



## Impact of the Conversion of Citrus Plantations to Oil Palm Plantations

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### Abstract

This article discussed about the conversion of agricultural land into other uses is one of the occurrences that has occurred fairly often in recent years. The method utilized with the purposive sampling, including but not limited to certain criteria that have been established. The informants that participated in this research were ten (10) individuals who were chosen based on a variety of factors. The kind of data that was utilized was qualitative data of a certain kind (descriptive). The result of this research is the factors that influence land use change: I external factors, which include economics and demographics, which cause the conversion of community citrus plantations to oil palm plantations under the pretext of abundant yields and income, in order to meet the daily needs of the community; (ii) internal factors, where farmers are greatly aided by the presence of this type of palm tree, due to its high productivity; and (iii) internal factors, which cause the conversion of community citrus plantations to oil palm plantations. Economically, the conversion of citrus farms to oil palm plantations has had a positive effect since the revenue from oil palm farming is higher than that from citrus farming.

## Introduction

Food production and distribution are two of the many ways that agriculture contributes to the economy. It is also a significant contributor to the country's foreign currency earnings as well as an employer, an engine of the industrialization process, and a source of foreign money. However, the agricultural industry has suffered as a result of the conversion of land functions and the lack of enthusiasm among young people in pursuing careers in agriculture as the times have changed.

The conversion of agricultural land into other uses is one of the occurrences that has occurred fairly often in recent years. This is in accordance with population growth and development activities, which has resulted in increased demand for land for agricultural and non-agricultural activities, as well as increased demand for land for agricultural and non-agricultural operations (Naab et al., 2013; Sroka et al., 2018) It is a fact of economics that activities that are deemed unproductive and unprofitable will always be rapidly replaced by ones that are deemed more productive and lucrative. Competition for the most lucrative use of land happens in order to promote changes in land use patterns (Jetz et al., 2007).

There are several factors contributing to the transfer of land functions. The first is ineffective statutory regulations, which are both substantively and unequivocally unclear, as well as enforcers who are not supported by the government as the official responsible for issuing permits for the use of land. However, the "unattractiveness of the agriculture industry itself" does not provide credence to this claim. In fact, the scarcity and high cost of fertilizers, as well as other means of production, less agricultural labor, and the fluctuating price of agricultural products, have all contributed to the drastic decline in population interest (or even just maintaining its function) in the agricultural sector.

As defined by the United Nations Environment Programme (UNEP), land conversion (also known as land conversion) is the transformation of a portion or the entire land area from its original (previously planned) function to another function that has a negative impact on the environment and the potential of the land itself. Land conversion may also be defined as a shift from one use to another that is prompted by a variety of reasons, the most significant of which are the need to satisfy the requirements of an expanding population and the growing desire for a higher standard of living. Land conversion is often associated with the process of regional development; in fact, it can be argued that land conversion is a logical result of the process of regional development itself. The majority of land conversions that take place demonstrate that there is an imbalance in land tenure, with capitalists having a greater influence on land tenure through pocketing development licenses granted by the government.

Oil palm is a long-term crop that was previously underutilized by the community owing to its high selling price and high maintenance expenses (Saidan et al., 2020). This is one of the factors taken into account by the community, which leads to a lack of interest from the general public. After years of deterioration, the community's oil palm plantation paradigm eventually led to the decision of the farmers who had originally planted oranges to change their professions and become oil palm farmers themselves.

It is possible to say that the development of land conversion from citrus plantations to oil palm plantations has been extremely rapid because the economic value of citrus plants is low, which has resulted in farmers beginning to think about replacing their crops with oil palm plantations, which have a higher economic value than citrus plants, has been extremely rapid. Furthermore, the geographical position, which is very favorable for the expansion of oil palm plantations, contributes significantly to this.

## **Methods**

With the understanding that farmers were converting citrus groves to oil palm plantations, the site choice was made with purpose. This investigation took place over the course of two months between October and December of 2019. There are criteria that may be utilized with the purposive sampling method, including but not limited to certain criteria that have been established. The informants that participated in this research were ten (10) individuals who were chosen based on a variety of factors. Farmers who own 1-2 lands, Farmers who have a minimum land size of 1 ha, Farmers who cultivate their own land, and Farmers who no longer possess plantation land as a result of changing land uses were the criteria I used to choose informants for this study. The kind of data that was utilized was qualitative data of a certain kind (descriptive). Data sources are required in order to acquire data or information that is relevant to the study topic. Primary and secondary data were utilized in this research, and the results were analyzed

## **Results and Discussion**

### **Citrus Plant**

Oranges are available in a wide variety of colors and shapes. Citrus diversity is very great, as shown by the huge number of individuals belonging to the Citrus family tree (Trivedi et al., 2012). In fact, only three types of oranges were regarded to be "original," namely, mandarin oranges, oranges, and citrons, with the other varieties resulting from crosses between these three types. The Mandarin group as a whole is made up of many species, each of which is characterized by a wide range of occurrences.

Originally from Southeast Asia, the citrus plant (*Citrus* sp) has become a popular crop worldwide. Plants have been used as a food source for hundreds of years, both in the wild and as a produced food source. After bananas and mangoes in terms of total planting area and annual production volume, oranges are the third most significant fruit commodity in terms of total planting area and annual production volume. As a result, we will provide information to friend agriculture about How to Cultivate Oranges, so that together we can share knowledge and start a citrus fruit agribusiness with bright and promising prospects. Citrus plants can be harvested after entering the planting age of 2.5-3 years after planting.

### **Oil Palm Plants**

The palm oil plant (*Elaeis guineensis*) is a major industrial plant that produces culinary oil, industrial oil, and fuel (biodiesel) (Mekhilef et al., 2011; Kurnia et al., 2016). Due to the high profitability of his plantings, many of the ancient forests and plantations were transformed to oil palm plantations.

Oil palm (*Elaeis guineensis* jacq) produces more oil per unit area than other vegetable oil-producing plants, such as coconut, soybeans, peanuts, and other types of nuts and seeds. The name *Elaeis* is derived from the Greek word *Elaion*, which signifies oil. This species' name comes from the word *Guinea*, which is where an expert named Jacquin discovered the first oil palm plant on the coast of Guinea, which is where the word *Guineensis* comes from.

According to Verheye (2010) the production expenses, the cultivation of oil palm plants is less expensive, and the oil palm production time is 22 years, which is a relatively lengthy period in the oil palm industry. Oil palm is also the most resistant to pests and diseases when compared to other vegetable oil-producing plants when it comes to pest and disease resistance (Sheil et al., 2009; Zhou et al., 2020).

The fruit of the oil palm tree is the most essential component to be processed. The flesh of the fruit yields crude palm oil, which is refined and used as a raw material for the production of cooking oil. Low prices, low cholesterol, and a high carotene content are some of the benefits of using vegetable oil derived from palm oil. Palm oil can also be processed into raw materials for the manufacture of alcohol, soap, candles, and cosmetics. It is particularly useful in the cosmetics industry.

The importance of oil palm in the economy is self-evident. Palm oil, being a vegetable oil, has many benefits over animal oils when it comes to its ability to promote human health. General consensus is that palm oil plays a key function; specifically, palm oil is the primary raw material for cooking oil, and a constant supply of this material will aid in the stability of the cooking oil market price. This is significant since cooking oil is one of the nine essentials for the community's daily existence. Because it is a fundamental human need, the price must be affordable to people at all socioeconomic levels. In addition to being an agricultural commodity, palm oil serves as a cornerstone of non-oil exports.

Oil palm may thrive in the tropics (between 15° N and 15° S). This plant thrives at altitudes ranging from 0-500 meters above sea level, with humidity levels ranging from 80-90 percent. A climate with consistent rainfall, 2000-2500 mm per year, is required for oil palm production, i.e., regions that are not inundated during the rainy season and are not dry during the dry season. In oil palms, the yearly rainfall pattern has an impact on the blooming behavior and the yield of fruit. Generally speaking, oil palm farms are best suited for planting in low-lying regions.

Because of their dormancy, oil palm seeds do not germinate as rapidly as other seeds. Oil palm trunks grow at a pace of approximately 35-75 cm per year, depending on the variety. A number

of improvements were used in order to enhance manufacturing speed. The germination of oil palm seeds is the first technique that is used.

This is done in order to break the dormant state of the seeds and improve the percentage of germination. Fertilization is the second technique used in agriculture. Fertilizers may be added in the form of organic or inorganic fertilizers, depending on the situation. Using organic fertilizers, you can enhance the structure of your soil while also providing a source of nutrients for your plants. NPK fertilizers are inorganic fertilizers that are widely used in crop production. The efficacy of fertilization will be enhanced if the fertilizer is applied in little doses over a long period of time. Weed control is the third technique of weed elimination. Weed management may be accomplished in many ways, including manually, chemically, and biologically. Manual weeding of oil palm discs may be accomplished by cutting the grass around the discs.

Using herbicides, chemical weed control may be accomplished by considering a number of variables, including the mechanism of action, the administration technique, and type of the weed under consideration. Herbicides work via a variety of processes, including interfering with weed respiration and photosynthesis, preventing weed germination, interfering with amino acid synthesis, and interfering with lipid metabolism, among others. Pest control is the fourth technique to consider. Fire worms, bagworms, rats, termites, beetles, and even wild boars are among the pests that frequently attack oil palm plantations. Pest control may be accomplished via the use of pesticides or the introduction of natural predators.

### **Land Function Transfer**

Approximately 110 thousand hectares of irrigated paddy fields are converted into cropland on an annual basis, according to estimates. Among them are the conversion of irrigated paddy fields to non-agricultural purposes and the planting of crops other than rice in these fields. Irrigated paddy fields were mostly transformed for non-agricultural uses, with 58.7 percent of the land being used for residential purposes and the remaining land being used for industrial, retail malls, and other reasons.

An example of land conversion is when part or all of a land area's functionality is changed from its original purpose (as intended) to another function that has a negative effect (problem) on the environment and the potential of the land area itself. Land conversion may also be defined as a shift from one use to another that is prompted by a variety of reasons, the most significant of which are the need to satisfy the requirements of an expanding population and the growing desire for a higher standard of living.

In the context of land conversion, it is the process of converting land from one use to another, such as converting agricultural land to non-agricultural purposes. There will be a continual conversion of property owing to the rising need for land to support community growth via the establishment of new towns, industry, offices, highways, and other infrastructure. However, the feasibility of land conversion is primarily concerned with factors such as spatial planning appropriateness, long-term economic and environmental consequences and advantages, as well as other options that may be implemented to ensure that the benefits exceed the negative effects.

Land conversion began as a result of increased demand for agricultural goods, particularly food commodities, as well as increased revenue as compared to non-agricultural commodities. Consequently, economic growth that has an effect on raising the income of the people tends to drive demand for food commodities to rise at a faster pace than demand for non-agricultural commodities, as seen in the graph below. In addition, because the demand for each commodity is a derivative of the demand for the commodity in question, economic development that leads

to an increase in income will result in an increase in demand for land for agricultural activities at a faster rate than the increase in demand for land for non-agricultural activities outside of agricultural activities.

As defined by the United Nations Convention on the Rights of the Child, "land conversion" is the conversion of a portion of or the whole land area from its intended purpose to another function that has a negative effect (problem) on the environment and the potential of the land. Land conversion may also be defined as a change in use for a variety of reasons, including, but not limited to, the necessity to satisfy the requirements of an ever-growing population and the desire for a higher standard of living in an increasingly urbanized society. It goes without saying that this is consistent with the economic premise that users would always want to optimize the use of their land. Ones that are deemed to be unproductive and unprofitable will always be rapidly replaced with activities that are thought to be more productive and more lucrative. Competition for the most lucrative use of land happens in order to promote changes in land use patterns. Land conversion is defined as the conversion of agricultural land to non-agricultural uses or the conversion of non-agricultural land to agricultural purposes, or the reverse of this.

### **Impact of Land Conversion**

Land conversion has ramifications for changes in agrarian structure, with many changes occurring as a result of the conversion, including:

#### ***Changes in land tenure patterns***

The ownership of property and the manner in which the land is accessible by other individuals provide clues as to the structure of land tenure in a given area. Changes in the quantity of land ownership that occur as a result of conversion are referred to as land ownership changes.

Agrarian resources are used by the community and other parties, and the usage of these resources may reveal changes in land use patterns. Land conversion results in a change in the workforce involved in using agricultural resources, particularly labor involved in the use of agrarian resources, particularly labor involved in the utilization of agrarian resources, particularly female workers. The conversion of agricultural land has an impact on the decrease of job possibilities in the agriculture industry. Furthermore, land conversion results in changes in land use, particularly in areas with a greater agricultural intensity. Land may now be used without regard for the "fallow" system, which is particularly important for paddy fields. This has serious implications.

Changes in the way people interact with one another. The diminishing availability of land contributes to the fading of the profit-sharing system. In the same way, the development of a new land system, namely the rental system and the selling pawn system, is noteworthy. Changes occurred as a result of the rising value of land and the increasing scarcity of available land. Changes in the patterns of agricultural livelihood. The livelihood pattern is determined by comparing the livelihood system of the community based on agricultural goods to the livelihood system based on non-agricultural items.

Social and communal transformation. When land is converted, revenues may be reduced or even eliminated. Both positive and negative consequences may be seen in the effect of paddy field conversion. First and foremost, rice fields are designed to produce rice, as shown by their purpose. As a result, the transfer of paddy fields to other uses will result in a reduction in national rice output. Second, the transformation of paddy fields into settlements, offices, road infrastructure, and other structures has implications for the magnitude of the losses as a result

of which funds have been invested to plant rice fields, construct reservoirs, and install irrigation systems, among other things.

### ***Factors of Land Use***

The conversion of agricultural land that takes place is the result of a variety of causes. In the conversion of agricultural land, there are three important factors that contribute to the process: (1) external forces such as urbanization, population expansion, demographic and economic growth; (2) internal forces such as the socio-economic conditions of land-use agricultural households; and (3) policy factors such as aspects of regulations such as land-use restrictions.

The pace at which land is used will rise in tandem with the expansion of economic development. Land conversion from agricultural to non-agricultural use is encouraged by the rising demand for agricultural land. It is possible to categorize the factors that influence the conversion or conversion of paddy fields to non-agricultural uses into two categories: factors that influence the conversion of paddy fields at the regional level, which include factors that do not directly influence farmers' decisions to convert, and factors that directly influence farmers' decisions to convert. On the farm level, paddy fields are one of the factors that directly influence the choice of farmers to shift their farming activities.

Changes in economic structure, such as a rise in the importance of the non-agricultural sector in the economy, have the potential to accelerate the shift of land use patterns away from rural regions and towards urban areas. Furthermore, the incidence of economic growth may be used to explain changes in the structure of the economy itself, with economic growth having the potential to accelerate the shift of the economy away from agriculture and towards the manufacturing, services, and other non-agricultural sectors.

The following are some of the variables that promote the transfer of agricultural land to non-agricultural use:

Factor relating to the population. The demand for land has risen as a result of the fast growth in population. In addition, raising the living standards of people contributes to the creation of extra demand for land and other resources. Several economic reasons, including the high land rent received by non-agricultural sector operations when contrasted to the agricultural sector, have contributed to this situation. The poor incentive to farm is a result of the high cost of production, which is offset by the comparatively low and fluctuating price of agricultural goods on the market. Furthermore, because of the requirements of farming families that are under pressure due to a lack of available company capital or other family obligations.

Socio-cultural elements, such as the presence of inheritance law, are responsible for the fragmentation of agricultural land, which prevents it from meeting the minimal limit of viable business economies of scale required for profitability. Irrational conduct, characterized by the pursuit of short-term profits while paying little regard to the long-term and the general national interest. A good example of this is the Regional Spatial Plan, which encourages the transfer of agricultural land to non-agricultural land use, among other things. Legislation and law enforcement (Law Enforcement) of current rules are ineffective due to a weak system.

### **Patterns and Characteristics of Land Transfer**

Consider the following seven patterns or typologies of land conversion: 1) gradual conversion with a sporadic pattern; influenced by two main factors, namely land that is less/unproductive and the economic problems of the conversion actors; 2) ad hoc conversion with a sporadic pattern; influenced by two main factors, namely land that is less/unproductive and the economic problems of the conversion actors; 3) gradual conversion with a sporadic pattern; 2)

systematic conversion in a 'enclave' pattern; since the land is less productive, the conversion is carried out at the same time in order to enhance the added value; 3) Land conversion in reaction to population expansion (population growth driven land conversion); also known as demographic adaptation conversion, this is a process in which land is transformed to fulfill housing requirements as the population grows. In the fourth category, conversion is induced by social issues (social problem driven land conversion); this is caused by two causes, namely economic problems and changes in wellbeing. The desire to live a life that is better than the present one, as well as the desire to move out of the village, are the driving forces behind no-load conversion. Agrarian adaptation is being converted as a result of economic difficulties and a desire to change on the part of society, with the goal of boosting agricultural production. 7) Multi-form or no-form conversion; conversion is affected by a variety of variables, particularly in the case of offices, schools, and trade cooperatives, as well as inheritance systems, which are not addressed in the demographic conversion process.

It is evident that population pressure plays a role in the conversion of rice fields, particularly in sectors with a higher added value, while in non-cultivation activities, population pressure is more dominating than ever. That is, land hungry (poor) people convert rice fields, while capital owners have a greater impact on the conversion of non-cultivated lands, as seen in the graph above. The conversion of land may be permanent or transitory in nature. If technically irrigated rice fields are transformed into residential or industrial areas, then the change in land function is permanent, as is the conversion of the land function into residential or industrial regions. However, if the rice fields are converted into sugar cane plantations, the land's purpose will only be temporarily transferred, since the land will be able to be utilized as rice fields again in the following years after the conversion.

In most cases, permanent land conversion has a larger effect on the environment than temporary land conversion. The conversion of permanent land functions has a strategic significance, as shown by the conversion of non-cultivated lands (protected areas) to cultivated areas and the conversion of technically irrigated rice fields to non-rice fields, among other things (industrial and residential).

### **Framework**

Land conversion is the process of converting land from one use to another by converting it from one use to another. In this case, property that was once utilized as an orange plantation is being converted into an oil palm plantation, which is a land use shift.

In order to convert orange plantation property into oil palm plantation land, a number of variables must be taken into consideration. These considerations include external, internal, and policy issues. External factors include those that are influenced by the dynamics of urban development, demography, and economics, among other things. Internal variables are those that are considered from a more in-depth perspective and are influenced by the socio-economic circumstances of agricultural household land usage. Agriculture-related policy elements are regulatory features provided by the federal and state governments that are related to changes in the function of agricultural land and crop production. Changing the use of agricultural land from citrus to oil palm has an effect on farmers' income, and as farmers' income increases, the economy of the community as a whole benefits.

### **Impacts Affecting the Conversion of Citrus Plants into Oil Palm Plantations**

The conversion of citrus agricultural land into oil palm plantations has a beneficial effect on the farmers who have taken part in the conversion. This cannot be disputed since the prospect of being an oil palm farmer is very bright. Farmers benefit greatly if the price of fresh fruit

bunches (FFB) continues to increase, since this is a very lucrative situation for them. Among the factors contributing to the issue of land conversion for citrus crops into oil palm plantations are the high price of fertilizers, insect and disease assaults, and the changing price of oranges, which tends to drop as they approach harvest time. The following are the variables that affect the conversion of citrus land to oil palm plantations:

### ***External Impact***

It is a result of the dynamics of urbanization, demographics, and the economy, among other things. This implies that the external factors driving the conversion of land to oil palm plantations are the high level of needs that must be met by the community, which, when combined with an overview of outside information about the output from oil palm plantations, leads to their decision to convert the land to oil palm plantations.

### ***Internal Social Impact***

This Internal Impact focuses on the side effects of land-use farming families' socio-economic circumstances, rather than on the whole effect. A family or a community may experience symptoms of very dynamic economic development as a result of the rise in population, or for a more specific example, the increase in the number of births and weddings in a certain region. Because of the existence of this kind of palm tree, farmers report that it is not difficult to make a livelihood for their wives and children, and that empty land owned by farmers may be utilized as effectively as possible, resulting in a substantial increase in earnings from this plant. And the process of purchasing from and selling to customers; in this instance, the business makes it extremely simple for farmers to sell their products to consumers. When looked at from an economic perspective, this is very much in accordance with the idea advanced by Budiono, which says that a rise in production capacity (output) is monitored over the long run, which implies that it is producing a force for economic sustainability in the following time. Oil palm trees have a production system that can be regarded in the same way, with the productivity level of this kind of tree being able to yield fruit for up to 35 years when examined from this perspective.

### ***Government policy***

To be specific, areas linked to changes in the function of agricultural land, as well as elements of laws issued by the central government. Weaknesses in the regulatory element, or in the legislation itself, are mostly linked to issues of legal force, penalties for breaches, and the correctness of land objects that are banned from being converted, as well as the outcomes of land conversion productivity studies.

Because there is no government regulation in regulating prices, people who work as oil palm farmers experience anxiety, because the pricing sector does not meet consistent standards and lacks credibility, so that farmers are fed up with the behavior of companies in determining prices arbitrarily, and this results in oil palm farmers who sometimes have to hold back their harvests while waiting for the price of palm oil to rise, which results in oil palm farmers who sometimes have to hold back their harvests while waiting for the price of palm oil to rise.

According to Sukiyah (1997), the economic sector is a taboo subject in development because it must be defined and realized at a very high level of community needs. Because the level of community needs is extremely dynamic, experts believe that a regulatory theory exists. For example, government policy factors include population factors, technology factors, land condition factors, market nation factors, among others.

Viewed in this light, the role of the government in formulating policy regulations and rules is critical to ensuring that there is no miscommunication between consumers and producers. In fact, the government's role is at the level of maintaining economic growth's electability, which can be seen in the regulatory sector or policies in the area of prices, as well as in providing financial assistance to businesses and individuals in need of financial assistance.

### **Impact of Transfer of Land Use for Citrus Plants to Oil Palm Plantations on Community Welfare**

The results of economic calculations conducted between citrus farmers and oil palm farmers revealed that the earnings of oil palm farmers were much higher than those of citrus farmers, according to the findings. Due to the fact that oil palm farmers are able to recover their investment after harvesting for four months, particularly if the oil palm seeds sown are of high quality, this is the case. The presence of oil palm plantations has the potential to provide new employment for a large number of farmers, particularly agricultural workers who have been adversely impacted by land conversion. Furthermore, the presence of oil palm plantations has the potential to provide new employment for a large number of farmers, particularly agricultural workers who have been adversely impacted by land conversion.

When compared to the time when smallholder oil palm farmers were still farming citrus trees, which were in relatively small numbers, the income of smallholder oil palm farmers is comparatively high. Using Table 1, we can see the difference in the income of farmers when they are orange farmers compared to when they become palm oil farmers.

Table 1. Income of citrus farmers and coconut farmers palm

<b>Description</b>	<b>Income Citrus Farmers</b>	<b>Oil Palm Farmer's Income</b>	<b>Income Difference</b>
Average	1.147.878	5.109.453	3.342.924
Average/Ha	671.472,45	2.465.352,76	2.390.892
sum	1.819.300,29	8.094.117,10	6.274.816,81

Source: Primary Data Processed, 2020

According to the data in the table above, the average income of farmers before to land conversion was 7,878 USD, while the average income of farmers after land conversion from citrus to oil palm plantations increased by 5,352 USD, representing a 3,342 USD gain in percentage terms. The effect of the conversion of land from citrus plantations to oil palm plantations, which has a beneficial influence on boosting farmers' income, is shown in a very substantial way by the graph. The following are the consequences of land conversion from citrus to oil palm: Farmers' income increased by 444.90 percent as a result of the land conversion from citrus plantations to oil palm plantations, according to the effect of land conversion from citrus plantations to oil palm plantations on increasing people's welfare. It has been demonstrated that the positive impact of land conversion on people's welfare includes an increase in the income sector of farmers, an increase in the community's economy, and a decrease in the unemployment rate of farmers who have experienced changes in income, crop yields, and crop quality, all of which have an impact on increasing farmers' welfare, as evidenced by the increasing number of farmers who are converting their land. Since the introduction of oranges, land has been converted to oil palm plantations, with a proportion of farmers' income exceeding 100 percent.

## Conclusion

The following are the factors that influence land use change: (i) external factors, which include economics and demographics, which cause the conversion of community citrus plantations to oil palm plantations under the pretext of abundant yields and income, in order to meet the daily needs of the community; (ii) internal factors, where farmers are greatly aided by the presence of this type of palm tree, due to its high productivity; and (iii) internal factors, which cause the conversion of community citrus plantations to oil palm plantations. Economically, the conversion of citrus farms to oil palm plantations has had a positive effect since the revenue from oil palm farming is higher than that from citrus farming. Socially, oil palm plantations are replacing agricultural land functions, which has a beneficial effect on the value of community welfare. The conversion of agricultural land functions to oil palm plantations is on the rise.

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