Oil Palm versus Rubber:
GIS Empirical Check for Land Grabbing in West Kalimantan

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Abstract: Land grabbing or “the large-scale acquisition of land or land-related rights and resources by corporate entities” (White, et.al., 2012: 619) has become one of the important issues in agrarian studies. Without neglecting the gravity of land grabbing as “a regressive land reform where governments take land from the poor and give (or sell or lease) it to the rich” and its consequences to small farmers’ life, it must be put into consideration that every attempt to take away lands always meets resistance from farmers. This paper is to examine how farmers calculation of cost and benefit of two market crops, namely palm oil and rubber related to their effort to deal with plantation companies’ moves to land grab and convert a vast area into palm oil fields. Ethnographic data is collected through a series of fieldwork in Meliau sub-district, West Kalimantan, 2010, 2011, 2013. Satellite image of the area is obtained from Google Earth.

Keywords: Oil palm, Rubber, Small holding farmers, Kalimantan

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1. Introduction

In 1992 two sister private companies, PT HD and PT SP established oil palm companies under nucleus estate scheme in Meliau sub-district, West Kalimantan. The government granted the two companies a right to open approximately 38,000 hectares of oil palm fields under nucleus estate scheme, in which 80% of the fields will be owned and cultivated by small-holding plasma farmers and the rest 20% will be managed directly by the company as nucleus field (BAPPEDA Sanggau, 1995). Since the companies did not own any land in the area, the lands were obtained from local farmers through land grabbing or “the large-scale acquisition of land or land-related rights and resources by corporate entities” (Borrás, et.al., 2011: 210). The issue has become an important topic in current agrarian studies and is discussed as a process for wide range goals, from economic purpose (Filer, 2012) to environment protection cause (Benjaminse and Brycecon, 2012; Fairhead, Leach and Scoones, 2012), and from bio pharmacy goal (Neimark, 2012) to biofuel project (Nalepa and Bauer, 2012). Without neglecting the gravity of land grabbing as “a regressive land reform where governments take land from the poor and give (or sell or lease) it to the rich” (White, et al., 2012: 620) and its consequences to small farmers’ life, this concept has to be exposed to empirical facts to save us from the pitfalls of generalism.

Two decades into the process, all PT HD and PT SP could establish was 20,433 hectares or 53% from their initial plan of 38,000 hectares of oil palm fields, because a good number of the local farmers refused to hand over their lands to the companies. The land acquisition was carried out through field hand over, serah kebun, in which local farmers were to hand over 7.5 hectares—or its multiplication—or other kinds of their fields, a third of the land would be given to the companies for plasma fields, a third was for transmigrant plasma farmer from other island, and the last one third was for the original land owners. At a glance this is a clear-cut case of farmer resistance to the advance of big companies and expansion of market crops in their homelands (see Scott, 2013), but to our surprise a week into the fieldwork we found that local farmers were not against oil palm. “Oil palm is good”, they said without hesistation, “It gives us great household revenue”. In 2006 plasma fields of PT HD and PT SP provided around US $ 11 million of household revenue for approximately 2,500 households of farmers, which increased to US $ 16.4 million in 2008, US$ 16.8 million in 2009, US$ 17.3 million US$ 25.6 million in 2011. The number did not go unobserved among the farmers. Thanks to the oil palm money the farmers could afford to renovate their houses, buy motorcycles, modern house appliances, latest model of mobile phone and laptop. Some farmers even managed to buy trucks for transportation business. Yet, why not every farmer in the plasma area, especially those who live in the upriver hamlets, did join the nucleus estate scheme and keep most of their fields for rubber and swidden cultivation?

This paper argues that farmers’ calculation of cost and benefit of the two market crops, namely oil palm and rubber is crucial in their response to plantation companies’ moves to convert a vast area into oil palm fields. Indeed farmers perceive the presence of companies and expansion of oil palm to their home land as an opportunity to improve their economic life, but the opportunity is weighed against cost to utilize it and against benefit of another crop that has been cultivated for almost a century and proven to be profitable and adaptive to local environment, infra-structure and network (Dove, 1993).

2. Method

The study was based on ethnographic data, physical ground check, governmental development plan map, and satellite images of Buayan River area, Meliau sub-district, West Kalimantan. Ethnographic data and local written sources were collected through a series of fieldwork in the Summers of 2010, 2011, 2013. Field ground check to obtain first hand geographical data was collected through GPS plotting, and the data was overlaid on satellite image of the area from Google Earth. We are lucky that the Internet giant provided high resolution satellite image of the area, allowing us to distinguish oil palm fields with other form of land use. We tried to deploy time series analysis over the area but unfortunately high resolution satellite images from 2012 and older were not available.

3. Oil palm cultivation in Buayan River

Oil palm (Elaeis guineensis) was brought in to Indonesia from West Africa in 1848 and the cultivation at economic scale was started in the early 1900s in East Sumatran Plantation (Yampolsky, 1957; 208). With the growing demand of crude oil palm in the world market, the East Sumatran plantation expanded its oil palm field to Kalimantan in 1975 (Potter, 2011), and entered Meliau sub-district in 1981. Since then the size of oil palm field in Meliau kept on expanding that by 2010 there was 42,026 hectares of oil palm field in the sub-district, comprising 24% of oil palm field in the district (BPS Sanggau, 2012).

Buayan River area is roughly of 500 km² wide located along Buayan River and its tributaries of Melawi and Rosan rivers, comprises one third of Meliau sub-district area which is 1495, 7 km². Recently the sub-district is inhabited by 45,998 population, which makes the population density of 30.7 population per km² (BPS Sanggau, 2010). Socially the population is distinguished into Dayak, Malay, Chinese and smaller groups of transmigrants from other islands (Budiantawan, 2013). Until the coming of oil palm plantation in the 1980s, farmlands in Buayan River were cultivated for rubber and swidden. Rubber was and still is a source for cash, while swidden was cultivated to obtain rice for subsistent need although in general the harvest is rarely sufficient to cover the household need up to the next rice harvest season. Once rice is harvested, swidden lands are returned to nature to grow into secondary forest that serves as source of resin, timber, rattan, vegetables, fruits and wild animals for export market and local consumption (Tagliocozzo, 2007).
Legally conversion of Buayan River lands into oil palm fields was made easier by Agrarian Law No. 30/1960 that classifies Indonesian lands into private and state property. Land not privately owned are categorized as state or government land. Private ownership of a piece of lands is proven by certificate issued by the Agrarian Service, and farmlands cultivated by local farmers were not equipped with the certificate. Since time immemorial government was practically absent from rural everyday life, that farmers relied on local institution and custom for regulation and protection which unfortunately is half-heartedly recognized by the government. Historically, transfer of lands from farmers to the oil palm companies was made easier by the fact that in 1910s the government leased around 7,000 hectares of lands on the south bank of Kapuas River, territory of Kuala Buayan village, to Kapoewas Rubber Maatschappij, a private rubber plantation (De Bussy, 1927; Brinkgreetve, 1947: 101). The company was nationalized in 1957 and went bankrupt in the early 1980s. The old lease expired by the mid 1980s, but the government leased it again to PT HD an PT SP to develop oil palm plantation based on the nucleus estate scheme.

In total, 7,000 out of 38,000 hectares of farmlands in Buayan River area to be converted to oil palm field was government lands which had been leased to private companies for rubber cultivation, while the rest was “government lands” that has been cultivated by local farmers for generations. The land transfer process lasted for years mostly because farmers were not that eager to give away 2/3 of the lands they had been cultivating without any compensation. Only after a series of persuasion involving village chief and local leaders, piece by piece of farmers’ lands were handed over to the companies. The heavy work of opening oil palm out of rubber fields and swidden lands subsequent to land hand over advanced slowly from the companies centre next to Kuala Buayan hamlet, on the west bank of Kapuas River, to the up river area. Farmers who cultivated government lands leased to the old rubber company on the south bank of Kapuas River did not have option other than handing over their lands, as they knew that the lands is legally belong to the government. Five years into the land transfer, political reformation took place in Indonesia in 1997/8 and farmers who had not handed over their lands seized the opportunity to reject the companies business plan. Many farmers in upriver hamlets refused to take part with their lands, those who already gave away their lands refused to host transmigrant farmers in their territory.

The result is presented in Figure 1 that twenty years into the business, from 38,000 hectares in the initial plan (area within white thick line), until 2013 only 20,443 hectares was materialized (area under yellow blocks). Following the nucleus estate scheme, 3,800 hectares of the fields is managed directly by the company as nucleus field, the rest is owned and cultivated by local and transmigrant plasma farmers. Actually the nucleus field is supposed to be at least one third of 20,443 hectares, approximately 6,800 hectares. But the companies reduced the size of nucleus fields due to the shortage of plasma fields. Instead of 7.5 hectares of their rubber and swidden lands to the companies, local farmers on average handed over around 4.9 hectares and demanded a parcel of oil palm field of 2 hectares wide in return.

Apart from it, there is a visible pattern of oil palm field distribution—yellow block in the picture—over the area, that density of field decreased significantly as distance grow from the plantation center in the south bank of Kapuas River. Area next to the big river is fully cultivated for oil palm, largely managed as the company nucleus fields. Area around upriver hamlets is scantily cultivated for oil palm as majority is cultivated for rubber and swidden—green block in the picture. Oil palm fields in this area are concentrated along the plantation road. While area in between is cultivated for oil palm and rubber/swidden more or less in the same proportion.

Figure 1. Oil palm fields of PT HD dan PT SP, 2013
Legend: red line is the plantation axis road, blue line is river, area within white line is the planned plantation fields

4. NES oil palm economy

Hectare to hectare, with proper maintenance oil palm is more productive than rubber, which in turn is more productive than swidden. In 2010/1 a hectare of well-maintained plasma field on average produces 1.3 tons of fresh oil palm fruit per month, or 15.7 tons per year, equivalent to IDR 22.5 million. Technically the harvest of plasma fields is still lower than state plantation companies fields with monthly average harvest of 2 tons/hectare (PTPN, 2010). To achieve 1.3 tons of harvest, farmers have to have good access to chemical fertilizers, herbicide, labour force and transportation system. A hectare of productive oil palm fields requires application of around 1.5 ton of chemical fertilizers per year, 10 of herbicides to keep the field floor clean from weed, and twice a month of pruning and harvesting. A good and reliable transportation system—road network and truck fleet—is vital to keep intake of these factors of production reaching the fields, as well as to guarantee the harvest reach processing plants in less than three days when the fruit start to deteriorate. For comparison, a hectare of rubber field among local farmers produces around 350 kg per year (Dove, 1993: 139; 2011, p. 150). At the highest price of IDR 17,000 /kg in 2010 a hectare of rubber field produced IDR 5,9
A hectare of swidden, when everything went well, could produce around 600 kg of rice in one year, equivalent to IDR 6 million, but it might also produce no rice at all because of the poor soil, bad weather or pest attack. Calculated in cash, it is more profitable for the farmers to invest their farmlands in oil palm rather than rubber and rice. In term of human labour, oil palm requires much less input than rubber and rice. A hectare of oil palm field requires only 4 men working days per month. Rubber, requires between 10 – 15 men working days. While a hectare of swidden requires around between 120 men working days per year to 148.3 men-days (10 -12 men working days / month) (Dove, 1993: 141; Belcher, Rujehan, and Achdiawan, 2004).

A highly valued advantage of the oil palm cultivation under nucleus estate scheme among local farmers is plantation road network to connect oil palm field spread all over the area with the processing plant in Kuala Buayan (Figure 2). For generations the farmers had been living in a severe geographical isolation, depended on river system to access market in town. While river system is much less costly than land road, river boating is slow and prone to seasonal drought. In the old days dry season after a bad rice harvest was definitely a hunger season. Farmers were longing to have a reliable transportation network, i.e. rural area land road network, a vital infrastructure that the government could not provide due to the lack of budget. In the early 1980s a logging company operated in the upriver area, and opened logging roads ended up in a log pond on Kapuas River. Villagers could take a ride with company trucks to go to market, but the schedule was completely irregular. After the forest run out of valuable timber, the company left, the road was gradually taken by nature and up river hamlets were back to their isolation. Network of plantation road to oil palm fields run through the hamlets, several new hamlets were even intentionally established next to the road. With their motorcycle bought using the money from oil palm, nowadays farmers have reliable and easy access to market that enable them to go to market in Meliau in the morning and back home by afternoon—a trip that in the 1980s lasted for three days when water was high.

Figure 2. Plantation axis road in the upriver area

To the inhabitants of upriver hamlets it was the plantation road, rather than revenue from oil palm that mainly motivated them to join nucleus estate scheme. They gave away a—small—part of rubber fields just to ensure that the plantation road would be built to the direction of their hamlets. Through this strategy they manage to retain their lands while in the same time also gain access to land road network (Figure 3).

Figure 3. Distribution of oil palm fields in relation to the plantation road in upriver area

Legend: red line is plantation road, blue line is river

5. Swidden and rubber economy

Swidden agriculture has been the main source of staple food among Kalimantan farmers since their ancestor’s cultural transition from hunter gatherer to agriculturalist. Population growth, the growing urban population, and perhaps also the degradation of environment since the early 20th century has made swidden unable to provide enough subsistent coverage for the island’s population. Between the 1910s and 1930s, Kalimantan imported rice from other islands and countries at an average rate of 29,000 tons per year (Touwen, 2001: 131). Considering the rate of population growth, urbanization and expansion of non-rice agriculture in the following decades, the rate of rice import to Kalimantan must be in a constant increase as well. At farmer household level, buying rice in store has become a common practice although they take it as a safety valve when harvest from swidden is running dry before the following harvest take place.

In spite of romanticism among scholars about swidden agriculture, from the farmers’ own point of view this mode of agriculture is burdensome, too much, “banyak sakitnya”. Opening a patch of forest for swidden is not an easy work (Figure 4). Good harvest to gain enough rice to cover household subsistent need is hampered by many constraints. Opportunity cost for labour is getting higher as access to other economic activities expands. Among households with limited stock of labour and enough revenue from rubber swidden is not a favorable way to obtain rice anymore. For them “opening swidden in store” is preferable than breaking their back in the forest.

Figure 4. Swidden in store
Since the 1910s rural household cash revenue was supported mainly by cultivation of rubber. Farmers found out that swidden is compatible with rubber, both in term of land and labour use. Instead of fully returning swidden lands to nature, farmers replanted rubber seedlings next to their rice. In fifteen years, the seedlings would be mature enough and farmers could start tapping the rubber trees. Combination of swidden and rubber cultivation had in effect bound Kalimantan farmers to become more sedentary (Potter, 2011). Schedule for rubber tapping is flexible; it can be done irregularly once in every three days without causing any problem for the trees. Rain is a main constraint for tapping, as the water wash away latex from the tree trunk that in general farmers can do the tapping once in two to three days (Figure 5). Among those who open swidden, Dove (1993) finds a pattern that the number of tapping is related to working season in swidden, so that rubber tapping is low during heavy schedule of swiddening and it is high when swidden work is low.

At hamlet level, farmers developed a system to keep most of rubber fields in the hamlet territory tapped and most of labour force in the hamlet employed through share cropping. Because of the difference in labour supply and ability to accumulate capital, some farmers own rubber fields more than the labour in their own household can deal with. In effort to keep the fields productive these farmers invite neighbor to tap the rubber through 7:3 share cropping—70% of the proceed goes to the tapper and the rest 30% goes to the field owner. In time or in hamlet of severe labour supply, the proportion could shift up to 8:2 for the benefit of the tapper. Rubber share cropping is a favourite among village youngster to earn cash and accumulate money to start their own business or fields.

In every hamlet there is always a number of traders, tokeh, who serve as economic hub between farmers and market. Hamlet trader buys farmers’ rubber to be sold further to town based traders, who in turn will sell it again to city based trader, before it is sent to the processing plants. In return, city based traders provide merchandise to town trader, town trader to hamlet based trader, and hamlet based traders distributes the merchandise to farmers. The whole process is socially encased in a patron-client pyramid and processed through credit relation. Farmers take their daily needs and cash from hamlet trader on credit to be paid with rubber slab, all the way up to the city based trader. Supported by the trading network, farmers enjoy a high degree of economic security from rubber cultivation. Indeed there are always ups and downs in household revenue as a consequence of the fluctuation of rubber price, but in general the credit system provides a cushion that even at lowest point of price farmers would get their daily needs.

Another way for farmers to deal with the problem of price drop is by hoarding rubber slabs—either in river or shallow well—until the price is getting better. This same tactic is employed by hamlet trader to gain better profit from the town traders. Rubber has extraordinary durability that it is possible for farmers and traders to keep it for months even years without degradation in quality. Transporting rubber slabs from fields to hamlet and to town is relatively easy, in a sense that it does not require modern means. For those whose fields are next to river stream, rubber slabs may be tied together into a kind of raft and then floated or guided downstream to hamlet (Figure 6). Farmers whose fields are located a bit far from the river stream usually will carry the slab on their back, by 50 kg, to hamlet. Nowadays hamlet traders transport the slabs with rented truck or boat in a one day return trip to Meliau market.
they have technical and social cushion to deal with the market dynamics. For farmers in the up river area swidden and rubber were good enough for their life, “It was the absence of land road that make our life difficult”, thus they said.

6. Cost benefit calculation

Upriver farmers’ main motivation to join the nucleus estate scheme of oil palm under PT HD and PT SP was to gain access to land road network. While at the same time they also tried to retain their farmlands as much as possible by giving away only small piece of lands around hamlet and most of it fell back to its old owners. Success in retaining lands however has led upriver farmers into a vicious circle of poor road condition. Limited size of oil palm field produces only a limited amount of harvest, which in effect produces little incentive for the plantation companies or farmer cooperative to keep the road in shape. Soon road network in upriver area was deteriorated. It is difficult for truck to deal with when the weather is fine, and is impossible when the rain comes (Figure 7). The result is from season to season tons of harvest were left rotten along road sides and millions rupiah of farmers revenue gone into smoke—often in literal meaning as farmers often burn the rotten fruits to prevent them sprouting into seedling (Figure 8). In short, poor road condition is far from enough to accommodate oil palm cultivation’s demand on a reliable, fast and regular transportation system. Cost to transport oil palm fruit in upriver area is also significantly higher than other area closer to the processing plant. Upriver farmers have to pay IDR 300 to 350 of transporting cost for every kilogram of oil palm fruit, while farmers in the downriver area should pay IDR 140 to 200. Truck owners charges upriver farmers with higher fee because the poor road condition in upriver leads to a higher truck maintenance cost. Poor road has made oil palm cultivation less attractive for up river farmers.

Figure 7. When the rain comes upriver plantation road turned into a muddy path

In comparison however, the poor plantation road is still good enough to support rubber, as it does not demand quick transportation from farmers in the village to the processing plants in the cities. For rubber traders fast transportation from village to town is preferable as it makes the business turn over quicker. Good transportation helps the traders to obtain good profit during rubber price increase—which normally does not last for long. If the road turns bad and the transporation is getting slow it is still okay too because the rubber slabs will not deteriorate. When the road condition turns bad, due to the continuous rain, transportation of rubber may be delayed for days until the road passable again without any bad effect to the business except of slight decrease supply of market products in the village store—which alternatively can be transported on motorcycles. In the worst scenario, when the upriver road is totally impassable the traders can fall back to the old mode of transporation of river boat. Poor road network does not pose any serious problem to rubber cultivation.

Poor road condition in upriver area has consequently led the farmers into a vicious circle of oil palm cultivation. By giving away just a few pieces of farmlands for plasma oil palm fields, upriver farmers did not create an incentive for the plantation company to invest money in regular road maintenance. In turn, the poor road condition constrained farmers to engage in a productive oil palm cultivation as the poor road leads to higher price of fertilizers, herbicide and more expensive transporation cost of the harvest. From time to time farmers complain about the poor road and brag the companies to fix the problem. Sometime the effort worked, the companies sent earth mover and grader to flatten the road surface but after a few months the road condition deteriorated again.

With the improvement of road network however there has been trend among farmers to convert their swidden and rubber fields into oil palm fields on their initiatives with their own capital. This strategy allows them to reap maximum benefit offered by oil palm without losing their lands to company and transmigrant.

In a way, not everyone is happy with the road as it has widen the social gap among farmers and from the poor farmers’
point of view the road mainly only provide benefit for the rich. The availability of road system was soon taken by the village rich people as opportunity to reinforce their trading business with transportation service. They bought truck to carry their own merchandise and for renting as well. Although some truck owners did not stay long in the business because of the high maintenance cost, truck owners in general have become more prosperous—enough to incite social jealousy among poor neighbours. Tired of watching trucks of Deo chewing and turning the village road into a muddy path impassable even for motorcycles, a neighbour takes a bold step of putting a road block to block Deo’s trucks passing the road in front of his house.

7. Conclusion

Access to high resolution satellite image provides us a window to see agro-ecological dynamics of Buayan River area from rubber and swidden lands into oil palm fields. Combined with ethnographical data and ground check the image helps us to understand causes of the dynamics and their consequences to farmers’ life. Big plantation companies’ moves to convert the Buayan River area into a vast tract of oil palm field meet a resistance from local farmers for three different reasons. First, local farmers are reluctant to be separated from their lands. Losing 7.5 hectares of field in exchange of 2 hectares of oil palm field and a half hectare of home yard is not an interesting offer for the farmers. Second, so far many farmers prefer to keep their old economic strategy of multicropping which provides them some protection to the ups and downs of crop price in the market. Third, in area where road network is not reliable, rubber fare is better than oil palm in serving farmers’ economy. In conclusion land grabbing under nucleus estate scheme for cultivation of certain type of market crop is exposed against farmers’ cost and benefit evaluation on the crop in comparison to other available crops. Among farmers of upriver Buayan, the calculation is in favor of rubber rather than oil palm and consequently the land grabbing to convert upriver Buayan into palmoil fields has not been entirely successful.

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Notes

(1) Currently Indonesia is the world second biggest crude palm oil producer after Malaysia. By 2011 there was 5.3 million hectares of palm oil field with total product of 16.4 million tons of crude palm oil contributed US$ 17.2 billion of foreign currency exchange (BPS, 2012: 547).

(2) Nucleus Estate Scheme is based on Government Regulation PP No.1/1986, of collaboration between plantation company and small-holding farmers in cultivating market crops. Ministry of Agriculture Regulation No. 333/kpts/KB.50/6/1986 and No 26/2007 states plantation company engage in NES should maintain nucleus field 20% from the whole plantation field, while the rest is for plasma farmers.

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