

# Sustainable Estate Management of Plantation and Local Economic Strengthening

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# *Sustainable Estate Management of Plantation and Local Economic Strengthening*

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Keywords: Management, Plantation, Sustainable, Local Economy.

Abstract: The use of oil palm plantations has increased tremendously in 2012-2016. Unfortunately, there are still many lands that have not been managed sustainably. Furthermore, economic influences have an effect on increasing the area of oil palm cultivation by local people. The aims of this study are: (1) To describe the use of oil palm plantations and (2) To examine the use of plantations to strengthen the local economy. This research uses qualitative method through in-depth interview approach and questionnaire. The results showed that the utilization of plantations has not been done sustainably. Land clearing often begins by burning the land without considering the environmental and economic impacts of health. This is done because of economic and time motives. Land clearing by burning will speed up the process of land use and management while reducing economic costs. Furthermore, land burning is often on peat so as to provide greater economic, environmental and health effects. On the other hand, land use for plantations is a community effort to generate income while strengthening the local economy.

## **1 INTRODUCTION**

This study aims to (1) describe the use of plantations and (2) examine the use of plantations to strengthen the local economy. The development and needs of the larger plantations become one of the things happening in West Kalimantan. Many people are hoping and relying on plantation land to earn income and strengthen the local economy. This is the factor that causes the agricultural sector into a strategic one in West Kalimantan.

The agricultural sector (including plantations, forestry and fishery) is the largest sector to absorb labor. Approximately 1.11 million or equivalent to 48.63% of the total workforce relies on the sector as a source of income. On the other hand the number of poor people ranged from 7.87% (381.35 thousand), while the number of unemployed was 100,935 thousand and employed as housewives of 637,486 people (equivalent to 60.29% from 1.05 million instead of labor force (BPS, 2017). As noted, the number of unemployment is relatively small which is influenced by the absorptive capacity of agricultural labor. It indicates that the agricultural sector has a strategic role to economic development, especially to overcome unemployment and poverty.

Unfortunately, agricultural cultivation activities, especially in land management are often unsustainable and sustainable. One example is the management of peat lands that are not sustainable

and do not follow the rules of the environment. In 2015, the burned area reached 167,691 hectares, with burnt peat area is 74.858 hectares. Furthermore, in 2016, the area of burnt peat is 600 hectares. The impact of the fire caused many people affected by Acute Gastrointestinal Infection disease (BRG Kontigensi Plan, 2017).

Currently, the area of exploitation and cultivation of oil palm plantations is very wide. The cultivated area is 1.05 million Ha by large plantations and 407.41 thousand hectares by smallholdings (BPS, 2017). This shows that the utilization of acreage for oil palm plantations in West Kalimantan is vast. However, the utilization and management of oil palm is still largely done in an unsustainable and sustainable, especially in the peat area. Land clearing is often done by burning land. This is done for cost and time reasons but does not consider the ecosystem, economic and health impacts.

Tacooni (2003) explains that the impact of the damage is caused by the management, development and utilization of peat lands that pay less attention to ecosystems and sustainability. Some of the impacts are first, the disruption of the hydrological function of peat, when the hydrological function of peat lands is disturbed; the important role of peat in the water cycle is also disrupted. This can cause peat lands to dry up and ignite fires. Second is the disruption of ecological functions. Peatland

degradation can threaten the existence of hundreds of species of trees and animals. Furthermore, excessive burning of peat lands can increase CO<sub>2</sub> emissions. If the fire is frequent then the impacts are (1) changes in the physical quality of the peat along with the decrease in moisture and porosity, (2) disruption of the decomposition process, (3) damage to the hydrological cycle, (4) change in peat chemistry quality, (5) disruption of succession or population development and composition of forest vegetation thereby decreasing biodiversity and (6) global warming. The third impact is socioeconomic loss, where the loss includes (1) health problems, (2) economic loss, (3) disturbed community activity and (4) causes death from respiratory problems.

The high demand for land and the large number of people who rely on agriculture have an impact on land occupancy, both peat land and forestry. The unsustainable land occupation technique is triggered by economic factors. Sustainable land clearing takes a long time and costs are quite expensive. This causes some people who have no cost, preferring to burn land. The shrinking social attachment, mutual trust, cooperation and mutual cooperation lead to higher social and economic costs. Social security systems that should be inherent in culture are further undermined by modernization. The age of modernization puts money as a tool of society. The attitude of cohesiveness, trust, reciprocity and cooperation (Fukuyama 1999, Putnam, 2000), is slowly declining.

Indeed, to overcome social problems requires social cohesiveness and trust. Strong social cohesiveness and trust reinforce social solidarity and community participation to deal collectively with common obstacles and goals. This is where the importance of social capital must grow in community communities as a strong social glue (Fukuyama 1995). Social capital can create mutual trust and enlarge social exchange and create efficiency in many ways.

Another word that social capital must create is a harmonious relationship between the perpetrators in order to maintain the relationship between the actors or the network (safety net) (Woolcock, 2001). Heintzman (2001) says the strength of dialogue conducted based on honesty plays a crucial role to increase the wider value of public services. Fukuyama (1995) asserts that the family is an important source of social capital.

Thus the utilization of oil palm plantations to strengthen the local economy can be pursued by strengthening social capital and community

participation. The role of the family plays an important role to start land use. Strong social capital can help to reduce land use unsustainably. Land can be cultivated together and take turns without having to think about labor costs. All the owners of the garden together feel responsible for sustainably cultivating the land. Furthermore, collective and group cultivation of land becomes a collective agreement to strengthen social and interdependent exchanges. The next social exchange is tied with mutual trust and honesty. This will reduce negative behavior towards land use. Group strength can produce a large positive effect to strengthen community participation.

Unfortunately, social capital is increasingly eroded, resulting in less community participation in developing and managing oil palm plantations in some areas of West Kalimantan. Land use is further fueled by economic considerations without considering environmental impacts. Some people use land but they do not have consider insocial, health and environmental risks. Economic pressure and high dependence on land force some of them to use less sustainable land.

Another trigger for the cause of land occupancy is the government regulation that has not been able to be implemented for the perpetrators of land burners. Although Presidential Regulation No. 1 of 2016 has been issued concerning the Restoration Agency that is responsible for addressing peat land issues. However, the regulation has not had much influence in overcoming the problem of occupation and public awareness.

The government needs to re-establish social capital and develop natural resources. Strengthening the capacity of community-based communities with social capital needs to be socialized to the community. One of the things that can be developed as an alternative economic source is the development of ecotourism through strengthening community capacity (Damayanti et al, 2014).

Furthermore, the government needs to regenerate local wisdom through community assistance and capacity building. Prayogo (2016) says local community knowledge that needs to be grown to the community is (1) utilizing tidal movement for irrigation and drainage, (2) determination of crops planted around irrigation, (3) water conservation with tabat system, (4) land selection system (5) land preparation and land preparation systems, (6) land management systems, (7) soil fertility management systems, and (8) farmers' way of identifying seasons. The government is not present to change the system but as a

facilitator who accompanies the community by utilizing existing local wisdom (Prayogo, 2016).

Furthermore, community participation in peatlands should encourage communities' ability to optimize the use of natural resources on peatlands without damaging the environment. Community participation in peatland management by farmers in Kalampangan village, among others; making trenches around the planting grounds to prevent the occurrence of peat fires and prevent drought, implementation of peat water management by the government, the use of ash and fertilizers in improving peatland fertility, and transfer of knowledge about agriculture, cropping and farming equipment to local communities (Hakim and Anjarwati, 2010).

The study emphasizes the importance of strengthening social cohesiveness, social capital and community participation on sustainable use of palm oil plantations. On the other hand, the active role of the community is directly involved through strengthening the capacity needed by the community.

## 2 METHODOLOGY

This research uses qualitative method through in-depth interview technique to palm oil planter. Some of the areas where the research is Mempawah, Kubu Raya and Sambas districts. Several areas were surveyed in Mempawah Regency among others is the District Anjungan, District Mempawah Timur (Village Segigih) and District Siantan (precisely Dusun Parit Ambo Pinang) and the Location of the District surveyed in Sambas District is Kecamatan Teluk Keramat (Kumpai River Village).

## 3 RESULTS AND DISCUSSION

Socio-cultural profiles around peatlands in general are the livelihood of horticulture and palm oil plantations as well as part of rubber plantations. Several areas that become the research destination are Anjungan Subdistrict, District of Mempawah Timur and Siantan Subdistrict in Mempawah District. Furthermore, Kubu Sub-district in Kubu Raya Regency and Teluk Bay District of Sambas Regency. Each region has different characteristics. Anjungan District has wet peat conditions. Surveys in Anjungan sub-district are not specific to a particular village but see a general stretch of land in

the area. Field observation took place by conducting interviews with farmers during the survey.

In general, the condition of peatlands in Anjungan subdistrict is overgrown by scrub and oil palm plantations. Most of the land conditions are still wet. In this area there are many areas of food crops and oil palm plantations. The cultivation of oil palm plantation has long been held, where most of the owners are local people. The main sources of livelihood are food crops and oil palm plantations. Food crops such as rice and oil palm plantations are livelihoods that strengthen the local economy of the community. This area had a fire in August 2017. The area of the peat area which was estimated to burn around 10 hectares. The cause of the fire is triggered by the dry season, weather and strong winds. This causes the fire to spread rapidly. Furthermore, water sources around burnt peat areas are absent. Furthermore, the burned area has not been vegetated in large numbers so it is very easy to experience land fires.

The condition of other peat areas in Mempawah Regency, precisely in Siantan District shows that some of the land in the area is used for the cultivation of coconut and paddy fields. Field survey results show in Dusun Parit Ambo Pinang that people use peatlands as coconut cultivation areas and rice fields. The area of coconut plantations is more than 20 hectares, far wider than the area of oil palm plantations. Coconut plantations become the main source of livelihoods as well as the local economic drivers of the community. Furthermore, the cultivation of rice fields to support food needs as well as a source of income.

In Mempawah District there are large scale companies that process the coconut production of the community. The factory buys the product to be processed into derivative products. Furthermore, the community has relatively long cultivated coconut as a source of livelihood. Peatlands are suitable for planting coconut and wetland rice. Both plants maintain the quality of the soil and do not damage the ecosystem and the environment. Coconuts can be cultivated intercropping in an unlimited time. The cultivation process does not interfere with the productivity of coconut plants as the main source of local economy. The intercropping method can increase additional income for farmers. However, intercropping is still not done much by farmers in Siantan District.

In addition to utilizing other areas for rice fields, coconut plantations can actually be processed by intercropping. Vegetable plants and horticulture can be intercropped to add additional income to

farmers. Furthermore, the intercrops can add nutrients to the soil, increase the organic matter content and soil fertility. In the long term it can improve soil and ecosystem quality.

The condition of other peatlands in Mempawah District of Mempawah Timur District in Sejegi Village has relatively similar condition with peat condition in Siantan Subdistrict. Peat conditions of Sejegi Village still has alkaline and some peat areas are overgrown with shrubs. The vegetation condition is still tight. But in this area there has been a fire 3 years ago. The area of burning peat is 9 hectares. Initial fires occur in peat areas without vegetation. Fires quickly spread due to the wind and very hot weather conditions resulting in huge smoke pools. These experiences and events indicate that peat areas that do not vegetate during the dry season are flammable.

In contrast to Kumpai River Village, Teluk Kramat District, Sambas Regency, where the area utilizes peatlands for plantations, rice fields and horticulture. The area of peatland use is very visible. In this region there is often fire every year. Generally, it caused by the clearing of land for rice crops and plantations. The condition of peat in this region is still wet and some areas have dense vegetation. People who use land for plantation and rice fields are local people.

In general, land clearing for the utilization of peat land as plantation land has not been carried out sustainably. Some people open plantation land individually by burning without regard to environmental rules. Land clearing by burning is highly vulnerable and at risk of creating larger fires because it does not (1) make the perimeter of the land, (2) does not provide prevention by making absorbing wells and (3) no permits from the authorities. Unsustainable land use gives long-term effects to the ecosystem, so there needs to be special handling and involvement of all components of government and society.

Peatland ecosystems must be preserved for sustainability and social welfare. The area is actually assessing the strength of the local economy but still sustainable from the environment. It is time to manage the peat area back to local wisdom to maintain ecosystem sustainability and strengthen the local economy of the community. Peatlands should be used as common property goods, not private goods. Peatland degradation is not only detrimental to the ecosystem but destroys wider social, economic and environmental institutions. Therefore, the management of peatlands needs to pay attention to local wisdom.

Public participation and participation is needed to preserve peat through local wisdom approach. Farming is a livelihood of the people of West Kalimantan, especially most of the Dayaks. Farming is carried out in a cycle so that the fields that have been used and left by their owners will still be used at a time when the time comes. Real land clearance always involves the whole community by way of mutual cooperation. There are traditional leaders who lead the peatland clearance process (this method has not been applied in the survey location).

Furthermore, the results of inter-community consultation carried out the opening of the land by burning carefully and mutual cooperation. The area to be burned is limited so as not to extend to other areas. So that the burning of the area is not widespread then the edge of the field is made with a bulkhead with a distance of about 1 to 3 meters. Some communities still provide a water reservoir to prevent if the area of fire expands. Currently mutual cooperation has experienced deterioration so that land clearing by burning is often not well controlled. Most of the land clearing does not (1) make the bulkhead on the edge of the land (2) pay less attention to weather conditions and (3) not provide a pool of water storage and (4) do not work together. Most people think that burning land can be easier, more cost-effective and effective in terms of time. However, among them have not noticed the environmental, economic, health and ecosystem damage caused by unsustainable land burning

Therefore, local governments actually increase community participation in managing land sustainably. The involvement and role of government is through assistance and capacity building of human resources. Furthermore, the government and society need to re-transform the value of local wisdom that has been degraded by modernization.

Active community participation is crucial because agricultural land is already a major source of income and local economic power. Community participation can begin with assistance by the government and build mutual trust between communities. The whole community must understand that land as an economic source must be preserved. If there is damage to land, the economic source of the community will be disturbed.

Therefore, people's trust attitude should grow deeper. This will create a stronger social cohesiveness when fellow citizens have a trust attitude. Furthermore, social exchange (reciprocity) must continue to be promoted to create a sense of

interdependence between communities so as to further strengthen the sense of community solidarity.

Furthermore, land management is actually done in groups and mutual cooperation to reduce maintenance costs and increase a sense of solidarity. Communities need to receive in-depth training on the importance of maintaining ecosystem balance and long-term effects if ecosystems cannot be maintained properly. Assistance and capacity building must be sequenced and sustained and evaluated for the sustainability of communities using land sustainably and strengthening the local economy through sustainable land management.

#### 4 CONCLUSIONS

The results of the study show that plantation utilization has not been carried out sustainably. Land clearing often begins with burning land without considering economic and health environmental impacts. This is done because of consideration of economic motives and time. On the other hand, the use of land for plantations is an effort by the community to earn income while strengthening the local economy. The government needs to participate in increasing community participation in managing the land sustainably. The role of the government includes mentoring for the community and strengthening capacity. Furthermore, the government needs to re-explore local knowledge owned by the community to strengthen community cohesiveness and solidarity. They must build trust and mutual cooperation to utilize land sustainably. Furthermore, the community must be aware that the land they have as a source of income and the strength of the local economy will be threatened if they do not manage the land sustainably.

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### **1 INTRODUCTION**

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