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From Traditional Agricultural Practices to Monoculture Plantations: Impacts on Indigenous Communities' Land Tenure, Land Use, and Livelihoods

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ABSTRACT

The shift from traditional agriculture to monoculture plantations has significantly altered land tenure, land use, and livelihoods among the Dayak Hibun Community in villages of West Kalimantan. This study aims to examine the impacts of oil palm development on land relations, cultural values, and livelihoods within Indigenous communities embedded in the palm oil commodity supply chain. This study uses a mixed-methods approach, combining qualitative methods such as field observations, transect, interviews, and FGDs. Snowball sampling was employed to identify key informants with deep contextual knowledge. A survey of 31 Dayak Hibun households provided quantitative data on livelihood activities, land access, and resource relations, which strengthened the qualitative analysis. The unit of analysis was the household of Dayak Hibun farmers in Gunam Village located in the lowland area of Sanggau district. Findings indicate that households that own less than 2 hectares of oil palm farms predominantly experience survival conditions, some of which engage in consolidation intensification, and diversification. In contrast, households that own more than 2 hectares of land tend to pursue consolidation diversification, intensification, extensification, and accumulation. Cultural values serve as a collective strength across all social strata particularly for survival household condition with landholdings of less than two hectares.

Keywords: indigenous communities, land tenure, land use, livelihood strategies, oil palm

INTRODUCTION

Transformations in the landscape of living spaces have coincided with shifts in agricultural production patterns (Dove,1988; Fox et al., 2009). Furthermore, several trends—such as resettlement, privatization and commodification of land and land-based production, expansion of market infrastructure, and promotion of industrial agriculture—underscore how government and market forces have shaped the livelihoods of rural communities (Dove, 1988), subsequently impacting household income levels and expenditure patterns (Tarigan & Sihaloho, 2022). One of the most significant changes has come from plantation commodities such as cocoa in Central Sulawesi (Li, 2020), tobacco and rubber in Sumatra and Kalimantan, which have replaced traditional agricultural systems, such as swidden agriculture, marking a massive transformation in rural life. In West Kalimantan, communities have long practiced complex agroforestry systems, managing fruit orchards and rubber gardens simultaneously while also maintaining communal forests, dry and wet rice fields, and irrigation systems (Fox et al., 2009). Palm oil plantations were first introduced to West Kalimantan in 1975, beginning in Sanggau Regency (Colchester, 2007; Fox et al., 2009), gradually replacing earlier commodities like tobacco and rubber (Li & Semedi, 2021).

For more than a decade, the area of oil palm plantations in West Kalimantan has shown a relatively increasing trend. In 2022, the area of oil palm plantations in West Kalimantan reached 2.073 million hectares (Badan Pusat Statistik, 2023) making it the third-largest palm oil-producing province after Central Kalimantan (2.2 million hectares) and Riau (2.8 million hectares) (Badan Pusat Statistik, 2022).

Open Data Kalbar (2019) reports that in 2018, oil palm plantations in Sanggau District covered 431 thousand hectares—dominated by smallholders (290.7 thousand ha), followed by private estates (123.6 thousand ha) and state-owned PTPN XIII (17.6 thousand ha). Smallholder plantations were managed by approximately 68 thousand farming households. This implies that around 68 thousand smallholders have shifted , partially or fully, to palm oil-based livelihoods.

Over the past two decades, the expansion of oil palm plantations has attracted increasing attention due to its profound impacts on social, economic, and ecological structures. Some studies highlight the rise in smallholder household incomes (Kubitza et al., 2018; Rahmanita et al., 2018), while others underscore the resulting inequalities, social vulnerabilities, and the erosion of local values (Li, 2015; Mardiyaningsih, 2019; Sheil et al., 2009). Strategies such as sustainable certification and smallholder typology mapping are considered important for strengthening the position of small-scale farmers (Darmawan, 2019; Meijaard et al., 2020). Click or tap here to enter text.

Livelihood strategies are dynamic and shaped by social, economic, ecological, cultural, and political contexts (Dharmawan, 2007; Scoones, 2021). Livelihoods are not merely about income but involve the ways people build resilience and respond to change. White (1991) classifies livelihood strategies into survival, consolidation, and accumulation pathways; while Bernstein (2019) emphasizes that social positioning is fluid and contingent. He highlights the precarious nature of wage labor and informal activities such as farming, noting the fluidity of roles such as landless laborers, sharecroppers, and smallholders, which individuals may occupy simultaneously or sequentially (p. 48).

Li (2015) emphasizes that palm oil plantations significantly impact livelihoods, landscapes, and sociopolitical relations. While some benefit from improved livelihoods, others face reduced income and opportunities. Economically, palm oil contributed 220 trillion to national income in 2019 (Endarwati, 2021). Yet its expansion is linked to climate change effects (Wibowo, 2010), land-use change (Yulian et al., 2018) and deforestation (Hasudungan, 2018; Ordway et al., 2019; Taheripour et al., 2019). Large-scale expansion exacerbated land inequalities, privileging a small elite (Shohibuddin, 2019), with over 65% of plantation areas reportedly controlled by corporate actors (Apriando, 2018). Government policies tend to favor companies, while independent smallholders continue to face systemic barriers to land and input access (Li, 2024). At the household level, oil palm cultivation has reshaped labor allocation and decision-making dynamics (Muttaqin et al., 2015), altered women's roles in sustaining livelihoods (Azzahra et al., 2017), and increased reliance on monoculture (Yulian et al. 2018; Fatmasari et al., 2018). Among Indigenous communities, concessions have resulted in externalities, including time and financial burdens, loss of traditional livelihoods, and food insecurity (Andrianto et al., 2019).

The expansion of monoculture oil palm plantations transforms not only traditional swidden agriculture but also the livelihood systems of local communities. Through concessions and the nucleus-plasma

model, companies restrict land access, heightening livelihood vulnerability and prompting migration and diversification (Obie et al., 2020).

In places like Sanggau, traditional (polyculture) farming has largely given way to oil palm plantations, although some areas of swidden fields and *tembawang* (traditional fruit forests) persist (Fox et al., 2009; Arkanudin, 2024), which tembawang recognized as a landscape-scale agroforestry system.

Sanggau Regency is home to the largest population of the Dayak Hibun, an Indigenous group known for their enduring customary values and deep-rooted attachment to land, forest, and nature (Rona, 2020). In this context, the transition from polyculture farming to large-scale oil palm plantations (Fox et al., 2009) has introduced more regimented labor systems (Arkanudin, 2024), transforming livelihoods, cultural norms, and everyday life (Adinda et al., 2022; Dewiyanti, 2017). A growing number have become important contributors to global commodity chains through palm oil production.

This study is distinct in its focus on Dayak Hibun farming households in Gunam Village, Parindu Sub district, West Kalimantan, as the primary unit of analysis. The objective of this study is to explore how livelihood strategies are shaped by class and gender differentiation, access to productive resources within a local community closely tied to customary norms in mediating responses to change. This study also investigates how households negotiate agrarian transformation and spatial reconfigurations brought by oil palm expansion, and how market logics interact with local values in shaping livelihood strategies. As such, the study offers a micro-level, contextual, and socially inclusive perspective on agrarian change in an Indigenous community embedded in the palm oil economy, yet still grounded in customary institutions and norms. Therefore, this study contributes a novel perspective by positioning the analysis of landscape changes, land-use conversion, and land control—driven by oil palm expansion—and their impacts on Indigenous livelihood strategies— a central objective and critical focus of inquiry. The analytical framework is based on exploring socio-ecological questions related to ecological transformation, specifically the transformation from traditional agricultural landscapes to oil palm monocultures and raises political economy questions: Who owns what? Who does what? Who gets what? and what are the outcomes used for?(Bernstein, 2019). It also addresses socio-ecological challenges by asking: How do social classes and groups within society and the state interact? How are political changes influenced by ecological dynamics, and vice versa? (Bernstein, 2019; Scoones, 2021).

METHODS

This research employed a mixed-methods approach, combining qualitative and quantitative techniques. It involved an in-depth case analysis bounded by specific timeframes and activities, with comprehensive data collection using multiple procedures within a defined period (Hollweck, 2015). The research aimed to uncover patterns in group dynamics through a deep exploration of bounded systems—such as activities, events, processes, and individuals—based on extensive data (Creswell, 2017). A non-probability sampling method was applied combining purposive sampling and snowball sampling. Qualitative data were collected through observation, transect walks, in-depth interviews, and focus group discussions, enabling clarification and deeper insights. These were supported by notes, artifacts, audio, and video recordings. Qualitative data collection ran concurrently with a household survey, which captured data on agricultural and non-agricultural activities, income and expenditure, business diversification, and land/forest/nature use, access, and relationships. Purposive sampling identified respondents based on criteria aligned with the research objectives (Tongco, 2007), while snowball sampling involved referrals from initial informants (Effendi & Tukiran, 2012). Primary subjects were Dayak Hibun farming households—former plasma and independent farmers — who were born in or had resided in Gunam village for more than 20 years and maintained ties to forest resource. In 2019, the Palm Oil Sawit Harapan Tani (KUD SHT) cooperative comprised 215 plasma farmers and 77 independent farmers controlled approximately 1130 hectares. From the total of former members, 31 respondents (22 men, 9 women) were selected to participate in the household survey. Thirteen supporting informants (3 women, 10 men) included customary leaders, village officials, large-scale oil palm entrepreneurs, agricultural laborers and key community figures.

The study was conducted in Gunam Village, Parindu Sub-district, Sanggau Regency, West Kalimantan. As one of the oldest Dayak Hibun settlements, located upstream of the Ensabal River, Gunamretains strong customary values, and preserved customary forests. The introduction of oil palm cultivation let tosignificant and often dramatic land-use conversions, triggering conflicts between farmers and the state-owned plantation company PTPN XIII and causing supply chain uncertainty. Independent oil palm expansion has also increased markedly. Gunam has been a focus of various \Government and NGO

programs on capacity-building, productivity improvement, and environmental conservation. Preliminary assessments (July-August 2021) provide an overview of the area and identify key livelihood sources and subsistence zone. Main data collection including household income portfolio mapping, observations and interviews, occurred from July to September 2022.

RESULTS AND DISCUSSION

The Dayak Hibun's socio-ecological space in Gunam Village

The Dayak Hibun people's conception and utilization of their living environment consist of several functional components: (1) the village (kampung), (2) forest, (3) Pelaman and fields, (4) Tembawang (traditional fruit forest), (5) Bawas (fallow fields), (6) Tawang (wetland/peat forest), and (7) rivers it shows in table 1.

Table 1. Dayak Hibun Land-Use Types by Function

Object of Living Space	Function(s)
Village/Settlement	Permanent residential area
Teringkang Forest	A sacred and mystical forest, also a source of household food (as customary forest)
Pelaman, Fields	Land for dryland rice and other food crops, with temporary huts (*behuma*)
Tembawang	Communal or family-owned fruit forest with spiritual significance
Bawas	Fallow fields that regenerate into shrubs or young forest
Tawang Nioh	Wetlands or swamp forests used for selective timber
Ensabal River & tributaries	Source of water, fish, and daily hygiene

In Teringkang Forest shows in figure 1, several protected tree species such as *Shorea platyclados*, *Koompassia excelsa*, and *Eusideroxylon zwageri* are found, with strict customary prohibitions against their extraction. Tawang Nioh, a swamp forest, allows limited timber use (e.g., for housing), but not for commercial sale. *Tembawang* forests serve subsistence, environmental, and cultural purposes and are considered "Livelihood Forests", sustaining families with seasonal fruits (e.g., durian, langsat, tengkawang) and medicinal plants. Both *Tembawang* and customary forest recognized as a landscape-scale agroforestry system. *Tembawang* and customary forests (shows in figure 1&2) are inherited lands protected under customary law. As described by a local elder: *"We don't even know who originally planted those trees—neither did our parents. That's why it's called tembawang."* (ED, 2022).

Figur 1. Teringkang Customary Forest

Figure 2. Tembawang Kampung. There is a bridge crossing the Ensabal River leading to Pedagi (a ritual prayer site for the Dayak Hibun people)

In addition to forest-based activities, the Dayak Hibun still practice swidden farming on fallow lands (*bawas*). A field is typically used for one cycle of harvest and then left to regenerate, while another area is cleared for planting. This system includes the use of self-bred seeds and reciprocal labor exchange (e.g., *odi* or *pengari*—community work groups) as a moral economy practice (Scott, 1976). See Figure 3 and figure 4.

Figure 3. The field area is part of the *behuma*, which was cleared from *bawas*

Figure 4. The activity of making holes (Nugal) and sowing rice seeds into the holes by *Ody* groups.

> *"For many years, villages, shifting fields, and people refrained from encroaching on the old forest. For years, the community would build huts or temporary shelters to farm and plant a variety of fruit crops. In the past, nature and the land still allowed for this shifting practice."* (PO/Gunam Village, 15/07/22)
>
> *"In the rice fields, we plant rice, sweet corn, sweetened grafts, kecipir beans, and chili for personal consumption. Not enough to sell. We also have cassava leaves. The seeds come from us, stored, dried, and exposed to the sun... There are many types of rice seeds, such as puluk payak, padi damang, padi campak, padi lobok, and padi jengkol. There's also pulut. Pulut is cooked using bamboo to make tuak."* (MON/Gunam Village, 11/09/22)

The attachment to forests and nature, as well as their utilization in daily practices, originates from a magico-religious worldview (Arkanudin & Rupita, 2021; Rona, 2020). The magico-religious world is understood as a human belief in entities that cannot be seen but can be felt, and whose power is believed to exist (Nurohmah et al., 2024). In addition, there exists a set of customary laws and sanctions concerning the protection of the *Teringkang* customary forest (Prameswari et al., 2019).

Land Conversion and Agrarian Transformation

Following the enactment of Law No. 5 of 1979 on Village Governance, Dayak Hibun settlements were incorporated into the administrative structure of the state-imposed village system (*desa*). These settlements were reclassified as hamlets (*dusun*), either merged or subdivided, displacing the *ketemenggungan*'s customary authority, which had governed the broader socio-ecological landscape—such as in the Ensabal River region, where jurisdiction extended across 11 villages. The customary institution was incorporated as a subsidiary within the village administration, significantly reconfiguring territorial authority. This shift also curtailed the role of *adat* institutions in regulating access to land and natural resources—including hunting, logging, and the use of land belonging to others, whether intentionally or unintentionally—now limited to *desa* boundaries.

At the same time, the introduction of oil palm in Sanggau Regency marked the onset of rural industrialization, initiated through road construction in 1979 to support the PIR-Trans (Nucleus Estate and Transmigration) program. However, in 1985/1986, residents of Gunam Village rejected the initial PIR and transmigration schemes, which were seen as disadvantageous. Under PIR, each household was required to surrender 7.5 hectares, received one *kavling* (2 hectares) in return. In contrast, the Credit for Cooperative Members (*Kredit Koperasi Primer untuk Anggota/ KKPA*) scheme introduced in 1991/1992 was more accepted. Villagers surrendered 3.87 hectares per household; only about 2 hectares were returned as plasma land, later subject to credit repayment once productive. The remainder became part of the core estate (inti) managed by PTPN XIII with local cooperatives (KUD) overseeing operations. Land conversion accelerated between 1997 and 2000.

> *"People surrendered 3.87 hectares and received 1 block back; the rest became company-owned. In total, the combined plasma and nucleus areas amounted to nearly 700 hectares. The plasma area was previously forest, rubber land, or even tembawang."* (PT/Gunam Village, 30/09/22)

Oil palm became increasingly attractive due to its quicker yields compared to rubber, whose production was hampered by aging trees and weather-related constraints.

> *"The rubber trees are old; they can't be tapped anymore. These days, replanting with rubber is no longer viable—that's why we switched to oil palm."* (DI/Gunam Village,30/08/2022)

> *"With oil palm, you can harvest even when it rains. But rubber is hard to tap when it's wet. We still have rubber trees in Seranggas, but they're hard to collect from."* (Mon/Gunam Village,05/08/2022)

> **Note**: Seranggas refers to a traditional agricultural area located near Gunam Village, where villagers previously maintained rubber gardens.

Customary regulations over land use among the Dayak Hibun include the *Derasa* ritual—a form of compensation paid not for the land itself, but for the value of old trees or ancestral forest (*hutan tua*) that may be cleared when land is converted into new commercial uses such as oil palm. In cases involving old forests, *bawas* (secondary forest), or swidden fields being transformed into oil palm plantations, *Derasa* was applied based on negotiated compensation agreements, often between landholders and plantation companies.

> *"There was a Derasa process when opening up plasma land. If I remember correctly, the compensation was around 90,000 rupiah per hectare, multiplied by the total converted area, and paid by the company."* (FGD/Gunam Village, 16/08/2022)

The performance of rituals like *Derasa* reflects a subtle process of exclusion—one that may not even be consciously recognized by community members or customary institutions themselves. Under the legitimizing discourse of "what is proper and appropriate" (Hall et al., 2020, p.31) such practices marked the beginning of deeper agrarian transformations, profoundly reshaping the livelihoods of the Dayak Hibun in Gunam Village.

While private land such as old fields was easier to convert, *tembawang*—being jointly owned—required family consensus. Once inheritance rights were settled, individuals could reclassify *tembawang* as private land, even obtaining formal land titles. As of the study, only five family-owned Tembawang plots and one village-owned plot (Tembawang Ompu) remained. *"There used to be many Tembawang, full of durian. Anyone could harvest. Now most have been converted to oil palm."* (AB, Gunam Village, 30/08/22)

Survey data reveal that over the last 20 years, 48% of Dayak Hibun households cleared inherited land (mostly forest or *tembawang*), and in the past five years, 52% of respondents continued this trend. Forests were first converted into fields, and subsequently into oil palm plantations. Rubber gardens and *tembawang* have also increasingly been transformed into oil palm plots. Approximately 13% of land acquisition involved both inheritance and purchase. SPKS (2021) reports that 62.79% of Gunam's total land cover—approximately 2,150 hectares—has been converted into oil palm plantations. Conversely, *tembawang* and forest areas now comprise only 164.27 hectares or 4.8% of total village land, primarily concentrated in areas with low to high canopy density. The land cover changing shows in Figure 5.

The transformation of land cover in Gunam Village has brought significant changes to the structure of land tenure and control (Table 2). Based on types of natural resource-based land use, land control in Gunam Village can be classified into five categories: (1) *Hutan Teringkang* and *tembawang* (customary forests), including *pedagi* (sacred ancestral sites), (2) village settlement lands, (3) household yards, (4) smallholder-managed oil palm, rubber, and food crop farms, and (5) nucleus oil palm plantations. Land tenure can be categorized into three main types: (1) corporate control by PTPN XIII under *Hak Guna Usaha* (HGU, or Cultivation Rights Titles), (2) individual or household ownership, and (3) communal ownership under customary institutions. These varied forms of tenure reflect a complex mosaic of traditional, individual, and corporate claims over land. The communal tenure system, particularly for *Tembawang* and sacred forests, signifies a strong customary structure that governs access and preservation of important subsistence and cultural landscapes.

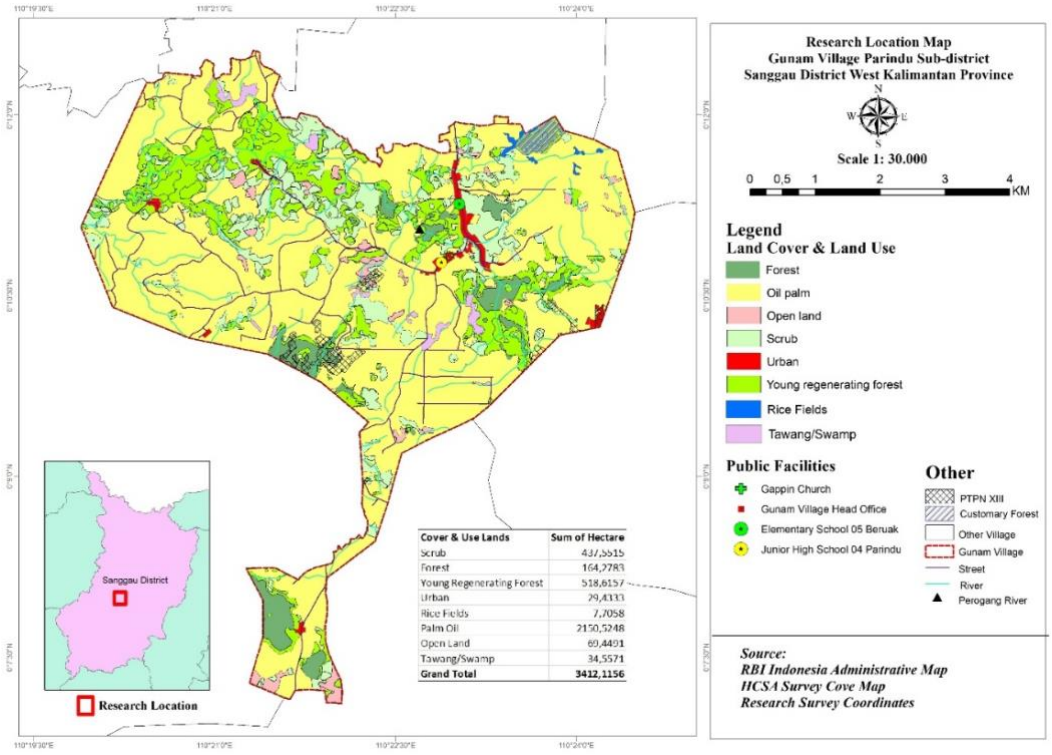

Figure 5. Land Cover Map of Gunam Village, 2021
Source: SPKS, 2021

Table 2. Land Tenure Structure by Type of Natural Resource

Type of Land / Area	Type of Tenure	Description
Teringkang forest, village tembawang, and Pedagi	Communal ownership by the entire village and/or extended families through customary institutions	Regarded as protected and sacred forest; serves as a food source
Village settlement land	Individually owned land	Used as residential area for villagers
Household yard	Individually owned land	Home garden area
Oil palm plantations, rubber gardens, rice fields, and ordinary forest	Individually owned land	Areas for agricultural cultivation, plantations, and household food production
Nucleus Oil Palm Plantation	Under HGU (Right to Cultivate) permit by PTPN 13	Managed by PTPN

Agrarian Class Differentiation

Berliana & Sihaloho (2023) identify changes in farmer behavior as internal drivers and rising land prices as key external factors accelerating land-use conversion. Among Dayak Hibun households integrated into the oil palm economy, livelihood dependence on the volatile price of fresh fruit bunches (FFB) has become prominent, often to the detriment of farmers. This dependence, coupled with weak bargaining power, has negatively impacted household welfare (Pratiwi et al., 2022). Even during favorable market conditions, high production input costs often limit smallholders' capacity to maximize yields. When palm oil prices drop, many farmers incur significant losses, prompting some to sell their land. In urgent situations—such as health emergencies or education expenses—land or plantations are frequently sold or mortgaged, typically to wealthier Dayak Hibun individuals with greater capital. This cycle reflects a process of primitive accumulation, in which dependency on subsistence commodification (Bernstein, 2019) facilitates land alienation. Such dynamics produce what Hall et al. (2020) refer to as "everyday exclusion"—a subtle yet persistent mechanism through which access to land is eroded. Consequently, an emergent agrarian class structure is visible: while some Dayak Hibun accumulate land and consolidate control, others are progressively dispossessed.

> *"Previously, there were no oil palms, many gardens were cut down and destroyed to make way for oil palm plantations. Now, I'm a bit disappointed because the price of palm oil was once high, reaching Rp. 3000/kg, but it has also dropped as low as Rp. 1000/kg, even Rp. 800/kg. Everyone complains about the low prices, so some choose to sell because they can no longer afford to maintain the plantations and pay the credits."* (BE, Gunam Village, 31/08/2022)

Considering the characteristics of farming households in Gunam Village—who predominantly engage in plantation-based agriculture rather than small-scale food or vegetable farming—it becomes evident that there is a substantial variation in landholding size among households. This study classifies Dayak Hibun farming households into four distinct agrarian classes based on the total area of land under their control, especially oil palm plantation serve as the primary cash crop. The classification is as follows:

- **Land-poor Smallholder (LP):** Households cultivating ≤ 2 hectares of land, comprising 49% of the total sample;
- **Smallholders (SH):** Households cultivating > 2 hectares and ≤ 5 hectares, accounting for 29%;
- **Middle peasants (MP):** Households cultivating > 5 hectares and ≤ 10 hectares, comprising 19%;
- **Rich Peasant (RP):** Households cultivating >10 hectares and ≤ 20 hectares, representing 3%.

Land tenure is generally secured through formal legal documents, such as Certificates of Land Ownership (SHM) or Land Use Statements (SKT), reflecting varying degrees of legal recognition and security of tenure across these household categories.

Based on access to and control over productively managed land, there are opportunities to combine and accumulate other livelihood assets, including land itself. Across household typologies, ownership of means of production, financial capital, and access to education or skills significantly enhance productive capacity and enable broader control over additional livelihood resources.

Data in Figure 6 below illustrate asset and production tool ownership across four typologies (LP, SH, MP, RP), reflecting clear socio-economic differentiation. High-value assets such as cars or trucks are limited to a minority of farmers: 27% in SH, 11% in MP, 33% in RP, and only 7% in LP—indicating that access to expensive means of production is concentrated among certain groups. RP stands out for full ownership (100%) of nearly all other productive assets, including motorcycles, mobile phones, televisions, chainsaws, firearms, water pumps, and household furniture. In contrast, LP and SH show significant limitations in access to modern tools. Basic assets like gas/electric stoves are uniformly owned across all typologies, while no group owns tractors or solar panels. These patterns underscore the unequal distribution of productive means.

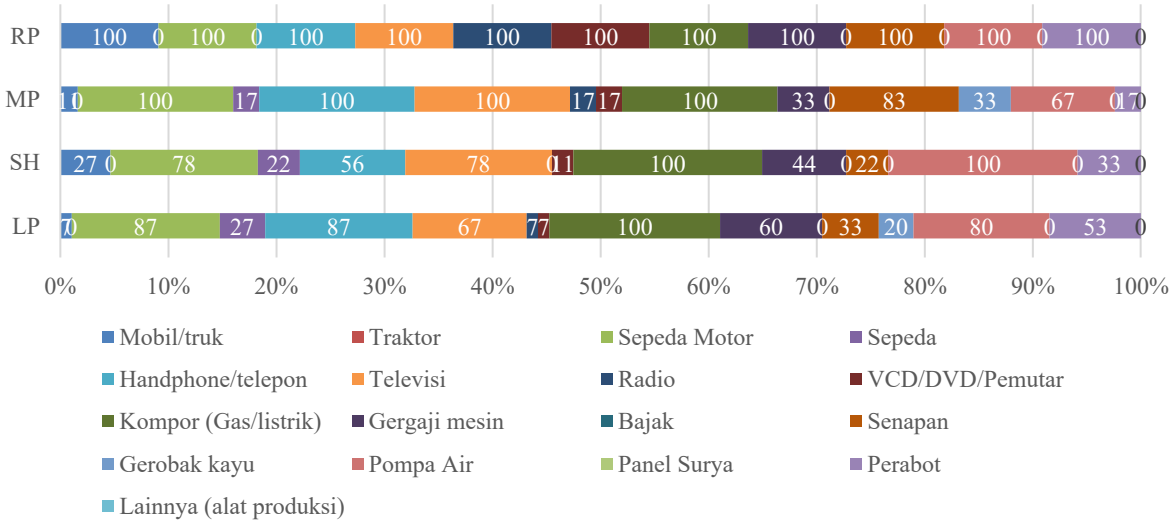

Figure 6. Ownership of Household Assets and Means of Production

Economic capital structures within farming households are composed of one or more financial sources. Survey data reveal variation in financial capital ownership and access across farmer typologies, with components including savings, pensions, loans, and investments.

Table 3 shows that the structure of financial capital among LP farming households is primarily composed of savings, loans, and limited investments. Specifically, 60% of respondents reported having savings, and an equal proportion relied on loans. A small fraction (13%) had made investments, primarily in poultry livestock. In SH households, 47% reported having savings, 33% accessed loans, and 7% invested in pig livestock. MP households demonstrated greater financial diversity: 50% had savings, 50% relied on loans, 17% received pensions, and 17% held investments in pig livestock and gold. RP household stood out for their complete financial capital coverage, with 100% reporting access to savings, loans, and investments—including pig livestock, gold, and perennial crops. These variations illustrate a clear gradient in financial capital formation, with RP exhibiting strong accumulation capacity, while LP and SH remain relatively vulnerable due to limited diversification and lower capital intensity.

Table 3. Composition of Financial Capital Sources by Farmer Typology (in %)

Farmer Typology	Sources			
	Savings	**Pension**	**Loans**	**Investment**
Land-poor Smallholder (LP)	60	0	60	13
Smallholders (SH)	47	0	33	7
Middle peasants (MP)	50	17	50	17
Rich Peasant (RP)	100	0	100	100

Becker (1993; Yuni Erawati et al. (2018)) argue that investment in human capital (such as education and training) leads to long-term improvements in productivity and well-being. In the context of livelihood capital control among the Dayak Hibun community, it is evident that individuals with higher education possess a greater ability to access and control other forms of livelihood capital compared to those without higher education. This includes access to quality seeds and better management of agriculture and finances. In Table 4 indicates an increasing awareness within the Dayak Hibun community regarding the importance of improving or attaining higher education. Education serves as a marker of social status within the society. This awareness also motivates community members, particularly parents, to work hard to improve their lives and support their children's future. "*My parents didn't finish school, I graduated from high school, but my dream is that my children can go to school even further*." (PO/2022).

Table 4. Comparison of Respondent and Parent Education Levels

Farmer Typology	Highest Education Level of Respondents	Highest Education Level of Respondent's Parents
Land-poor Smallholder (LP)	Elementary, Junior High, Senior High, and Some did not complete school	Elementary, Some did not complete school
Smallholders (SH)	Elementary, Junior High, Senior High, and Some did not complete school (Dominated by Junior High Graduates)	Elementary, Junior High, Some did not complete school (Dominated by incomplete education or less than 9 years of schooling)
Middle peasants (MP)	Elementary, Junior High, Senior High	Elementary and Some did not complete school
Rich Peasant (RP)	Senior High	Senior High

Education is also seen as enabling individuals to make better economic calculations compared to those without higher education.

> *"That's why I was able to take 4 plots of land, because at that time the price of fruit was low, around Rp. 700 to Rp. 800 per kg. Especially with the current situation, if we want to buy land, many people are willing to sell their land because the price of fruit is low. Even for people whose mindset is still limited, when the price of fruit drops, the land is left unmaintained, but if we prioritize maintenance, it can be better. That's the reason, the mindset and education factor make it limited. My dream is that my children can go to higher education."* (SE, Gunam Village, 09/09/22)

The economic and power relations, along with access to and the combination of livelihood capitals formed between groups, facilitate the formation of an agrarian class structure within the Dayak Hibun community.

The agrarian restructuring in Gunam Village reflects a growing dependence on both the commodification of subsistence production and the commodification of household labor. This shift has resulted in the emergence of social class differentiation, comprising small-scale capitalist farmers, relatively successful smallholder commodity producers, and rural laborers (Bernstein, 2019). Initially, many landowners—who inherited their land—have transitioned into wage laborers, such as harvest workers on neighbor farms. Class differentiation has also been shaped by the economic fragility of some households, which in turn enabled wealthier farmers to consolidate land and resources (Li & Semedi, 2021). In the case of Gunam Village, there is a clear differentiation among farmers: some are wealthy landowners, others are small-scale farmers, while some have lost their land and now depend on labor or non-agricultural ventures for survival. Small-scale farmers, despite not having lost their land or means of production, are only able to sustain their livelihoods within the confines of commodity and market relations. As Bernstein (2019) points out, even without the dispossession of land or productive assets, small farmers are constrained in their ability to reproduce their livelihoods if they are not embedded within the market economy. This highlights the dependency of small-scale agriculturalists on market-driven systems for their continued survival and underscores the broader transformation of agrarian structures under capitalist dynamics (Bernstein, 2019).

Livelihood Situations and Strategies Across Classes

Over the past two decades, the Dayak Hibun community has undergone significant shifts in livelihood strategies. Krishna et al. (2017) demonstrate that oil palm cultivation tends to be more labor-efficient than rubber, although its impacts are contingent on household access to land, labor, and capital. In line with these findings, further analysis which shows in Table 5 reveals that households categorized as household LP and SH are more likely to diversify their livelihoods compared to farmer MP and RP, who predominantly engage in agricultural or non-agricultural sectors. This diversification process reflects adaptive responses to changing economic conditions and resource availability, shaping the socio-economic dynamics within the community.

Table 5. Diversified Livelihoods Based on Farmer Household Typology

Land-poor Smallholder (LP)	Smallholders (SH)	Middle peasants (MP)	Rich Peasant (RP)
Casual harvesting labor	Shifting cultivation with upland rice and mix vegetables	Oil palm fruit (FFB) middleman (ram business)	Oil palm and Rubber cultivation
Rice farming laborer	Harvest and transport laborer	Shifting cultivation	Utilizing forest products for handicrafts
Jengkol gardener	Agricultural wage labor	Oil palm harvesting laborer	Livestock Investment
Oil palm and rubber cultivation	Grocery stall	Expanding oil palm land while maintaining food crops and vegetables	Expanding oil palm cultivation
Shifting cultivation (opening land) as owner-operator	Security guard (since 2013)	Crop replacement and expanding crops (oil palm) cultivation	Leasing land for sharecropping
Casual worker and (Security) at PTPN	Selling fertilizers		
Grocery stall, fuel retail (In micro scale)	Oil palm cultivation		
Driver/ transport labour			
Construction worker			

Colour Note: On Farm; Off Farm; Non-Farm Activities

Households classified as LP generally face survival situations. Both LP and SH household diversify to on-farm and mostly to off-farm and non-farm activities. SH households experience a consolidation of diversification strategies. For households in survival situations, livelihood diversification tends to focus primarily on short-term survival efforts, heavily reliant on increasingly limited natural resources for subsistence needs, and reliant on precarious wage labor in oil palm plantations owned by large landholding farmers (MP or RP) to sustain household reproduction. Typically, all family members are involved in work, but they have limited social and human capital (Sulistiyowati et al., 2023). To meet daily needs, this group often works as casual laborers, such as farm workers or field laborers. Farming skills are generally based on physical labor, supported by simple tools such as *egrek* (sickle pole) for harvesting. Limited access to land and skills constrains their employment opportunities. Although some households attempt to run small shops (*warung/kios*), these efforts are often unsustainable, as the goods sold are frequently consumed by the household itself. Moreover, the practice of taking goods on credit from their own shops for household consumption worsens their cash flow. Without other sources of income, the small shops are unable to generate sufficient revenue to improve their financial situation.

> *"The household's source of income now depends on oil palm, as there is no income from the shop because everything is taken for household needs. This shop also has more debtors than paying customers, and when there is money, people prefer to go to the Indomaret outside the village and spend it on leisure."* (SE, Gunam Village, 09/09/22)

In contrast, SH households experience livelihood consolidation diversification situation, it is possible to add new types of businesses or activities to create more stable and diverse sources of income, such as opening small businesses or seeking income from various sources. Informal skills and physical strength provide opportunities for business diversification, such as becoming a transport driver, opening a small grocery store, selling fertilizers, pesticides, and fuel for transport vehicles, or making cakes or handicrafts from non-timber forest products. In SH and MP households, the situation of consolidation diversification is made possible by the availability of financial resources and/or physical skills. Therefore, when new businesses, such as opening a shop, are initiated, they tend to be more sustainable compared to households in survival situations. This activity is commonly carried out by women (wife) within the household. For SH and MP households, financial strength provides opportunities for new non-agricultural businesses, such as purchasing vehicles (trucks) to start a new business (transporting oil palm fruit) as an off-farm activity.

In LP, SH, and MP households, diversifying employment as laborers or non-agricultural jobs is seen as job diversification or replacement of other occupations, which in certain conditions even contribute higher income than the main livelihood derived from oil palm farming. "*I've been working as a laborer in the oil palm plantation until now. While harvesting, I also open a field for food at home so I don't have to buy rice anymore*." (LI, 2022). Particularly, being a harvest laborer or transport laborer is one of the livelihood strategies used by SH and MP household to not only supplement their income but also optimize their idle time when they're not harvesting in their own oil palm plots.

Larger landholdings are associated with higher income derived from agricultural land management, with oil palm as the primary source of income. In a condition where the palm oil price is Rp. 1500 per kilogram, with an average production of 500 kilograms to 1 ton per hectare, farmers with less than 2 hectares of land earn between 1 million to 3 million rupiahs per month. Household in SH, who have land between 2 and 5 hectares, generate an average income from oil palm cultivation ranging from 3 million to 6 million rupiahs. Working as laborers (both for women and men in household) on the oil palm plantation offers profit potential that can even be higher than the income from oil palm production itself. Especially for men, income from working as a harvest laborer or transport laborer is relatively measurable and stable. Each month, for one plot of land, there are at least 1 to 2 harvesting opportunities. This means there are 2 chances to earn from working as a harvester. If a laborer works 2 to 3 times a week, with a daily wage of 200,000 rupiahs per harvest, the laborer could earn at least 1.6 million to 2.4 million rupiahs per month.

> *"My husband participates in harvesting every day, but when the oil palm has been fully harvested, we take a break. There are 12 plots being harvested. When working with Mr. SE, the wage is Rp. 200,000 per day. When I join the harvest, I only help with the transportation because harvesting is a task for men."* (LI,Gunam Village, 10/09/22)

The situation of intensification is found in household in SH, MP, RP, which optimize and increase the results of existing activities, such as improving agricultural techniques or enhancing productivity.

Involvement in farmer groups provides access to increased knowledge and skills in managing and maintaining plantations, as well as access to information, quality seedlings, and fertilizers.

For farmer households in MP and RP, with an average landholding of more than 5 hectares up to 20 hectares, the situation involves consolidation, extensification, accumulation, and the potential for diversification and intensification. In this group, there is the possibility of expanding agricultural land, particularly for oil palm (land extensification), diversifying commodities as long-term investments such as durian and avocado, and some even engage in land intensification through replanting oil palms. The conditions of consolidation of extensification, and intensification are also facilitated by the fact that households in this situation generally have significant financial resources. Access to large land ownership (more than 5 hectares of agricultural land) and stable financial capital allow these households to better accumulate other livelihood resources. Improvements in household well-being are most evident among those with formal land certificates and access to additional land resources (Toumbourou & Dressler, 2021). Secure land tenure not only enhances a household's ability to invest in agricultural production but also strengthens their position in accessing credit, expanding livelihood options, and reducing vulnerability to land dispossession. For example, a household with substantial financial capital sourced from oil palm cultivation on 8 hectares of land is able to purchase vehicles, open a fruit collection business (Ramp) from smallholder farmers, and has good relationships with companies, making it easier to enter the oil palm supply chain. To support the enhancement of oil palm cultivation skills, this household is involved in farmer organizations and receives oil palm cultivation training from companies and the government, along with funding support for rejuvenating old palm trees and access to quality seeds and fertilizers. The ownership of mobile phones also contributes to supporting social relations and adaptation to economic and political developments (van Deursen & van Dijk, 2014)

Elderly individuals are generally in a passive situation, where they are no longer working in the agricultural sector due to declining physical conditions or retirement. Access to financial resources is obtained through pensions, profit-sharing from agricultural ventures managed by family members, or remittances from family members with income. Elders are typically involved in traditional institutions and serve as community elders or leaders within the adat (customary) system.

The livelihood patterns of Dayak Hibun farming households indicate that subsistence within this customary community does not rely on a single source of income. Instead, there exists a dynamic diversity of livelihood strategies, with households engaging in both agricultural and non-agricultural sectors and frequently shifting between them. This condition must be understood through a stratified lens that considers social class, particularly in relation to land ownership and the socio-economic circumstances faced by different groups within the community. In practice, these livelihood strategies are often overlapping and interconnected, with households or individuals transitioning from one strategy to another in response to life-cycle changes, economic fluctuations, or shifting access to resources. In other words, the choice of livelihood strategy is often shaped by structural conditions and the uncertainty inherent in their socio-economic environment.

At the community level, there is a strong relationship between the economic resilience of households and access to social capital, as well as the importance of considering social aspects in the development of sustainable livelihoods (Carney, 1998). As access to natural resources decreases, sustainable livelihoods must involve empowering households by enhancing their access to various types of capital in order to reduce their vulnerability to external threats (Moser, 1998). The informal institution of *Odi* or *Pengari* is an example of the social strength possessed by the Dayak Hibun community in Gunam Village. Household in LP, SH, and MP are generally involved in *Odi* groups. According to the community, *Odi* work groups are very helpful in sharing the workload when opening fields. With *Odi*, work is completed more quickly. *Odi* is also sometimes used as a form of entertainment amid the business of managing oil palm plantations. In addition, the presence of *Odi* makes land management costs lighter and more affordable while strengthening the sense of brotherhood. "*When it's Odi time, I participate because I don't have money to pay someone to replace me.*" (LI, 2022). In contrast, some farmers in type of Household MP and RP do not participate in *Odi* groups; instead, they prefer to hire labor. "*The risk of participating in Odi is heavy in terms of costs and time; it requires consistency. That's why I prefer to use labor*." (SE, 2022). The *Odi* or *Pengar*i group for farmers in type of household LP and SH becomes a key component in shaping livelihood strategies As part of subsistence access to food, specifically through upland rice cultivation. Limited access to financial capital to support agricultural production can be mitigated by becoming a member of *Odi*.

Braga et al. (2024) highlight that the combination of monoculture agriculture with agroforestry systems have a significant impact on community livelihoods. In the context of the Dayak Hibun Indigenous community, the persistence of *Temawang* and customary forest is evident in landscape-level agroforestry practices, where customary authority is expressed through both customary law and formal village regulations. These are institutionalized in village-level legal instruments that protect customary forests and culturally significant livelihood lands, such as *tembawang*. This reflects a strong collective governance system, upheld by the entire community, which ensures shared access to and stewardship of communally protected lands. Such collective strength serves as a critical mechanism for safeguarding forests, *tembawang*, and subsistence lands from widespread land-use conversion. In a livelihood context increasingly fragmented by social class differentiation, the continued existence of these communal lands supports livelihood strategies across all social strata—though they are particularly vital for households in survival conditions.

CONCLUSION

This study reveals two key findings. First, the transition toward an expansive and monocultural agricultural system has led to a transformation of the agrarian structure, significantly altering community livelihood strategies and resulting in household fragmentation along agrarian class lines and diverse livelihood conditions. Marked disparities in land ownership or control and access to other livelihood resources have shaped social relations and an unequal agrarian class structure, manifesting in the division between wealthy and poor farmers. Households with landholdings of less than two hectares generally face limitations in their livelihood resources and have restricted access to combinations of livelihood assets, placing them in a state of survival—often dependent on wage labor. In contrast, households with more than two hectares of land are relatively more capable of accessing and combining various livelihood capitals, allowing them to enter a state of consolidation—whether through diversification, intensification, or extensification strategies. Furthermore, households controlling more than five hectares are better positioned to accumulate livelihood assets and gain access to alternative income sources, often associated with small-scale capitalist class status or categorized as petty commodity-producing (Bernstein, 2019).

Second, although there are conditions initially undermined customary values in the agrarian transformation process, the collective adherence to customary values among the Dayak Hibun community serves as a crucial social force in resisting pressures and persuasion related to land conversion. This is evident in the continued preservation and collective access to customary forests, *tembawang*, and swidden fields which are still maintained and utilized communally. Households in survival conditions (land-poor peasants/LP and smallholders/ SH) in particular remain dependent on forest resources that are collectively protected within the Dayak Hibun community. Social relationship expressed through both formal and informal institutions rooted in traditions of mutual aid and cultural values, plays a vital role in supporting agricultural production, including palm oil cultivation as well as in sustaining household survival strategies.

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