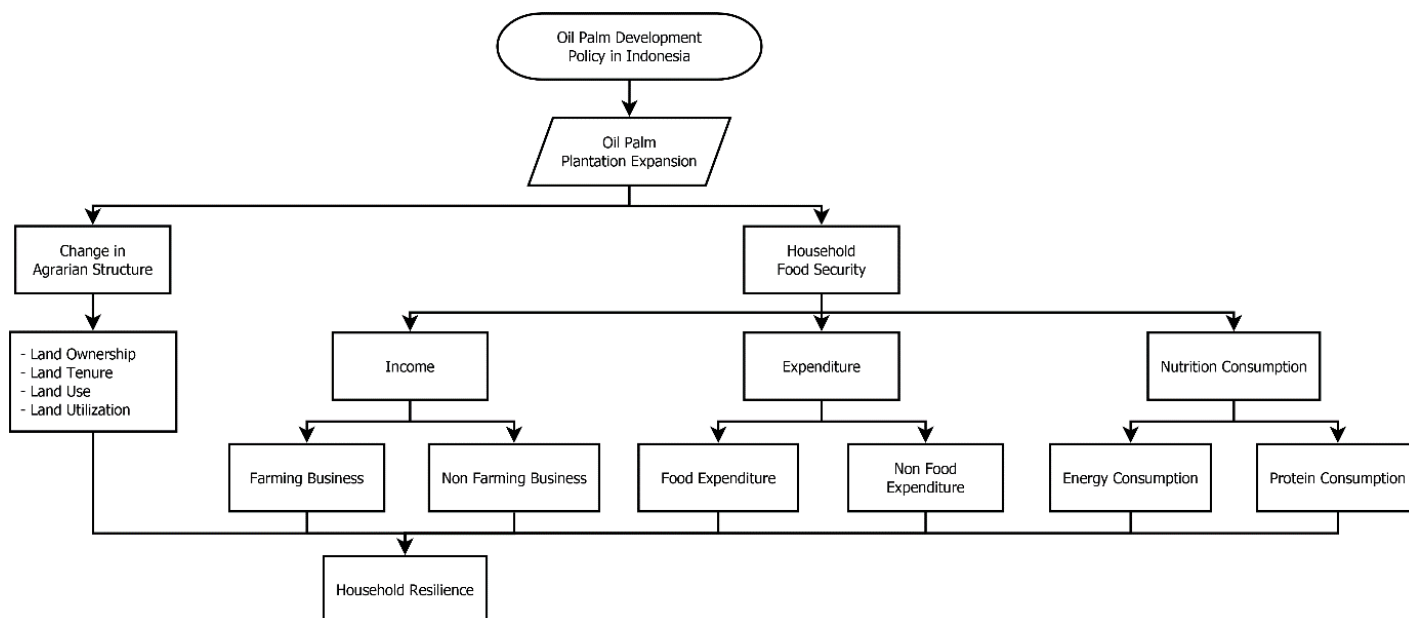


Figure 1 Research Diagram

According to Kartadireja et al (2021), household income is all income in the form of money and goods from all household members obtained through salaries, household businesses, and third-party giving (Kartadireja et al., 2021). Household income consists of household income from farming and non-farming calculated as follows (Anzaini et al., 2022):

$$Pd = Pdon + Pdoff \quad (1)$$

Information:

- Pd = Total farmer household income (IDR)
- Pdon = Income from farming business (IDR)
- Pdoff = Income from non farming business (IDR)

Household consumption expenditure needs to be examined to determine community purchasing power towards various factors, one of which is income affecting purchasing power ability (Sari & Nurjannah, 2023). Household expenditure can be known by calculating food and non-food expenditure calculated as follows (Rahmawati & Noor, 2020):

$$TP = Pp + Pn \quad (2)$$

Information:

- TP = Total farm household expenditure (IDR)
- Pp = Food expenditure (IDR)
- Pn = Non food expenditure (IDR)

Expenditure proportion needs to be known to determine the percentage of community needs spent on food and non-food needs. Total household expenditure is calculated as follows (Suyudi et al., 2020):

$$PF = \frac{Pp}{Tp} \times 100\% \quad (3)$$

Information:

- PF = Proportion of food expenditure (%)
- Pp = Food expenditure (IDR)
- TP = Total farmer household expenditure (IDR)

Nutritional consumption is the consumption level of various essential nutrients with value content used as fulfillment of the average nutritional needs of healthy living people (Setiawati & Subroto, 2021). According to Wahyuningsih et al (2020), household food consumption

through food quantity and quality. Food quality indicates the nutrients required by the body. In contrast, food quantity refers to the amount of nutrition in a food ingredient. To measure the amount of energy consumption calculate as follows (Sukmawani et al., 2022):

$$G(e/p) = \frac{BP \times Bdd}{100} \times KG(e/p) \quad (4)$$

Information:

$G(e/p)$ = Energy or protein consumed from food

BP = Weight of food or food consumed (grams)

Bdd = Edible portion (%)

$KG(e/p)$ = Nutrient content of protein/energy (%)

Food consumption assessment must be done quantitatively using Energy Consumption Level (TKE) and Protein Consumption Level (TKP) parameters calculated as follows (Sukmawani et al., 2022):

$$TKE = \frac{\sum KE}{AKE} \times 100\% \quad (5)$$

$$TKP = \frac{\sum KP}{AKP} \times 100\% \quad (6)$$

Information:

TKE = Energy Consumption Level (%)

TKP = Protein Consumption Rate (%)

AKE = Recommended Energy Consumption Rate

AKP = Recommended Protein Consumption Rate

\sum Energy/Protein Consumption = Total energy/protein consumption (kcal/capita/day)

Calculation of average TKE and TKP uses the Food Composition List (DKBM), consisting of energy content composition, protein, fat, carbohydrates, and others (Susanti & Muchlis, 2023). DKBM issued by the Directorate of Nutrition, Ministry of Health, as a benchmark to get Nutrition Consumption Level Classification (TKG), namely: (i) TKG > 100% RDA falls into the good category; (ii) TKG 80-99% falls into the medium category; (iii) RDA TKG 70-80% falls into less category; and (iv) RDA TKG <70% RDA falls into deficit category (Inayah et al., 2021). Studies conducted by Pambudi (2021) show that this food security refers to food availability, food price stability, and food affordability [48]. The degree of household-level food security is calculated through cross-classification of two food security indicators namely food expenditure share and energy consumption adequacy (Rahmansyah & Senjawati, 2020). According to Cahyani et al (2021), the degree of food security has four categories

namely: (i) food expenditure proportion <60% of total expenditure and TKE >80% falls into the food secure category; (ii) food expenditure >60% and TKE >80% falls into food vulnerable category; (iii) food expenditure <60% and TKE <80% falls into food less category; and (iv) food expenditure >60% and TKE <80% falls into food insecure category.

3. Result and Discussion

3.1. Life of Kanamit Village Community

The long history of Kanamit Village, rich in biodiversity and culture, has maintained a series of dynamic agrarian practices. The past pages of community life were strongly identified with shifting cultivation and hunting activities to meet family needs and customs. These various practices reflected the community's dependence on natural resources and local custom-based management. Over time, the community experienced changes in their economic system. Shifting cultivation activities began to change into permanent fields, and field expansion became the main source of food. Natural benefits from the forest began to be traded internally, such as rattan, resin, jelutung sap, and others. The transition in community mindset reflected economic adaptation to changing times and more complex household living needs.

The arrival of Dutch colonials in the 20th century showed changes in agricultural activities with the introduction of rubber plants. The community began to be encouraged to cultivate rubber which provided benefits in export commodities. Rubber plants thrived on their land and provided new economic opportunities. The community became increasingly interested in learning modern agriculture, so rubber plantations became the main source of income. Nevertheless, the community maintained farming activities. Income from rubber gardens was used to meet living needs that had to be purchased through the market system, while farming results were used for daily basic needs.

Palm oil plantation expansion began entering Kanamit Village in 2008, revealing unique facts. Usually, palm oil plantation expansion uses a state property regime with cultivation rights permits. However, Kanamit Village, used community-owned land previously planted with rubber, rattan, and rice. The location used was community land that had been used for generations for farming and finding food sources. The community rarely planted rice because it was often affected by rice ear bug attacks causing crop failure, and there were rules prohibiting forest burning. As a result, the rice planting culture began to be abandoned and former farmland became idle land. The palm oil company conducted expansion beginning with the process of searching for community-owned land until land consolidation. The company conducted land surveys for palm oil needs of 1,125

land parcels with a total area of 1,753 hectares. The company continued location matching and finding community-owned land to be purchased with help from the village government and community leaders. The sale value was IDR 500,000 per hectare and land that already had plants was bought at different prices depending on the type of plant. Overall from these sales, the community received an average of IDR 3,000,000.

3.2. Land Cover Changes in Time Series

Land cover classification in 2000 shows: (i) plantation covering 259.31 ha; (ii) shrub forest covering 3,422.07 ha;

(iii) dense forest covering 1,992.62 ha; (iv) built-up area covering 31.27 ha; and (v) water covering 614.99 ha. Land cover classification in 2025 shows: (i) plantation covering 5,345.53 ha; (ii) dense forest covering 326.85 ha; (iii) built-up area covering 32.90 ha; and (iv) water covering 614.99 ha. Over the time series, plantations experienced rapid growth of 5,086.22 ha (1,961%) over 25 years, while dense forest experienced a sharp decline of 1,665.77 ha (83.59%), and shrub forest have been completely depleted/disappeared.

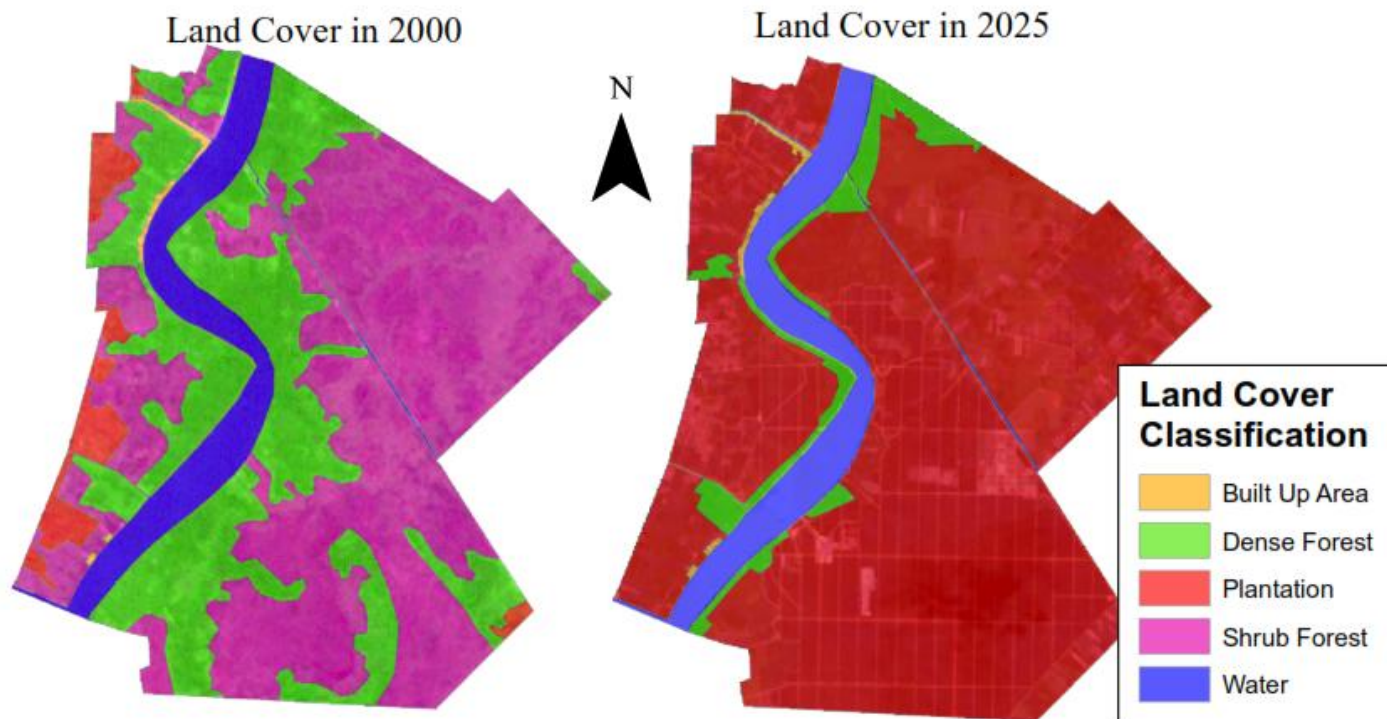


Figure 2 Land Cover Changes in Time Series (2000-2025)

3.3. Changes in the Agrarian Structure of Kanamit Village

Changes in agrarian structure due to palm oil plantation entry occurred in the context of ownership, control, use, and utilization of land. Based on information from 35 respondents in Kanamit Village, land ownership status was state land already owned by the community through statement letters (SP) from the local village. Proof of ownership persisted when the palm oil company entered and in 2017 land registration began, so all land parcels already had property rights certificates. Land control before and after company entry remained controlled by the community. The difference lies in the number of land parcels, which previously were 110 parcels controlled by the community, then became 66 parcels. Land use experienced changes that previously consisted of:

(i) rubber at 45.68%; (ii) former rice fields at 36.66%; and (iii) the rest being rattan, fields, settlements, and mosques. After palm oil plantation entry consisted of: (i) palm oil at 46.95%; (ii) rubber at 40.99%; and (iii) rattan, fields, settlements, and mosques remained the same. Land utilization also experienced changes that previously were: (i) economic activities such as trade and agriculture at 59.87%; (ii) no utilization at 36.66%; and (iii) the rest of social activities and residence. After palm oil plantation entry: (i) economic activities changed and increased to trade and plantations at 87.93%; (ii) residence at 10.98%; and (iii) the rest of social activities.

"The last time I planted rice was around 2006, because rice bugs (walang sangit) frequently came and caused crop failures.

This happened so often that it made me not want to plant rice anymore. Planting rice here is different from Java where you can harvest three times a year; here we can only harvest once a year. Besides that, there are regulations that prohibit burning for land clearing" (stated by Ba, a resident of Kanamit Village, 2024).

Changes in ownership, control, use, and utilization of land in Kanamit Village have created various complex issues. The main causes of these changes are economic pressure to sell land to palm oil plantation companies, government regulations that facilitate land certification processes, issuance of cultivation rights (HGU), and lack of community knowledge about the long-term impacts of land sales. These factors are supported by promises of higher short-term economic benefits, infrastructure built by companies, and government policies supporting palm oil plantation investments. Overall, these changes reflect an economic transformation driven by short-term profits but create various social, economic, and environmental challenges.

3.4. Impact of Agrarian Structure Changes

Palm oil plantations have significant positive and negative socio-economic impacts on the Kanamit Village community. In the early 2000s, palm oil companies began entering the Kahayan River region, including Kanamit Village. The presence of palm oil companies created job opportunities for local communities, and employment became abundant. Before the establishment of palm oil plantations by PT. MKM, the majority of people worked as farmers or gardeners with uncertain income. After the company's presence, many people obtained permanent jobs as laborers. The absorption of labor by this company greatly helped the community, especially those who previously had to leave the village to find work and leave their families. Working in palm oil plantations provides a more stable income for the Kanamit Village community. Contract daily workers' wages are calculated per day at IDR 118,000 per day, working for 26 days a month, while permanent workers receive a monthly salary of around IDR 3,200,000 with the same number of working days and hours.

Palm oil plantation expansion naturally brings changes to community lifestyles. Many who previously lived in agriculture and hunting now depend on jobs in palm oil companies. Changes in community food consumption patterns have occurred, from previously relying on local agricultural products to now depending more on food from outside Kanamit Village. Plantation expansion has caused negative ecological impacts. The expansion of plantation

areas often leads to deforestation and peatland clearing with significant environmental degradation consequences. These adverse ecological impacts include loss of biodiversity, increased greenhouse gas emissions, and degradation of ecosystem services. Environmental changes can worsen the Kanamit Village community's vulnerability to natural disasters, disrupt local water cycles, and reduce the availability of forest resources vital to their local wisdom way of life.

"The land that is now oil palm plantations was previously used by residents as a place to catch fish because there are many small rivers here" (stated by Ru, a resident of Kanamit Village, 2024).

Many small river streams flowed through the area, functioning as habitats for various fish species, and these rivers are now damaged. These rivers' function for the Kanamit Village community was not only as a water source but also as a vital main protein source.

3.5. Food Security in Kanamit Village

A study conducted by Nikawanti dan Aca (2021) states that food security has three main aspects: distribution, consumption, and availability. Food availability includes quantity, quality, safety, and affordability for all communities. The ability of each household to obtain sufficient food for each member to live healthily is called consumption. The distribution aspect relates to food accessibility for each demographic. The costs incurred for the consumption of all household members are called household expenditures. Household expenditure can be divided into two categories: food expenditure and non-food expenditure. Household food consumption of respondents in Kanamit Village consists of rice, drinking water, vegetables, fish, meat, fruits, eggs, milk, sugar, coffee, tea, cooking oil, noodles, kitchen spices, and cigarettes. Non-food expenditure consists of several costs including electricity costs, clothing costs, transportation costs, phone credit costs, LPG gas costs, credit costs, social gathering costs, toiletries costs, and cosmetics costs. Total monthly household food expenditure in Kanamit Village reaches IDR 3,060,678 per month, and total non-food expenditure reaches IDR 2,123,538 per month. Food expenditure, with most exceeding non-food expenditure, which suggests that respondent households still prioritize meeting basic needs with the majority of their money. This indicates that for respondent households in this village, basic food needs—such as rice and side dishes—are the most important.

Table 1 Proportion of Food Expenditure to Total Expenditure

No	Expenses	Total Expenses (IDR/Month)	Percentage
1	Food Expenditure	3,060,678	59.04
2	Non-Food Expenditure	2,123,538	40.96
Total		5,184,217	100

Household food security conditions, besides knowing expenditure proportions, also require knowledge of the amount of energy and protein consumed per family. Minister of Health Regulation Number 28 of 2019 states the recommended dietary allowance for Indonesian people through Nutrition Consumption Level (TKG), which is a measure of nutrition consumption calculated by comparing household nutrition consumption proportions with the Nutrition Adequacy Rate (AKG). The average energy consumption surveyed was 5,690.86 kcal per household per day. This amount is still considered insufficient compared to the Energy Adequacy Rate (AKE) of 8147.14 kcal per household per day. The average daily protein consumption

per household is 183.17 grams. Additionally, the protein requirement of 183.17 grams is still less than the daily recommendation of 229.09 grams per household. Energy Consumption Level (TKE) shows: (i) 17 households (49%) fall into a deficit energy sufficiency status; (ii) 9 households (26%) fall into medium category; (iii) 8 households (23%) fall into the deficient category; and (iv) 1 household (3%) falls into the good category. Protein Consumption Level (TKP) shows: (i) 17 households (49%) fall into the less category; (ii) 8 households (23%) fall into the medium consumption category; (iii) 4 households (14%) fall into the deficit category; and (iv) 4 households (14%) fall into the good category.

Table 2 Distribution of TKE and TKP Categories of Respondent Households

Nu	TKG	Category	Energy		Protein	
			Number of Households	Percentage	Number of Households	Percentage
1	≥ 100%	Good	1	3	5	14
2	81–99%	Medium	9	26	8	23
3	70–80%	Deficient	8	23	17	49
4	< 70%	Deficit	17	49	5	14
Total			35	100	35	100

Table 3 shows the distribution of household food security in Kanamit Village. Results show that food insecurity status is the largest, with a total of 57% of all respondent households. Households with food shortage status are five households (14%). Food vulnerable status is six households (17%). Households with the lowest percentage of food insecurity are those with a food secure status, with four of these households (11%) experiencing food insecurity. In the context of Kanamit Village, before the establishment of palm oil plantations, communities tended to have better food security because they could utilize natural resources directly through the benefits of the river and forest. After plantations, food

security began to decline because communities had to buy food that was not always available and affordable. Results showing that 57% of households were categorized as food insecure after the arrival of palm oil plantations indicate that the shift from direct access to natural food sources to dependence on food purchases hurts local community food security. This aligns with findings that households consuming sufficient energy but having a high percentage of food expenditure are classified as food-insecure households, supporting other findings that market dependence reduces food security.

Table 3 Distribution of Food Security of Respondent Households

Nu	Food Security Categories	Proportion of Food Expenditure (%)	Energy Consumption Level (%)	Number of Households	Percentage
1	Food Security, if the proportion of food expenditure is low (<60%), TKE is sufficient (>80%)	47.47	94.76	4	11
2	Food Vulnerable, if the proportion of food expenditure is high (>60%), TKE is sufficient (>80%)	74.08	94.61	6	17
3	Food Shortage, if the proportion of food expenditure is low (<60%), TKE is insufficient (<80%)	48.59	68.84	5	14
4	Food Insecure, if the proportion of food expenditure is high (>60%), TKE is lower (<80%)	71.69	59.02	20	57
Total				35	100

Before the arrival of palm oil plantations, food security in Kanamit Village was determined by the community's ability to meet food needs through traditional agriculture. Most households relied on shifting cultivation and rubber gardens to meet family energy and protein needs. Household food security was considered relatively stable, despite seasonal fluctuations in food production. At that time, communities collectively managed land and shared harvests to ensure each family got enough food. Communities also relied on rice field yields and fishing from rivers, which provided direct access to fresh and nutritious food, thereby reducing their dependence on the market.

However, after the establishment of palm oil plantations, many Kanamit Village communities switched to purchasing food because access to agricultural land decreased. Dependence on food purchases makes their food security more vulnerable to price fluctuations and market availability. Previous research supports this fact: households with direct access to food sources are better able to meet their energy and protein needs compared to households dependent on the market (Anzaini et al., 2022; Maryadi, 2014). Furthermore, comparative studies in Ethiopia, Bangladesh, and Myanmar have shown that food security is better in communities that rely on local food sources than in those dependent on markets (Akter & Basher, 2014; Etea et al., 2019; Pritchard et al.,

2019). These studies underscore the importance of local food production in maintaining community food security.

4. Conclusion

The expansion of palm oil plantations in Kanamit Village has brought about profound changes to the agrarian structure and local food security, directly affecting community life. Kanamit Village has a land area of 764,381 m², with an ownership status of state land. However, the entry of palm oil plantations has decreased by 19.02%, resulting in mostly certificates of ownership. Land control that was previously largely controlled by the community has been sold to companies. Land utilization experienced a 34.45% change, which is currently mainly in the plantation sector. Land use has changed from rice fields to rubber and oil palm plantations. Palm oil plantations in Kanamit Village communities have a positive impact on the quantity of labor needed. Negative impacts also occur on fish food needs due to damaged aquatic habitats. Community dependence on companies for income sources becomes dangerous when jobs are lost, and disrupts personal and family food security. Survey results show that most Kanamit Village communities experience food insecurity, with food expenditure proportion >60%, while energy consumption level (TKE) <80%.

Stakeholder collaboration can be facilitated through community gardens planted with chili peppers, vegetables, and family medicinal plants. Community empowerment is focused on farming techniques and harvest distribution programs. This program can be supported by providing seeds, fertilizers, and agricultural tools from the government and companies as part of their corporate social responsibility initiatives. Community food needs that can be met from their harvest can reduce dependence on market prices and suppress expenditure. These efforts have a positive impact on improving the quality of family nutrition and increasing the economic and independent status of Kanamit Village communities in the future. The food insecurity survey that has been conducted may not represent all villages, so it is hoped that there will be future research with a larger sample size.

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