OIL PALM ADAPTIVE LANDSCAPES

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EXPANSION OF OIL PALM PLANTATION AND CHANGES IN SOCIAL, ECONOMIC AND RURAL ECOLOGY: A CASE STUDY IN KUTAI KARTANEGARA

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PREFACE

The expansion of oil palm plantations is something that is unstoppable, especially with the opening of a vast market for this commodity. For tropical countries that are suitable for oil palm plants, including Indonesia, oil palm has become one of the main alternatives for economic driver in addition to the oil and gas sector. However, the expansion of oil palm plantation is also getting controversy as a cause of deforestation and degradation of environment including various agrarian conflicts and social change in the rural area. This Project of Oil Palm Adaptive Landscape (OPAL) is generally done to address these issues. This project is trying to improve the management of oil palm landscape across Asia, Africa and Latin America by involving relevant stakeholders and partners at regional, national, and local level through a plausible scenario. Those scenarios are developed through an integrated platform that combines social drivers, economic, and ecological drivers thus shaping the development of palm oil, and assess the implications for biodiversity and ecosystems.

In Indonesia, OPAL activities that are led by the Center for Agriculture and Rural Development Studies (CARDS-IPB) and CIFOR Indonesia focus on research project in three areas related to the development of oil palm plantations in Indonesia, those are: (1) changes in the agrarian and rural transformation system of livelihoods in the rural area; (2) changes in landscape of ecology in the area of oil palm plantations, and (3) the development of oil palm plantations and its impact on the regional economy. Research conducted in the long run using a variety of qualitative and quantitative approaches, including introducing Companion Modeling (ComMod) method. Kutai Kartanegara District of East Kalimantan Province has been selected as the location of case study to obtain primary data and information at the site level.

This working paper is one part of the efforts to publish the results of the Indonesian OPAL activities containing academic values and findings in other fields conducted during the project took place. This Working Paper was published serially over the activities carried out (2015-2021). In this project, the OPAL CARDS-IPB team involved various government agencies, non-governmental organizations, private companies and community during it took place. On this occasion we would like to thank especially the Swiss National Science Foundation (SNSF), ETH Zurich, CIFOR Indonesia and the District Government of of Kutai Kartanegara which have provided their support making this project can be realized.

Finally, I hope that the Working Paper Project in OPAL serial No.01/2016 can add insight to readers, especially regarding the relationship of expansion on oil palm plantations with changes in the rural area of Indonesia. Constructive criticisms and suggestions are are expected to the progress this OPAL project.

Sincerely Yours,

Author Team

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1 INTRODUCTION

Based on land area data provided at the Directorate General of Estate Crops, the Indonesian Ministry of Agriculture, the oil palm commodities were present in Indonesia since 1968. At the time of these commodities were cultivated on a large scale by state large estates covering an area of 79,209 hectares and large private estates covering an area of 40,451 hectares. As a new commodity that requires extra attention (intensive), smallholders have not been familiar with these commodities. However, in a period of 11 years, of the 1979 data it showed that the smallholders began to cultivate the oil palm trees with a total area of cultivated land at 3,125 hectares. At this time the land area of small farmers is much less than the plantation land area of state and private, in which the state still controls most of the oil palm plantation land area at 68 percent of the total area of oil palm plantations in Indonesia. But the more years, the plantation land area of private oil palm and smallholders more dominating than the land area of private oil palm plantations. Even in 2013, the area of private plantations has dominated 51 percent of the total land area of oil palm plantations in Indonesia and 42 percent of the land owned by smallholders. In 34 years, the acreage of oil palm plantations controlled by smallholders increased more than 1000 percent (Table 1).

Table 1 Land area of oil palm plantations by cultivation status in 1968 – 2015

Years	Land Area (Ha)			
	PR (Smallholder)	PBN (Government)	PBS (Private)	TOTAL
1968	-	79,209 (66%)	40,451 (34%)	119,660
1979	3,125 (1%)	176,408 (68%)	81,406 (31%)	260,939
2013	4,456,087 (42%)	727,767 (7%)	5,381,166 (51%)	10,565,020
2015 (Estimated)	4,739,986 (41%)	769,357 (7%)	5,936,465 (52%)	11,445,808

Source: The Directorate General of Estate Crops of the Indonesian Ministry of Agriculture, 2014

A trend of increased land area of oil palm plantations at the level of the smallholders also occurs in Kutai Kartanegara District. Oil palm plantations with the people plantation farming systems in Kutai Kartanegara District spread over 18 sub-districts. An increase in land area of oil palm plantation with people farming systems from the period of 2007-2011 average increased more than 30% per year although the actual land area of oil palm plantations cannot be definitely known. Meanwhile, the land area of oil palm plantations controlled by Private Large Plantation (Perkebunan Besar Swasta-PBS) is 189,094 ha. Number of PBS involved at the oil palm plantation in Kutai Kartanegara District is 41 active PBSs and hold HGU (Land Use Rights) and IUP (Plantation Business Permit) with 31 PBSs have planted and 13 PBSs have produced (District

Plantation and Forestry Service of Kutai Kartanegara, 2012. Considerable increase occurred in 2016, where the number of PBS reached 50 companies with 36 active PBSs and 14 PBSs were less active. Of data per April 2016, a site permit area for oil palm plantation was 668,668 ha consisting of 644,158 ha for IUP and 261,522 ha for HGU (Syahrumsyah, 2016).

An increase in the amount of land area of oil palm plantations in the smallholders is inseparable from the development of PBS using a partnership model between entrepreneurs and farmers that became one of the prerequisites in new plantation land clearing. Various partnership schemes established between the companies and the smallholders, but the scheme of People Nucleus Plantation (Perkebunan Inti Rakyat-PIR) through Nucleus partnerships (firms) - Plasma (smallholders) is the most common scheme used. In addition to partnering with the company, experience as plasma and economic benefits of the oil palm estate products planters encouraged smallholders and individual owners of capital developed the oil palm plantations independently. The high interest of private and *smallholder farmer* and government support in developing oil palm plantations not only has a positive impact on the economy at the local level as well as the village, but also has a negative impact. This is mainly related to the expansion of land that not only replacing the food crops agricultural land and other estate crops commodities, but also clearing new land that previously served as forests.

Not only has the threat of deforestation and degradation of environment, development of oil palm plantations also caused tremendous changes in the household sustenance system of the smallholders in the rural area. Not only as a result of changes in rural ecology but the scheme of production organization in the rural develops in accordance with the scheme of new production organization taken in line with the partnership scheme between entrepreneurs and smallholders. Therefore, this paper attempts to illustrate the type of production organization developed in rural areas in order to develop oil palm plantations by smallholders and impacts resulted to socio-economic and ecological conditions in the rural area. This paper is the preliminary finding of a long-term research project to see changes in sustenance and agrarian system in oil palm plantations area, particularly in Kutai Kartanegara District.

2 ORGANIZATIONAL TYPOLOGY OF OIL PALM PLANTATION PRODUCTION

Oil palm plantations are not typical estate crops plant of Indonesia. This commodity was initially developed by farmer-planters as one of the preconditions that must be met by companies to establish plantations on a large scale. The company must provide 20 percent of the land area to the people live in the plantation area. In Indonesia, the most common scheme used in the development partnership of oil palm plantations and the company is a PIR scheme. The PIR project carried out by other countries under the name *Nucleus Estate Small-holders Scheme* (NESS), which was first introduced in Indonesia by the World Bank and based on the experience of FELDA in Malaysia. PIR scheme from the initial project developed to have undergone many improvements mainly based on the source of funds used so that diverse in type; i.e.: Aided PIR scheme from the World Bank (PIR-Bun or NESS), Self-Funding PIR scheme with funds from APBN/APBD (National Budget/Local budget), Special PIR scheme (PIR-Sus) and PIR Lokal). PIR scheme involves all people both local people and transmigrants so that also distinguished between PIR-Lokal and PIR-Transmigrasi/PIR-Trans. This PIR scheme was initiated in 1980s in the development of oil palm plantations in Sumatra (Bakir, 2007). As in Sumatra, in West Kalimantan the development of oil palm plantation has been initiated since 1980s with the most common model is PIR-BUN/PIR/PIR-Trans (*Nucleus Estate Smallholders System*). Another model developed in West Kalimantan is the Primary Credit Cooperative of Member (Koperasi Kredit Primer Anggota-KKPA), Partnership Scheme with Profit Sharing, and *Akuan* Scheme. However, those schemes often cause confusion in the smallholders for unclarity of their rights (Julia & White, 2012).

Unclear rights of smallholders in association between the company and the smallholders in essence, due to lack of socialization and lack of information given to the farmer-planters. In fact, the clarity regarding the schemes in the development of oil palm plantations in essence has been included in the Minister of Agriculture Decree Number 357/Kpts/HK.350/5/2002 concerning Guidelines for Plantation Business Permit. In Article 8, paragraph 2 even the type of production economic scheme in the development of oil palm plantation, has been detailed, i.e.:

a. Plantation Business Cooperative scheme - the development scheme whose business capital is 100% owned by the Plantation Business Cooperative.
b. Cooperative Joint Venture scheme with Investor - the development scheme whose 63% shares owned by the cooperative and 35% shares owned by investors/companies.
c. Cooperative Investor Joint Venture - the development scheme whose 80% shares owned by investors/companies and the minimum of 20% shares owned by cooperatives that can be increased gradually.
d. BOT (*Build, Operate and Transfer*) scheme - the development scheme in which the construction and operation performed by the investors/companies which are then at a certain time will be transferred entirely to the cooperative.
e. BTN (Bank Tabungan Negara) (*National Savings Bank*) scheme - the development scheme in which the investors/companies build estates and/or

plants for processing the plantations products, which will then be transferred to interested parties/owners who are incorporated in the cooperative.

f. Other mutual benefit schemes of development, strengthen, require between smallholders and plantation companies.

In paragraph 3 of the Minister of Agriculture Decree states that the scheme of development can be implemented by way of a combination and adapted to the socio-cultural condition of local people. Therefore, various development schemes of oil palm plantations are found in each region.

Related to the economic production type of oil palm in Sarawak-Malaysia almost equals to Indonesia that continues to expand oil palm plantations with various schemes. If the nucleus-plasma scheme of partnership more dominates the expansion of oil palm plantations in Indonesia, according Cramb & Sujang (2013) in Sarawak smallholders are more independent and manage oil palm plantations through a contractual relationship with the companies in their capacity only as bunch/fruit purchasers. Although being called as partnerships relation of 'nucleus' (company) and 'plasma' (smallholders), the companies do not provide capital flow and technical support. Similarly, the government, in addition to provide support for road infrastructure, supports for farmer-planters are very small. This condition occurs due to political reasons, the nucleus-plasma partnership scheme was never adopted in Sarawak, particularly by Chinese ethnic and just a bit of Dayak Iban ethnic who took the opportunity in the partnership program encouraged by the government. Based on research in five plantation areas in Sarawak, Cramb & Sujang (2013) divided the economic production type of oil palm plantations by smallholders and government support into three parts, namely:

1. *Independent smallhoders* - smallholders who grow oil palm in their own land with their own labor force (workers hired by themselves) and private capital. In this type there is no support of the government.
2. *Supported smallholders* (subsidized) - a type of smallholders who grow in their own land, but getting support or subsidies in some cases from the government. In this type various programs are developed by the government based on the types of subsidies provided. Among them are (a) *Smallholder Oil Palm Planting Program* that provides subsidies in the form of inputs and technical aid to smallholders individually; (b) *Oil Palm Mini-Estates* developed in a region by a group of land owners given the overall subsidy to mature plants; (c) *Oil Palm Smallholder Support Program* that provides subsidies in the form of input to the individual smallholders; and (d) *Smallholder Buying Groups* that provide input aid in the form of loans and output aid such as sales facility to oil palm processing plants.
3. *Managed smallholder* is a type of production for land management ranging from 1000-5000 ha that form a pool of land owners in one management (*land pooled*) but ownership of land by individuals continues to be maintained. The land is managed as management of large-scale estate with local workforces and labors from abroad.

With existing types, the number of smallholders in Sarawak more increased showing the presence of oil palm plantations to improve the economy of rural people (Cramb & Sujang 2013). Condition in Kutai Kartanegara District although is not the same as in Sarawak, but the economic production type of oil palm plantation management characterizes an emerging *independent smallholders*. Although the organizational scheme of plantation production in Kutai

Kartanegara District is still dominated by nucleus-plasma partnership scheme (PIR), in addition to independent smallholder plantations. This is evident from IUP in Kutai Kartanegara District with an area of 644,158 ha in general using nucleus-plasma partnership scheme with total realization of the estates covering approximately 175,744.88 (28.18% of IUP) involving member farmers (plasma) of 15,447 household heads (KK) who are incorporated into 44 cooperatives (Syahrumsyah, 2016). Nucleus-plasma partnership scheme is only one organizational type of production developed in the management of oil palm plantations. Currently in Kutai Kartanegara District at least is found three organizational types of production that are developing in the management of oil palm plantations, those are:

1. Large Scale Plantation

   Large scale plantations are developed by the government with PBN and private known as PBS. By virtue of the Minister of Agriculture Decree Number 357/KMS/HK.350/5/2002, Large scale cultivation of plantations, i.e. the plantation enterprises with 25 ha size of land or more. This large-scale enterprise should have the IUP pursuant to Article 4 (1). The land area of large scale cultivation of plantations for a single company or group of companies defined as follows: a. The maximum land area of plantation enterprise is 20,000 ha in one Province or 100,000 ha across Indonesia, except for sugarcane plantation.

   In Kutai Kartanegara District, the land area of oil palm plantation by large plantation scheme is divided into two, namely PBN and PBS. PBN scheme is managed by PTPN XIII and only has an area of 25 ha, far below PBS. According to data in 2012, PBS controlled plantation lands in the district covering 144,363 ha (http://www.kaltimprov.go.id/hal-potensi-perkebunan.html). Such area increased quite rapidly, even recent data in April 2016 the site permit area for oil palm plantations was 668,668 ha with IUP covering 644,158 ha and 261,522 ha for HGU (Syahrumsyah, 2016). Problems in the development of large-scale oil palm plantations relating to provision of quite extensive land in a single landscape. This extensive land often comes from land use conversion, especially of the forest which is then converted into Other Designation Area (*Area Peruntukan Lain*-APL) or Non-Forestry Cultivation Area (*Kawasan Budidaya Non Kehutanan*-KBNK). This often leads to conflicts over tenure, especially when forests that were converted to the APL area claimed as indigenous forest. In this District the conflict occurs in the development of oil palm plantation by PT. PMM that covers the area of Muara Kaman Ulu, Muara Kaman Ilir dan Bukit Jering villages. The conflict also occurs in the development of oil palm plantation by PT. RKP at Kembang Janggut Sub-District of Kutai Kartanegara District.

2. PIR-Bun (Perusahaan Inti Rakyat Perkebunan) (*the nucleus estate and smallholders company*) Scheme

   The Minister of Agriculture Decree Number 357/KMS/HK.350/5/2002 requires that every development of plantation enterprise must involve the farming community of plantation estates (can be seen in Article 8, paragraph 1 of the Ministerial Decree). Economic production scheme of the relationship between the enterprise developers of oil palm plantation and the community as included in Article 8 paragraph 2 of the Minister of Agriculture Decree aforesaid. PIR-Bun scheme (Nucleus-Plasma) is a form of implementing the Scheme of Cooperative Investors Joint Venture. Cooperatives in this case

are the means for plasma in the management of oil palm plantations. The problems that often occur in the scheme of economic production relations of are the nucleus domination over the plasma causing the plasma is often in the weak and disadvantaged parties.

In Kutai Kartanegara District, the conflict between nucleuses which in this case is a company with plasma (smallholders) mainly related to problem of unclarity in the *property rights* of oil palm plantation lands designated for plasma. According to applicable regulations, the plasma is entitled over a minimum land area of plantations at 20% of the total area of the plantations managed by the nucleus. However, often the portion of plasma is the lands of estate that tend to be marginal. Several conflicts relating to the problem occur at the construction of oil palm plantation by PT. PMM at Muara Kaman Ilir and PT. RKP at Kembang Janggut Sub-District of Kutai Kartanegara District.

3. Independent Smallholder Scheme

   This scheme is very rare in Indonesia, but commonly practiced by smallholders in Sarawak, Malaysia, which generally come from the Chinese and Dayak Iban ethnics (Cramb & Sujang, 2013). Oil palm cultivation system that requires very large capital incredibly does not allow smallholders to develop business independently by each individual, especially limited land area and capital. Moreover, the market for the sale of Fresh Fruit Bunches (FFB) is not as free as other plantation commodities so that partnerships with oil palm processing companies is highly needed. The emergence of oil palm processing plants without its own estates provide opportunities for smallholders to switch growing oil palm, particularly after going through experience as a plasma of PIR Bun scheme undertaken. However, the bargaining position of the FFB price for smallholders is very low.

   In Kutai Kartanegara District, a new scheme appears in combination with the development between small-scale oil palm plantations and the company in the sale of FFB. In Muara Kaman Ulu village, local smallholders who hold land individually join the cooperative and incorporate their estates in one management to grow oil palm trees. Cooperative manages the estates ranging from planting preparation, planting, maintenance and harvesting. Workers used in estate management are cooperative members who are also paid by the cooperative. The partnership between the cooperative and the company is only in teh sale of FFB. To maintain the quality of FFB, the company provides technical guidance in the cultivation of oil palm trees.

Oil palm plantation development in Kutai Kartanegara District according to public perception based on the percentage and the position of smallholders land can be divided into three types (Figure 1), that is:

a) The first type is consistent with the concept of Cooperative Investor Joint Venture Scheme in which 80 percent of the company's land and 20 percent of the plasma's land is in the IUP or HGU. In this concept, the smallholding is a slice of the nucleus estate. Determining the location of smallholdings is dominated by company decisions / nucleus and plasma tends as a recipient of decision and does not have the bargaining power to determine the location of the estates owned. This type generally arises when the HGU derived from the APL that initially is state forest area.

b) The second type as in the first type but the smallholding of 20 percent is built outside IUP or HGU of the company (nucleus), so that the nucleus estate remains 100 percent of its area of IUP or HGU. This concept is more profitable for the companies and narrows APL in an area, even indirectly FFB productivity automatically increases to 20 percent. This type is generally developed in PIR-Bun Trans scheme, in which 20 percent of the plasma land in general is LU2 land, which becomes the rights of each transmigrant family.

c) The third type is a form of oil palm plantations development carried out by independent smallholders. By the local community, this type is often referred to as the Independent Plasma Estate (without a nucleus). The construction of this estate is undertaken collectively in the vehicle village-level cooperatives in collaboration with PBS as a purchaser and the banks that lend the capital. In this type of smallholders are sovereign to land management.

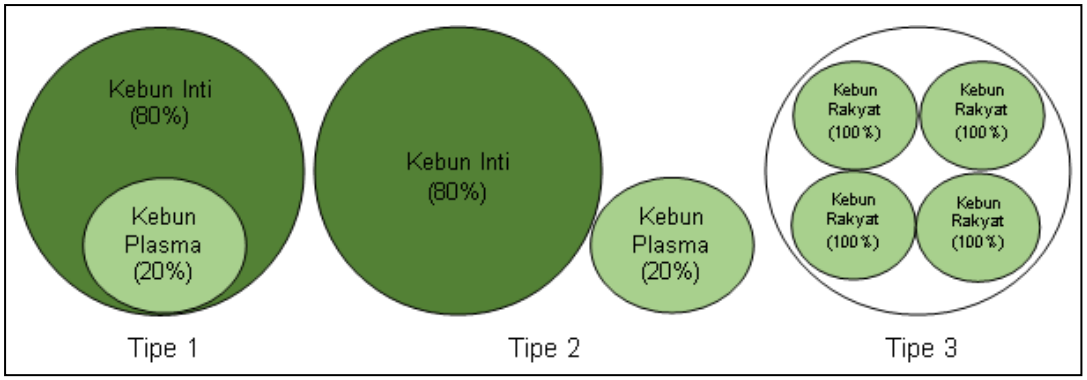

Figure 1. Type of oil palm plantations development based on the public perception in Kutai Kartanegara District.

3 CHANGES IN SOCIAL-ECONOMIC AND RURAL ECOLOGY AROUND OIL PALM PLANTATION

Large scale plantations and export-oriented for Indonesia has been developed since the colonial era. The existence of large scale plantations is one of the main drivers of change in rural area of Java, such as the research results of Booke (1966) with the dualism theory and Geerzt. (1983) with his agricultural involution. Although not as long as tea, sugarcane and rubber; new oil palm plantations were started around 1970s that currently are very rapid growing even beating the other commodities. Especially in Kalimantan Islands (Indonesia and Malaysia), export-oriented plantation crops has also been known since the colonial era so that the tendency of people to follow the market trend is very high, such as during the rubber and pepper *booming* period (Li, 2014; Cramb & Sujang 2013;. Merzt et al 2012). Given nowadays, oil palm also shows a *booming trend*, almost majority of people is also involved in the development of oil palm plantations, which in general established in rural areas It is therefore not surprising where the presence of oil palm plantations also encourages changes in rural areas. The changes are not just a change in agricultural commodities and the ecology of the forest or food crops agricultural land to monoculture plantation. The changes are also related to social and economic conditions due to the presence of oil palm plantations leads to a shift in livelihood strategy from agriculture (shifting cultivation) to the settled estates, even as a source of primary household living (Cramb & Sujang 2013).

Oil palm plantations do not only offer new commodities for smallholders but also offer a new production organization system in the management of agricultural enterprises. In addition to the need for large amounts of land, palm oil plantation is very capital intensive, input for plantation enterprises (fertilizers, seeds, pesticides and insecticides, etc.) and difficult labors to fulfill by smallholders that are all limited in overall. However, to ensure the welfare of the people in the plantation area, the government requires the large-scale companies that build oil palm plantations to involve the communities in various forms of economic production type. This is a new system for local communities, especially those who previously saw the agriculture enterprises or plantations only as activities to meet their subsistence needs. Therefore, the development of oil palm plantations provides a quite wide impact for rural communities including rural communities in Kutai Kartanegara District.

Changes in the Village Ecology

Production forest conversion into oil palm plantations becomes the present reality as a cause of deforestation in Indonesia that since the 1990s raised a debate between the different parties (international NGO, internal NGO, researchers, government and academicians). Such debate arose when in 1990 the World Bank and FAO stated the main cause of deforestation was shifting cultivation (Sunderlin and Resosudarmo 1997). The statement was shifted in 1994 based on the research results of Dick (1991) in Sunderlin and Resosudarmo (1997) stating that the programs sponsored by government (transmigration, plantations, logging) caused 67% of all deforestation. Oil palm deserves special attention in the context of land-use change, due to protruding

rate of growth. Based on existing data until 1994 oil palm plantation area has increased 12-folds compared to 1967 (Sunderlin and Resosudarmo 1997). With current increase in oil palm plantation area that is more than two-folds of land area in 1997, it is no longer doubt that the ecological changes occur in the rural areas.

In Kutai Kartanegara District, the development of oil palm plantations carried out in at least two types of the *ecosystem landscape*, which is distinguished between peat area and non-peat area. Peat area represents the type of plantation area with type of land that is relatively fragile and ecologically vulnerable. In this land not only marginal land causing the productivity of agricultural or plantations products is low, the communities in general are relatively poor. This occurs due to the sustenance system established in the peat areas is full of uncertainty due to the uncertainty of agricultural-plantation products produced on peatland. Meanwhile, non-peatland area represents the regions with fragility and vulnerability level is relatively lower than peat regions. The relatively good condition of land (fertile) provides assurance of production certainty so that assuredness household's income of people is relatively safe and stable.

Muara Kaman Sub-District is one of the development areas of oil palm plantation, both by the company in nucleus-plasma partnership scheme and independent estate development by the communities. Location of this Sub-District is situated in the area of the Mahakam Watershed so that river is the artery of the socio-economic life of the communities. Based on the information from one of the community leaders at Muara Kaman Sub-District, the condition of rivers and lakes in the region of Muara Kaman Sub-District of are changing by expanded plantations. Several lakes that situated in the area of the estates or the forest become dry. In addition, the river conditions also worsened as seen from the river water that is always muddy and river biota are more decreasing. Although there has been no scientific research on the river water condition, according to the community, the use of fertilizers and chemical pesticides and insecticides for oil palm trees adds to the pollution load in the river water in addition to mud eroded by rainwater and mining activities using the river as a transportation hub.

Figure 2. Ecological conditions on peatland in the area of oil palm plantations and river in the community settlement at Muara Kaman Ulu Village.

In the plantation area dominated by peatlands also shows changes in the ecology. Irrigation system management in peatlands has not been properly undertaken so that the one irrigation area is quite good but the condition of other

areas experiencing drought making the plant growth is not optimal. In Figure 2 shows the irrigation system in the area of oil palm plantations with peatlands type and river condition at sub DAS Mahakam at Muara Kaman Ulu Village.

Changes in the Rural Economy

The development of oil palm plantations is expected to be the driver of the regional economy, including the alleviation of poverty in the rural areas.. Sayer *et.al.* (2012) says that with a *good governance,* the development of oil palm plantations can contribute to the development and generate prosperity. As the case occurs in Sarawak-Malaysia, the amount of smallholders owns independent estates of oil palm oil palm more increased. This proves the presence of oil palm plantations can improve the economy for the people in rural areas (Cramb & Sujang 2013; Merzt *et al.* 2012). Good road infrastructure development encourages the very rapid development of oil palm plantations. The case in both areas of oil palm plantations in Sarawak shows that, if in 2002-2003 only 36% of smallholders owned palm oil estates, in 2010-2011 the households owned oil palm plantations increased to 82% (Merzt *et al.* 2012). Oil palm market booming has encouraged changes in land use in rural areas that have an impact on changes in the economic activity of subsistent ones into commercial market-oriented economy. While historically, commercial plantation commodities have long been recognized by smallholders (Li, 2014; Cramb & Sujang 2013;. Merzt *et al.* 2012) so that the levels of success in developing oil palm estates is relatively high and continues to expand. This condition also occurs in Kutai Kartanegara District, despite just being economically profitable for the small portion of the communities. While it is inevitable, the rural economic system goes through the quite significant changes.

The indigenous inhabitants of Kutai Kartanegara District come from two tribes, those are Dayak and Kutai. The Dayak tribe in general, relies on their livelihood system from the forest and farming. While Kutai tribe more relies on their livelihood system from the river. Based on the presentation of one of the community leaders at Muara Kaman Ulu village, the people of Kutai essentially are fishermen who rely on the income from fishing in rivers or lakes that are located in their area. Even the residence of the communities mostly occupies along the river side. In the past prior to the oil palm plantations dominated Muara Kaman areas, nearly 90 percent of households worked as catch fishermen and aquaculture farmers to using floating cages in the river. Fishing activities are generally carried out by men, while women work in the fish processing sector into salted fish, especially during the harvest season.

Ecological changes in line with the smaller number of watery lakes and higher river pollution, economic conditions of Kutai people who previously worked from fishing changed drastically. If earlier 90 per cent of households were fishermen, currently only about 10 percent of households are still dealing with their livelihood as fishermen. Likewise, with the fish processing business that were previously at Muara Kaman Ulu village amounted to around 10 salted fish businessmen, currently only remains one. Automatically, the fewer the women were accommodated in the fish processing business. To meet the households need, most of the people at Muara Kaman Ulu village switch their livelihoods as oil palm plantation labors or other trading businesses by establishing stall. Agricultural activities that formerly were not a households core business of the Kutai people, currently are the main support of household income by making

those lands as part of the oil palm plantations plasma that are evolving around the village. Even at Muara Kaman Ulu village, the communities assist the cooperatives and manage their own oil palm plantations on lands belonging to members of the cooperative. The development of oil palm plantations is known as independent plasma.

Figure 3 Sustenance activities that currently are still performed by the communities in the area of oil palm plantations at Muara Kaman Sub-District.

Changes in the economic conditions also occur in the transmigrant communities as take place at Muara Kaman Hilir Village. The transmigrants who previously cultivated food crops and vegetables, are now more relying on oil palm commodities as a source of the income. Besides as plasma from the oil palm company, some transmigrants also work as labors at the plantation areas. In other words, the development of oil palm estates currently can be said to be the economic driver for communities at Muara Kaman Sub-District replacing the catch fisheries sector and food crops agriculture and horticultural crops.

The case that occurs in Kutai Kartanegara District is the beginning of many cases at oil palm plantations in Indonesia. Unlike in Sarawak, where the development of oil palm estates provides economic improvement for the small-scale smallholders, the research results of Julia & White (2012) in West Kalimantan suggested otherwise. The development of oil palm plantations in West Kalimantan since 1980s that commonly using PIR-BUN/PIR/PIR-Trans scheme produced a variety of dissatisfaction for smallholders. Smallholders are

not only losing land as a source of livelihood but also difficult to obtain other alternative sources of livelihood, while the promised results of oil palm plantations as plasma were not as expected. In this case the smallholders must bear the heaviest risk, in which their livelihood systems are more vulnerable. This is reinforced by the research results of Li (2014) concluded that indigenous peoples as victims of large-scale economic activities and capital intensive 'development' resulting in displacement, the loss of territorial sovereignty, and loss of access to significant resources to the households livelihoods.

Social Change

The expansion of oil palm plantations is not a new issue as a cause of conflict between the company and the communities. This condition occurs due to the position of the communities are always at the 'unbeatable' parties and receive the greatest risk from the expansion process that takes place. This phenomenon is very common occurs in forestry land mainly former HTI(Hutan Tanaman Industri)(*Industrial Plantation Forest*) and then with the social processes privately made to switch into plantations. The cases of land disputes are also becoming increasingly prevalent as the case that occurs in some of the following regions (Kartodihardjo and Supriono 2000):

1) Development of plantations in South Sumatra, in implementation, has displaced the community estates. At least 41,155.5 ha of the community plantation lands belong to 4,101 household heads in eight districts in South Sumatra Province have been forcibly taken over by 13 regional plantation companies.
2) Of the 81 oil palm plantation companies, in the South Sumatra Province, whose reserves area are 554,000 ha, entirely affected to the problems of land disputes with the local communities. The disputed lands that are situated in the oil palm plantations reach 83,000 ha or 11% of the total area.
3) Since 2004 in West Kalimantan a number of conflicts in the communities has occurred and continues to increase significantly from 26 to 104 cases. Even 70 villagers and activists have been detained on charges of resisting the expansion of palm oil plantations supported by policies targeting 1.5 million ha land of oil palm plantations (https://hutanrakyatinstitute.wordpress.com/).

In addition to the three cases above, there are numerous cases related to the expansion of oil palm plantations. Even the Director of Postharvest and Enterprises Development of the Directorate General (DG) of Estate Crops in the Ministry of Agriculture, Herdradjat Natawidjaja (2012), presented the data in a coordination meeting of the sustainable plantations in Pontianak City, West Kalimantan, on January 25, 2012 stating that approximately 59% of 1000 oil palm companies in all regions of Indonesia in conflict with the communities related to lands. The team from the Directorate General of Estate Crops has identified the conflict in 22 provinces and 143 districts. In total there are about 591 conflicts, the first rank of many conflicts is occupied by Central Kalimantan with 250 cases, followed by 101 cases for North Sumatra, 78 cases for East Kalimantan, 77 cases for West Kalimantan, and 34 cases for South Kalimantan (Fachrizal *et al.* 2014).

Cases of land conflicts also occur in Kutai Kartanegara District and until now is still a difficult problem to solve by the local government. According to the District Plantation and Forestry Service of Kutai Karatnegara (Syahrumsyah 2016), until now is still found a conflict of interest between the various parties triggered by the problems of land use. It is mainly in the form of communities demand for land in the plantation permit and overlapping land ownership of the communities. This agrarian conflicts cause the condition in the community are often heating and physical tension occurs between communities and companies. The number of parties with different interests sometimes leading to sense of mistrust, especially to the government increased so that the efforts to mitigate the conflict often deadlocked and prolonged.

In addition to conflicts between the communities and the companies, the community conflicts also occur. As noted earlier, there are at least two types of ethnic groups in rural communities in Kutai Kartanegara District. Indigenous ethnic is Dayak communities who live in the upstream of Mahakam close to forests and indigenous ethnic of Kutai that is a *riverbank community* occupying the along the riverbank of DAS Mahakam. On the other hand many newcomers' ethnics entering through transmigration program (mainly from Javanese and Sundanese ethnics) as well as labors in plantation, mining and trading sector. In fact, according to information from a staff of the District Government of Kutai Kartanegara, the number of indigenous population is less than newcomers. The economic conditions of newcomers are often better than indigenous people causing sense of envy and culminating with tensions between ethnics.

One of the cases occurred at Sumber Agung hamlet, Muara Kaman Ilir Village. The inclusion of oil palm plantations provides better economic opportunities for transmigrants using LU 2 lands as the plasma land of the companies. The economic value of land which was originally 'low' after becoming oil palm plantations leading to 'high'. The indigenous communities who previously did not have problems with the presence of transmigrants later claimed that LU 2 lands distributed by the government to transmigants were customary land whose rights as smallholdings into indigenous people's rights. The claim comes in conjunction with the development plan of oil palm plantations as part of the plantation area of PT. PMM at Muara Kaman Ilir. Of course this leads to tension and inter-ethnic social problems that until now have not been resolved.

4 CLOSING

The development of oil palm plantations in Indonesia is very fast, not exception in Kutai Kartanegara District. In this district the palm oil plantations compete with coal mining, which not only driving the local economy but also causing changes in the social, economic and ecological in rural areas. Changes in ecological condition encourage changes in economic activity of most people from the extraction of natural resources to the employment service sector as plantation labors. Economic inequality also causes the emergence of conflicts at the community level that complicates the conflict between the communities and the government in the struggling for access to land resources.

Changes in social, economic and ecological in rural areas of Kutai Kartanegara District are very fast and complex as the impact of oil palm plantations development. This working paper is just preliminary findings of the changes occur that further research is required to determine the extent to which such changes have occurred.

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