



OIL PALM EXPANSION AND LIVELIHOOD VULNERABILITY ON RURAL COMMUNITIES (A CASE IN POHUWATO REGENCY - INDONESIA)

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Abstract

Purpose: This study analyzed the expansion of oil palm and its impact on the livelihood vulnerability of rural communities. Furthermore, this study analyzed the livelihood base of rural communities, explained the mechanism of oil palm expansion controlling rural land, analyzed land tenure by oil palm expansion, which caused vulnerability to rural livelihoods, and analyzed the actions of rural peasants responding livelihood vulnerability due to oil palm expansion.

Methodology: The researchers conducted observations in Taludi subdistrict and Popayato subdistrict, both of which were locations for oil palm expansion in the Pohuwato Regency of Gorontalo Province. Besides, the researchers observed coastal areas in Popayato subdistrict, especially in Bajo tribal settlements that were affected by environmental damage in the form of floods sent from the mainland when it rained. The researchers also conducted in-depth interviews with various stakeholders who knew about oil palm expansion in Pohuwato Regency. The researchers interviewed village heads, heads of community empowerment institutions in the village, local environmental activists who actively discussed oil palm expansion, oil palm company leaders, and rural communities, both plasma peasants and other communities affected by oil palm expansion in Pohuwato Regency. To support observational and interview data, the researchers conducted a document review of previous research findings relating to the impact of oil palm expansion on local communities.

Main Findings: Oil palm companies get two instruments in controlling the forest area and agricultural land. Those are concession rights, as well as the nucleus and plasma systems. Both instruments close rural communities to access forest areas and agricultural land. It causes livelihood vulnerability in rural communities, besides the ecological disaster in the form of flooding due to damage to the rural environment, as well as drought in the dry season. Rural communities are forced to survive by migrating and diversifying livelihoods in the form of multiple livelihoods.

Implications: This research is significant on both the theoretical and policy levels. On the theoretical level, this research enriches the study of rural sociology, especially the study of rural access and livelihoods. As for the policy level, this research result can be a reference for the government in formulating policies regarding the development of oil palm plantations. In order to avoid livelihood vulnerability, the granting of forest area concessions to oil palm companies should be done at a radius quite far from the settlements of rural communities.

Novelty: A concession permit granted by the government to an oil palm company closes rural communities' access to the forest area. Rural communities get worse when the company implements a nucleus and plasma system policy that causes the transfer of control of agricultural land from rural communities to oil palm companies. The nucleus and plasma system only benefits the oil palm companies as the nucleus and kills the peasants' livelihood base as the plasma. The vulnerability of the livelihood base does hit not only rural communities that are plasma peasants but also hit other communities as a result of environmental damage in the form of floods in the rainy season and drought in the dry season. Vulnerable rural livelihoods due to oil palm expansion forced rural communities to migrate to find new livelihoods and diversify their livelihoods

Keywords: *Oil Palm Expansion, Livelihood Vulnerability, Rural Communities, Peasants' action, Agricultural Land, Forest Concession, Nucleus and Plasma System.*

INTRODUCTION

Oil palm is one of the primary commodities of estate crops that are important in the Indonesian economy as a foreign exchange earner (Ambiyah, 2012). According to data from the Directorate General of Plantations at the Ministry of Agriculture of the Republic of Indonesia in February 2018, Indonesia's currently registered palm oil area is 14.3 million hectares. The area of oil palm plantations is divided into 51.86% of Private Large Plantation, 41.42% of People's Plantation, and 6.72% of State Large Plantation.

The growth of the palm oil sector is so sharp, various policy packages and facilities are provided by the government so that this sector can continue to grow. This sub-sector development cannot be denied as having positive and negative sides. Palm oil is one of the commodities that have a large share in generating local revenue, gross domestic product, and community welfare (Afifuddin, 2007). In the economic aspect, the palm oil industry contributes to sustainable development, generates foreign exchange, develops the region, and succeeds in creating middle-income farmers. The

development of the palm oil industry is also inclusive and attracts the development of other sectors ([Purba & Sipayung, 2017](#)).

Oil palm expansion, however, raises various problems for local rural communities. Oil palm expansion can lead to environmental problems ([Yusop et al., 2018](#); [Sharma et al., 2019](#)). Expansion of oil palm plantations can also result in deforestation, increased carbon emissions, and climate change, which can disrupt environmental conditions ([Pacheco 2012](#); [Ishak et al., 2017](#); [Ordway et al., 2019](#); [Taheripour et al., 2019](#)). The conversion of the function of forest areas into oil palm plantations closes access to rural communities ([Ribot & Peluso, 2003](#)); as a result, poverty of rural communities around oil palm plantations becomes a necessity ([Yulian et al., 2017](#); [Andrianto et al., 2019](#)).

This study looks further at the issue of the impact of oil palm expansion on the livelihoods of rural communities. Field data shows that oil palm plantations in the study area have controlled hundreds of thousands of hectares of land sourced from the concession. This amount does not include the conversion of peasants' land from agricultural land and cocoa plantations with the plasma peasants system. The oil palm plantation companies in the research site forced peasants to release some of their land ownership if they wanted to join smallholders. Meanwhile, some others remain owned by peasants with a plasma system that forces peasants to owe capital to the nucleus company. This problem causes rural communities at risk of livelihood vulnerability.

LITERATURE REVIEW

Livelihood Concept

The concept of livelihood has been developing since the 1990s ([Lund et al., 2008](#)). This concept initially developed in England but was later designed in such a way that it is very relevant for developing regions ([Ellis, 2000](#)). The concept of livelihood is often found both in the study of natural science disciplines and social sciences. From natural science literature, the concept of livelihood primarily focuses on the sustainable use of natural resources in the context of increasing everyone's livelihood ([Carney, 1998](#)). Meanwhile, from the social science literature, the focus is on increasing the livelihoods of poor people ([Ellis, 2000](#); [Ellis & Freeman, 2004](#)).

Livelihood can be interpreted as a way taken by people to meet their needs or survival ([Chambers & Conway, 1992](#)). Livelihood is more than just income ([Lipton & Maxwell, 1992](#)). Livelihood includes income, both cash, and equivalent, besides social institutions, gender relations, and ownership rights needed to support survival ([Ellis, 1998](#)). Furthermore, livelihood includes access and benefits obtained from public and social services provided by the state, such as education, health services, roads, water supplies, etcetera ([Lipton & van der Gaag, 1993](#); [Blackwood & Lynch, 1994](#)).

Department for International Development ([DFID, 1999](#)) defines livelihood as the capabilities, assets, and activities needed to survive. Correspondingly, [Ellis \(2000\)](#) defines livelihood as assets, activities, and access, which together determine the life obtained by individuals or households ([Ellis, 2000](#); [Allison & Ellis, 2001](#); [Ellis et al., 2003](#); [Ellis & Bahigwa, 2003](#); [Ellis & Mdoe, 2003](#)). The concept of livelihood recognizes five main asset categories which include: 1) natural capital, consisting of land, water, wildlife, biodiversity, environmental resources, and others; 2) Social capital, consisting of networks, group membership, trust relationships, community institutional access; 3) human capital, including skills, knowledge, ability to work, and good health; 4) physical capital, in the form of necessary infrastructures, such as transportation, water, energy, and communication; 5) financial capital, in the form of financial resources owned by everyone, such as savings, availability of credit, regular remittances, or pension funds ([Allison & Ellis, 2001](#); [Lund et al., 2008](#)). Furthermore, [Yeboah \(2010\)](#) adds political capital as one of the livelihood assets, in addition to the assets described above, so that assets or capital as livelihood resources are divided into six categories. Political capital is related to the strength and ability of individuals and groups to influence a decision.

[Allison and Ellis \(2001\)](#) further explain that access to assets and activities is possible or is hindered by policies and the context of institutional livelihood, including social, institutional, and organizational relations. Also, it can be influenced by external factors such as the context of vulnerability, which includes trends and shocks that are beyond the control of the household. The following table 1 illustrates the livelihood framework of [Ellis \(2000\)](#); [Allison and Ellis \(2001\)](#).

Table 1 below illustrates that a particular household or community unit continues its life and livelihood by relying on various assets that it owns or that are materially and immaterially attached to the social unit in question. These assets include social capital, human capital, economic-financial capital, natural resource, and environmental capital, and physical capital infrastructure. However, access to these assets is often modified by the role of social relations (such as gender, economic class, age, ethnicity, religion or race), institutional influences (rules, customs, habits, markets) and organizations (such as NGOs, administrators, and government in a broad sense, religious institutions such as mosques, churches, and religious organizations in a broad sense) that are in the context of vulnerability (including surprises such as natural disasters and war or conflict, as well as trends such as economic crises, fluctuating prices, population growth, and problems population and technology change and macro policy).

Table1: Livelihood Concepts (Sources: [Ellis, 2000](#); [Allison & Ellis, 2001](#))

<i>Livelihood platform</i>	Access modify by	In Context	Heading to results	Consisting of activities	With impact on
Assets: Natural capital Physical capital Human capital Financial capital	Social relations: <ul style="list-style-type: none"> • Gender • Class • Age • Etnis/ras Institutional: <ul style="list-style-type: none"> • Rule & tradition • Habit • Market • Land tenure Organization: Association <ul style="list-style-type: none"> • NGOs • Administrator • Government 	Trends: <ul style="list-style-type: none"> • Migration • Population • Change Technology • Relative price • Macro policy • World Shocks: <ul style="list-style-type: none"> • Threat of flooding, drought, tsunami, pests, diseases, epidemics • Conflict/war 	Livelihood Strategy	Base of Natural Resources <ul style="list-style-type: none"> • Fisheries • Cash crop • Husbandry • Non-farm • Collection Basic of Non-Natural Resources <ul style="list-style-type: none"> • Trade • Services • Manufacturing • Remittance • Transfers 	Livelihood Security <ul style="list-style-type: none"> • Income level • Income stability • Seasonal • Level of risk Ecological Sustainability <ul style="list-style-type: none"> • Land quality • Soil quality • Water • Fish stock • Forest • Biodiversity

Livelihood should not be seen solely as access to material assets such as economic capital, but also includes access to a variety of assets that include natural, physical, financial, human, and social capital, in addition to the dynamics and strategies needed to integrate them into life ([Chambers & Conway, 1991](#); [Ellis, 1998](#); [Ellis, 2000](#)). Correspondingly, [Scoones \(1998\)](#) states that there are four types of livelihood resources needed to support different strategies, namely: 1) natural capital, in the form of natural resources (such as land, water); 2) economic or financial capital which is essential for conducting livelihood strategies; 3) human capital, in the form of education, skills, and knowledge; and 4) social (and political) capital, in the form of relationships and social networks.

[World Bank \(2007\)](#) defines a livelihood strategy as an activity or action in which households have access to establish a livelihood. Households have access or are not very dependent on the assets owned and influenced by the surrounding institutional environment. In contrast, [Ansoms and McKay \(2010\)](#) interpret livelihood strategies to determine the capability of households to obtain certain assets. Meanwhile, [Dharmawan \(2007\)](#) understands the concept of livelihood to have a broader understanding than just means of living, which is narrowly meaningful as a mere livelihood. Livelihood is a combination of economic actions and social actions oriented towards survival, covering all efforts to deal with emergencies and defend life from adversity and suffering.

The concept of livelihood has flexibility in paying attention to movements, ways, and even social relations, including gender relations, which implies power between people or between people and groups, institutions, and policies ([De Haan & Zoomers, 2005](#)). [Chambers and Conway \(1991\)](#) explain that livelihood will be sustainable if it can overcome and recover from stresses and shocks and maintain or enhance capabilities and assets, and provide livelihood opportunities for future generations; supporting the use of other livelihoods at the local and global level and for the short and long term. [Saragih et al. \(2007\)](#) stated that livelihood is sustainable if it: elastic in the face of shocking events and external pressures; not dependent on outside assistance and support (or if it is dependent, the aid itself must be economically and institutionally sustainable); maintain long-term productivity of natural resources, and not harm the livelihoods of, or sacrifice livelihood choices open to others.

The conceptualization of livelihood, as stated above, then gave birth to two different ideologies or theoretical bases in viewing livelihood strategies, namely utilitarianism belonging to rational choice theory and structuralism - Marxian with conflict theory. Chambers and Conway, as well as other Sussex figures, are more utilitarian, in which every social change and ecological change that occurs in the two systems will determine the combination of choices for the utilization

of the type of capital that occurs in each farmer and the household. Furthermore, Marxian Structuralism views the existence of economic structure as a determining factor for a livelihood strategy decision. This school better understands the livelihood system (a collection of livelihood strategies) as the reactive response of the community to the pressure of structural changes that suppress them ([Dharmawan, 2007](#)).

The Base of Livelihood Strategy

The reason for sustaining life (as individuals or households), generally peasant households make their livelihood sufficient by creating a diverse portfolio of livelihood activities and sources of income, where harvests from land or gardens are only one of many choices of activities which sustains the level of welfare ([Saragih et al., 2007](#)). The livelihood strategy of a household unit or community unit consists of various activities which are divided into two categories, namely: 1) natural resource-based livelihood activities (such as agriculture, animal husbandry, fisheries, commodities, non-timber forest products, and various other cash crops); 2) non-natural resource activities, such as trade, services, industry and manufacturing, transfers and remittances with impacts on the achievement of livelihood security such as a stable income level, reduced risk and the achievement of ecological sustainability namely the quality of land, forests, water, and diversity biodiversity is maintained ([Allison & Ellis, 2001](#); [Saragih et al., 2007](#); [Tesfaye et al., 2011](#)).

More specifically, [Ellis \(1998\)](#) distinguishes livelihood bases in the farm, off-farm, and non-farm categories. Income derived from the farm sector includes livestock, crops, plantations, and others. Off-farm income can be in the form of wages for agricultural labor, equal payment of labor (such as profit sharing), and non-wage labor contracts that are prevalent in many developing countries. Whereas income derived from non-farm may be in the form of (i) wages of workers not originating from agriculture; (ii) wages of own activities not originating from agriculture; (iii) income from property (such as rent, etcetera); (iv) remittances from migrant workers who go to the city; (v) remittances from migrant workers who go abroad.

Meanwhile, households in ensuring livelihoods carry out the following strategies, in the form of (1) survival strategies; (2) consolidation strategy; and (3) accumulation strategies ([White, 1991](#)). Determination of the strategy carried out by each household is very dependent on the capabilities, assets, and activities they have ([Baiquni, 2008](#); [Ansoms & McKay, 2010](#)).

Households with a survival strategy tend to own land and other capital ownership, which means that in finding work, family members depend on their labor and on the limited skills they have. Their work and social status are relatively low, and the income they receive is insufficient. Survival households tend to maximize the use of resources, especially labor, in addition to the land and limited capital they have to meet subsistence level needs. So, they can meet basic needs only short term.

Households with a consolidation strategy have sufficient land and capital assets to meet subsistence needs. They also have a higher social status than those with a survival strategy. Their income is also higher and sometimes comes from diversification of agricultural and non-agricultural activities, which means that they have additional income more regularly or every specific season. The source of income is not only in the village but also in the city in the form of trade. Because these households have fulfilled basic needs, they are free to fulfill others such as education, health, transportation, and recreation. Households with a consolidated strategy generally have a motorcycle and have complete household equipment, including radio and color television.

Households with this accumulation strategy have higher capacity, assets, and ability to meet their needs. By using all their capacities, these households can accumulate capital and increase their welfare to a higher level than households in other groups. Productive activities produce large surpluses and are long-term oriented. This accumulation strategy is characterized by control over vast land resources and much capital. This household is also brave enough to take risks by responding quickly to changes in external situations. Their tendency to shift investment from the agricultural sector to the non-agricultural sector is more dynamic and profitable, even though the risks are higher than agricultural.

Livelihood Research Overview

Livelihood strategy studies so far have been carried out at the household and community level. [Tesfaye et al. \(2011\)](#) identified the basis of livelihood strategies for forest-side communities, including forest base, agricultural yields, livestock base, business base, and diversity strategy. [Widodo \(2011\)](#) concludes that the livelihood strategies undertaken by poor fisherman households consist of economic strategies and social strategies. The economic strategy is carried out using a double subsistence pattern, the use of domestic labor, and migration. Social strategies are carried out by utilizing existing kinship ties.

A study conducted by [Mardiyahningsih et al. \(2010\)](#) shows that changes in the dimensions of the livelihood structure are inseparable from the ethical dimension that always underlies the social system of society. A study conducted by [Daulay and Sumarmi \(2010\)](#) in analyzing the survival mechanism of Lapindo mudflow victims households shows that there are six survival mechanisms carried out by Lapindo mudflow victims households in maintaining their lives, namely: 1) suppressing household expenditure; 2) utilization of family labor; 3) utilization of social networks; 4) diversification of work; 5) business strategy; migration as a last resort; 6) social mobilization and demonstration.

Research by [Ansoms and McKay\(2010\)](#) concluded that livelihood strategies determine the ability of households to obtain certain assets. [Widiyanto et al. \(2010\)](#) found that several livelihood systems were built on collective morals, namely a vertical solidarity strategy, a horizontal solidarity strategy, a debt strategy, a patronage strategy. [Tulak et al. \(2009\)](#) show that in order to survive, every farm household builds a livelihood mechanism, in the form of (1) scattered livelihood strategies; (2) multiple livelihood patterns; and (3) aid-based income patterns.

A study conducted by [DaCosta and Turner \(2007\)](#) shows that resettlement for canoe dwellers has consequences for changes in livelihood and social networks. [Purnomo et al. \(2007\)](#) study shows that the system of norms, values, and local traditions also influences the formation process of the rural livelihood system as a whole. A study conducted by [Dharmawan \(2001\)](#) shows that survival actions taken by farmers include diversification of livelihood resources and agriculture-based collective livelihood strategies. [Ellis \(2019\)](#) states that diversity is closely related to flexibility, resilience, and stability. In this case, diverse livelihood systems are less vulnerable than non-diversified; they also tend to prove more sustainable over time precisely because it allows positive adaptations to change circumstances.

[Salam et al. \(2019\)](#) explain that engaging in non-agricultural activities together with agriculture has a significant positive effect on household welfare. Among the non-agricultural activities that can increase per capita, household expenses are wage employment and migration [Wang et al. \(2019\)](#) explain that livelihood strategies have different sensitivity to different indicators of livelihood capital measurement. Among these indicators, cash income, the number of relatives and friends available for financial assistance, and the number of civil servants have a positive effect on the selection of the dominant non-agricultural livelihood strategies of rural households and non-agricultural rural households. Research by [Su et al. \(2019\)](#) explains that seasonality is a significant factor for rural households involved in tourism when they plan their livelihood strategies around them.

Oil Palm Expansion Research Overview

Research by [Nainggolan \(2013\)](#) with the theme, "International Capitalism and the Phenomena of Land Looting in Indonesia," revealed that the rapid rate of land conversion occurs due to oil palm plantations, infrastructure development, and exploitation of natural resources. The occurrence of environmental degradation, food crisis, and the emergence of social conflicts are the result of widespread land plunder. The involvement of the authorities behind various land plunder practices and weak law enforcement was also revealed in the results of this study.

[Utamiet al. \(2017\)](#) explained that the environmental impact of oil palm expansion is the reduction in the quantity of groundwater and animal population, as well as the occurrence of water pollution.[Done] The environmental impact of crude palm oil (CPO) mills is to produce liquid waste from palm oil processing, which causes external costs to the community in the form of clean water replacement costs and medical costs.

[Ishak et al. \(2017\)](#) concluded that the uncontrolled expansion of oil palm plantations had a negative impact because it caused agrarian conflicts, deforestation, and forest fires that triggered haze.[Nugroho\(2017\)](#) concludes that behind the luxury, the oil palm industry still has many problems. The negative impact ecologically, socially, and economically does not appear to have received serious attention from the government. From large palm oil production, instead of bringing prosperity, the community around the forest is uprooted from their land and forced to sell their labor to plantation companies with working conditions far from prosperous.

[Yulian et al. \(2017\)](#) explain that although it provides economic benefits, oil palm plantations also have social and environmental impacts. These impacts include changes in agrarian structure, land disputes, rural household livelihood systems, reduced biodiversity, a monoculture of plants, to deforestation. Villages around oil palm plantations appear to be prosperous but are vulnerable and even face the dilemma of rural household livelihoods because their villages are slowly but surely losing diversity in livelihoods due to changing ecosystems, which are now dominated by palm oil monoculture commodities.

[Ordway et al. \(2019\)](#) state that in Southwest Cameroon, a top producing region of Africa, 67% of palm oil expansion from 2000 –2015 occurred at the expense of forest. Research by [Taheripour et al. \(2019\)](#) states that much of the output expansion has occurred in carbon- and biodiversity-rich forest lands of Malaysia and Indonesia (M&I), contributing to record levels of terrestrial carbon emissions and biodiversity loss.

[Sharma et al. \(2019\)](#) state that future palm oil expansion should be considered cautiously to achieve a balance between human and environmental needs. [Andrianto et al. \(2019\)](#) state that land acquisition and plantation development have in externalities to indigenous landowners in the form of time and money lost in a series of meetings and consultations involving clan members and traditional elders.

RESEARCH METHODS

The researchers carried out this research on rural communities in Taluditi subdistrict and Popayato subdistrict of Pohnuato Regency, which is an area of oil palm expansion in Gorontalo Province. Researchers collected data from April to October 2019 by observing rural communities both belonging to plasma peasants and those not involved in the system but affected by oil palm expansion. The researchers conducted observations in Taludi subdistrict and Popayato subdistrict, both of which became oil palm expansion areas in the Pohnuato Regency. The researchers also observed the

coastal area in Popayato subdistrict, especially in Bajo tribal settlements that were affected by environmental damage in the form of floods sent from the mainland when it rained.

The researcher also conducted in-depth interviews with various stakeholders who knew about oil palm expansion in Pohuwato Regency. The researchers interviewed village heads, heads of community empowerment institutions in the village, local environmental activists who were actively discussing oil palm expansion, leaders of oil palm companies, and rural communities, both plasma peasants and other communities affected by oil palm expansion in Pohuwato Regency. The researchers also interviewed village heads and environmental activists in coastal areas affected by oil palm expansion in Popayato subdistrict of Pohuwato Regency.

Data credibility was tested through triangulation, namely by checking the credibility of data from various sources in various ways and at various times. In this case, there was a triangulation of sources, triangulation of data collection techniques, and triangulation of time (Sugiono, 2009; Moleong, 2007). Through the triangulation method, the researchers found similar data relating to the rural livelihood base, land tenure mechanisms, and peasants' actions in maintaining vulnerable livelihoods. The researchers found only slight differences in data relating to the broad scope of oil palm plantations owned by the company through a concession mechanism. To ensure the validity of the different data, the researchers cross-checked the local government and the leaders of the palm oil company concerned.

Meanwhile, to support data from observations and interviews, researchers conducted a document review of the results of previous studies relating to the impact of oil palm expansion on local communities. The researchers do it to support the academic results of the research being carried out. The researcher then analyzes the data qualitatively and draws conclusions after sorting the data, categorizing the data, and classifying the data as needed.

RESULTS AND DISCUSSION

Rural Community Livelihood Base

The main livelihood bases of rural communities in the study sites are agriculture, animal husbandry, and fisheries for coastal communities. Short-term types of plants are corn, cassava, beans, etcetera. Peasants also grow long-term crops, such as local coconuts, cocoa, and even cloves. As for the livestock sector, the types of livestock developed are cows, goats, and poultry. Meanwhile for coastal communities, searching for marine products becomes the main livelihood base. The typology of fishers at the study site included coastal fishers. This type of fishers catches fish using traditional boats and operates only around coastal waters. For migrants, especially Bugis-Makassar residents who live along the coast, the main livelihood base is sourced from milkfish and shrimp farming. Obie (2015) states that Bugis-Makassar residents who live in this area come from various regions in South Sulawesi. They moved to this area to develop a pond business.

Rural communities thus have a high dependency on natural resources in their environment. The dependence of rural communities on natural resources is also experienced by palm sugar peasants who live on the forest edge of BoganiNani Warta Bone National Park. The closing access to forest areas by the government causes livelihood vulnerability to palm sugar peasants (Obie et al., 2019). Rural communities, whether based on agriculture, animal husbandry, or fisheries, harmony in nature, becomes the primary need for the survival of their livelihoods. Therefore, local wisdom is built that harmonizes the relationship between the rural community and its natural resources (Obie, 2016). For the rural farming community, preserving the environment is a collective value that is internalized within each individual. This value controls daily activities in farming, raising livestock, and in finding marine products for fishers. So, it is not surprising, if in many rural communities, known as a prohibition to do certain things — basically, a prohibition in many rural communities related to environmental preservation.

Rural Land Tenure Mechanism in Oil Palm Expansion

Oil palm plantation in the study site is found in vast numbers, precisely hundreds of thousands of hectares. This vast plantation is owned by the limited liability company of Kencana Group (KG) with its subsidiary named the limited liability company of Jaya AnugerahDelima (JAD). The company controls a 30,000-hectare forest concession along with a mountain range that stretches in the Popayato region. Besides, the limited liability company of WiraSawitMandiri (WSM) controls the forest area in the Taluditi mountains, and even enters the transmigration community's plantation area.

The mechanism of control of the forest area by the KG limited liability company is in the form of a concession that began operating in 2012. Before the oil palm grower, the logging was carried out by its subsidiary; the JAD limited company. JAD limited the company obtained a forest concession to carry out deforestation for five years in the area. This concession then caused deforestation in the Popayato mountains, as well as damage to the coast. Obie (2015) states that coastal damage occurred because JAD limited the company piled its felling wood in the coastal area.

Concessions in the Popayato mountains have received strong opposition from environmental activists, as well as local communities directly affected by the concession. Environmental activists who opposed the concession and involved the local community carried out large-scale demonstrations at the start of the company's operations. However, because it was backed up by the security forces and supported by the local government, finally the planting of oil palm has been

going on until now. The regional government successfully extinguished the large-scale rejection in collaboration with companies that approached persuasively with activists. The approach taken is to negotiate with activists to conduct a comparative study of prosperous oil palm areas in Kalimantan to show that oil palm plantations do not damage the environment and can even uplift the economy of local communities. As a result, after a comparative study, demonstration extinguished by itself. Other activists who did not take the comparative study assumed that the activists who had taken the comparative study had sold their idealism with a certain number of materials provided by the company.



Figure 1: The piles of wood by the JAD limited company on the Coast (Source: [Obie, 2015](#))

The rejection of concession was also conveyed by the village heads who were around the concession area. Nevertheless, the efforts of the village heads ended in vain because the company had deceived them by signing a blank sheet. The company insisted that the village heads had agreed to the oil palm concession, as evidenced by the signing of the agreement from the village heads.

Meanwhile, the inclusion of oil palm plantation concessions in the Taluditi mountains did not receive strong rejection as happened in the Popayato mountains. The limited liability company WSM, which obtained concession rights in the Taluditi mountains, approached local communities who were immigrants from Java, Lombok, and East Nusa Tenggara. The approach taken by the WSM Company managed to attract sympathetic residents of transmigration in the form of a nucleus-plasma peasant system. The company is the nucleus, while the rural community as the plasma peasants. This approach initially succeeded in attracting sympathetic peasants so that the WSM company managed to take over 400 hectares of community-owned agricultural land to be used as plasma land planted with oil palm. Thus, the WSM limited liability company managed to control 30,000 hectares of land concessions and 400 hectares of peasants' agricultural land as plasma. However, over time, where oil palm has been planted, peasants began to protest because the initial agreements agreed upon were not obeyed by the nucleus company.



Figure 2: Oil Palm Plantations on Plasma Peasants' Fields (Source: [Obie, 2019a](#))

Oil palm plantations, which have been running since 2012, have begun to harvest. The company has felt the results of its work; meanwhile, the rural community only has endless disasters. The main problem experienced by rural communities is the disappearance of their livelihood base. The 400 hectares of the community's agricultural land surrendered to the company as a prerequisite for joining plasma peasants is unclear. Plasma peasants witnessed oil palm on their land being harvested by the company but did not get the results they expected. The company reasoned that the harvest did not cover the planting costs incurred by the company.

Meanwhile, the peasants who were burdened with debts from the company amounted to IDR 40,000,000 (forty million Indonesian rupiahs) at the beginning of the agreement, doubling to IDR 80,000,000 (eighty million Indonesian rupiahs) when the oil palm harvest period arrived. The peasants received the one-sided explanation from the company that the increase in debt was debt interest and the additional cost of working on the plasma land. This problem oppresses plasma peasants who have not only lost their agricultural land, but also the burden of debt.

The disappearance of rural agricultural land due to oil palm development is in line with research by [Andrianto et al. \(2019\)](#). Moreover, the rural community also lost time and money in attending meetings during the preparation period until the completion of the contract agreement. Rural communities' suffering does not stop there; however, ecological disasters are also a threat at any time. Ecological disasters of this kind have been warned by [Bryant and Bailey \(1997\)](#) in their thesis that the benefits of managing natural resources are only enjoyed by certain actors, namely corporations and corrupt rulers, while local communities bear the loss for all of them. In line with this thesis, according to the recognition of rural communities, their settlements have never been flooded before, until the entry of oil palm plantation concessions. The flood disaster inundated not only housing but also their remaining agricultural land.



Figure 3: Floods inundate cocoa plantations (Source: [Obie, 2019b](#))

The rural communities who join the nucleus-plasma system face livelihood vulnerability due to the loss of their agricultural land. Rural communities often ask for clarification of their rights to the existing contract, but they never get a satisfactory explanation from the company leaders. They were even hugely disappointed because the current company leaders were not responsible for the nucleus-plasma system contract that had been mutually agreed between the peasants and the previous company leaders.



Figure 4: Flood Inundates Corn Plants (Source: [Obie, 2019c](#))

Currently, rural communities face multiple problems since their remaining agricultural land, which planted with corn to survive, was hit by flooding every time it rained. Meanwhile, when the dry season arrives, the peasants' wells dry up. This difficulty has never been encountered before the entry of oil palm plantations in their area.

Actions of Rural Communities Responding Livelihood Vulnerability

The disappearance of the rural community's livelihood base as a result of oil palm expansion forced the peasants to survive in uncertain conditions. The actions of the peasants varied, some were forced to leave their families in search of work in distant areas, making a double living, and even some odd jobs. Conditions like this forcing peasants to live in stressful situations. Peasants who experience this must migrate out of the area and leave their wives and children to connect the family economy. These peasants are victims of the plasma system, in which all agricultural land has been surrendered to the company. Hope with the entry of oil palm can change the family's economy, it makes it worse.

The sweet promise of the company was not realized, while the agricultural land was no longer available. The community's 400 hectares of agricultural land are used as plasma land managed by the company. A plasma cooperative was formed to connect the companies and plasma peasants. The problem that arises with the existence of plasma cooperatives is that company employees hold the management of the cooperative. As a result, plasma peasants doubt the independence of cooperative management because the management is in favor of the company's interests

The relationship between peasants and the company became increasingly out of harmony. The peasants' representatives even questioned the status of their land that had been planted by the company to the ministry of agriculture in Jakarta but did not get an explanation satisfying the peasants. It made the peasants was very disappointed, which made them no longer know where the communication channel to question the status of their land. Some of them could only lament their fate as little people.

The peasants are forced to do a double income base. In addition to utilizing the remaining land, the peasants develop other businesses in the form of small trade, working as a builder, motorcycle taxi driver, and others. While a small proportion of peasants are recruited by companies as laborers on oil palm plantations, working as laborers does not apply to peasants, because in addition to being paid too little, they prefer to work on agricultural land. However, working on agricultural land is not as lovely as it used to be. At present, there is little rain; agricultural land is flooded, while in the dry season the land is drought due to the unavailability of groundwater.

Coastal communities, although they are not affiliated with plasma peasants, the expansion of oil palm also affects their livelihoods. Since time immemorial, the coastal region has never been flooded. Lately, because mountains have been cut down and converted into oil palm plantations, coastal and marine areas are often hit by floods from inland when it rains. Floods flow from the mountains that carry whatever objects they pass through, to the swift flow into the coastal and marine areas. The entry of floods into the sea dramatically affects the quality of coastal waters, so that small fishermen find it difficult to get fish in the area.



Figure 5: Floods Pollute Coastal Waters (Source: [Obie, 2019d](#))

Responding to the condition of the polluted catchment area that disrupts their livelihood, small fishers who use small boats without engines, are forced to survive by generating double income. These fishermen, besides surviving their main livelihood as fishermen, also occasionally look for work on the land. Some of them work as boat drivers at sea, motorcycle drivers on land, and some even plant corn on land.

CONCLUSION

The bases of livelihood on which rural communities rely are agriculture, animal husbandry, and fisheries. The entry of oil palm plantation causes vulnerability to peasants' livelihood bases. Oil palm companies control the forest area through the concession mechanism and control of agricultural land through the nucleus and plasma system. The peasants who are members of plasma peasants are swayed by the sweet promises of the company that was sweet at the beginning, but in the end, it caused profound sorrow and devastated rural livelihoods. Rural communities must accept losses due to various problems in the form of nucleus and plasma systems that cause agricultural land to be controlled by oil palm companies, environmental damage that causes floods in the rainy season and drought in the dry season, as well as pollution of coastal waters that force fishers to leave their catchment areas. Responding to these very complicated problems, some peasants have to migrate to get new jobs, or make a double income, in addition to pursuing their previous livelihood either as peasants or fishers, also selling daily necessities, boat taxi driver, motorcycle taxi driver, or becoming laborers in oil palm plantations.

LIMITATION AND STUDY FORWARDS

This research was limited to the livelihood vulnerability of rural communities as the result of oil palm expansion through forest concessions, as well as the nucleus and plasma peasant system. The important thing for further research is related to why the Indonesian government continues to support the expansion of oil palm, which has significantly devastated the livelihoods of rural communities

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