



IMPACT OF RICE LAND FUNCTION TRANSFER ON RICE PRODUCTION IN THE FRAMEWORK OF FOOD SECURITY (CASE STUDY IN HOLY DISTRICT)

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Agung Slamet Sukardi ✉

IAIN Kudus

✉ agungslamet@iainkudus.ac.id

Abstract

The conversion of rice fields in Kudus Regency has increased from year to year. Based on quantitative data, it is stated that land conversion is influenced by changes in economic structure, improvements in infrastructure facilities and population growth. In fact, the area of paddy fields has an effect on increasing total rice production, while the area of paddy fields that have been converted to non-rice fields has not been able to prove a decrease in total rice production in Kudus Regency if it is supported by agricultural technology and also agricultural intensification. Related to the fulfillment of the needs of the population of Kudus Regency for rice which is still lacking, so it needs to get serious attention from the Regional Government of Kudus Regency so that these basic needs can be fulfilled.

Keywords: Land conversion, rice fields, rice production, and food security

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INTRODUCTION

Food needs are basic needs for humans. Its fulfillment has also been guaranteed by the state in the 1945 Constitution article 28H paragraph 1. Food needs are said to be fundamental needs because if they are not fulfilled, then one's life can be said to be unworthy. Fulfillment of food is very important because it determines the quality of human resources (Nurpita et al., 2018).

At the present time, in line with the increasing standard of living and the opening of opportunities to create job opportunities which is marked by the large number of investors or the community and the government in carrying out development, the need for land is increasing. The increase in land demand is driven by an increase in population, while the availability and area of land are fixed. This results in a reallocation of land use from less profitable activities to more profitable activities. Activities that are always threatened, especially agricultural activities, are considered less profitable than other economic activities.

Productive agricultural land is an important asset in agricultural development. Land conversion takes place continuously in line with increased development, namely for the purposes of industry, tourism, settlements and so on. The existence of an economic transformation marked by a shift in roles between sectors requires the conversion of

agricultural land in large quantities. Cases of conversion of agricultural land in areas with low productivity are not too threatening to food production. However, when the conversion of agricultural land occurs in irrigated land with high productivity, this is a threat to food availability, especially the staple food of the population (rice).

The existence of the conversion of paddy fields which causes the narrowing of paddy fields has an impact on decreasing rice production, even though rice fields are land used by farmers to grow rice, the staple food of the Indonesian people. The threat to the important role of the agricultural sector is caused by changes in the use of agricultural land due to changes in regional spatial plans and policies on development directions

Refinement more land _ vigorous in the sacred sphere will make a worry drop production rice, so endurance will food Becomes vulnerable, while resistance food refers to independence fulfillment endurance food rice, plus conditions around the pantura area also have very climate _ hard to guess although for protein consumption, it has met the requirements, but for the consumption of tubers it has not been able to meet the requirements of 2.5% of the expected diversity of food consumption. This is as described from the results of the PPH survey (Platan Pangan Harapan) with a score of 81.7. The distribution institutions at the sub-district and village levels are adequate, for example, there are rice

milling companies, LUEP (Rural Economic Enterprises) and food granaries.

Diversion the function of rice fields in the District of Jaten, Karanganyar is increasing, this is influenced by strategic geographical location, Population Growth and Housing Needs, industrial development, and individual factors of Farmers. The shrinkage of paddy fields significantly affects the reduction in total rice production (Wibowo, 2015)

Diversion Land is also often affected by the complexity of problems due to population growth, the discovery and use of technology, and the dynamics of development

As a basic need and one of human rights, food has a very important meaning and role for life. Availability of food that is smaller than the level of community needs will create economic instability. Various social and political upheavals can also occur if food security is disturbed. This critical food condition can even endanger economic stability and national stability (Hafidah 2017)

Based on the phenomena that occur above, the authors try to dig deeper into the impact of the conversion of rice fields that occurred in Kudus Regency and what factors trigger the high land conversion and what is the role of local governments in dealing with this phenomenon. The purpose of this study is to determine the level of production, food availability for the community and to analyze the level of food accessibility for households in

villages in underdeveloped districts in Kudus District.

THEORITICAL REVIEW

Land Use Transfer Theory

Land is a strategic natural resource for development. Almost all sectors of physical development require land, such as agriculture, forestry, housing, industry, mining and transportation. In agriculture, land is a very important resource, both for farmers and for agricultural development. This is based on the fact that in Indonesia agricultural activities still rely on land (land-based agriculture activities). Agricultural land is the most widely used land for land conversion activities (P et al., 2010) .

Lestari (2009) defines land use change or commonly referred to as land conversion is a change in the function of part or all of the land area from its original function (as planned) to another function which has a negative impact (problem) on the environment and the potential of the land itself (Nurpita et al. al., 2018) .

The pattern of land use change can be viewed from several aspects. According to the actors of the transfer of functions, it can be divided into two. First, the transfer of function directly by the owner of the land concerned. Usually, the motive for action is divided into 3, namely: (a) to fulfill the need for housing, (b) in order to increase income through business transfers, (c) a combination of (a)

and (b) for example to build a house which is also used as a residence. place of business. Second, the transfer of functions that begins with the transfer of control. The owner sells it to another party who will use it for non-farm business or to a broker.

Factors that affect the conversion of agricultural land are grouped into 2 important factors that often occur in an area, namely internal factors and external factors. The internal causes that encourage the conversion of agricultural land to non-agriculture are economic factors, demographic factors, educational factors, social and political factors, and behavioral factors. While external causes include population density in rural areas which have a dominant rice field agro-ecosystem in general much higher than dry land agro-ecosystems so that population pressure on land is also higher, many rice fields are located close to urban areas, due to previous development patterns, and development infrastructure and facilities for settlements and industrial areas that tend to take place quickly in areas with flat topography.

Production Theory

Air pollution is one of the environmental problems faced by many countries in the world, including Indonesia. This air quality tends to worsen, especially in some urban areas of Indonesia. Over the last few decades, based on the results of

monitoring on the parameters of the particulate and oxidants/ozone (O_3), which is where both of these parameters tend to increase over the years. This increase can affect the ecosystems and human health is that of increasing population and the need for transportation and energy.

According to Rosyidi, of course, production cannot be carried out if there are no materials that allow the production process itself to be carried out. To be able to carry out production, people need human labor, natural resources, capital in all its forms, and skills. All these elements are called factors of production. So, all the elements that support the effort to create value or increase the value of goods are referred to as factors of production. There are three factors of production, namely land, labor and capital and skills.

What is meant by the term land or land here is not just land to be planted or to live in, but also includes all natural resources (natural resources). That is why the first factor of production is often called land. Thus, the term land or land means everything that can be a factor of production and originates and is available in nature without human effort.

While the production or supply of rice is the main source for needs and the fulfillment of needs indicates the level of food security of rice itself. Meanwhile, rice is the main staple food of the Indonesian people. The need for rice from year to year continues

to increase due to the increase in population and this need must be met. Food shortages affect poor nutrition, health, and at the same time reduce the quality of human resources. Therefore, the government always strives to have and maintain food security, especially rice (I gusti ngurah santosa 2010) .

Food Security Theory

Food is a primary need for humans. The need for food must be met so that a person's survival can be guaranteed. The population in Kulon Progo Regency, especially Temon District, mostly has a livelihood from farming or farming. Thus, agricultural land is the main production factor for farmers to be able to grow various types of food crops (Nurpita et al., 2018) .

Food security is the condition of the fulfillment of food for the state to individuals, which is reflected in the availability of sufficient food, both in quantity and quality, safe, diverse, nutritious, equitable and affordable and does not conflict with religion, belief and culture of the community, in order to be able to live. healthy, active, and productive in a sustainable manner. The focus of food security is not only providing food at the regional level but also at the household and individual levels. The government is also responsible for providing the community's staple food, especially rice. This is because rice is a staple food for the people of Indonesia, especially in Java (P et al., 2010) .

Suryana (2003) states that food security is an integrated food economic system consisting of various subsystems. The main subsystems are food availability, food distribution and food consumption. The realization of food security is a synergy and interaction of the three subsystems. The three subsystems are a unit that is supported by various inputs of natural resources, institutions, culture and technology. The food security development process will run efficiently if there is community participation and government facilitation (Hidayat et al., 2018) .

Food security is a condition when all people at all times have physical, social and economic access to adequate, safe and nutritious food for their nutritional needs in accordance with their tastes for a productive and healthy life. Food security has 5 elements that must be met, namely: household and individual oriented, time dimension when food is available and accessible, emphasizes access to household and individual food, both physical, economic and social, oriented towards fulfilling nutrition, and is aimed at to live a healthy and productive life (Saliem & Ariani, 2016) .

Food security which is a translation of food security covers many aspects and is broad so that everyone tries to translate it according to the purpose and availability of data. Discussing food security basically also discusses things that cause people to not have

their food needs fulfilled. These include the availability of food, employment and income. These three things determine whether a household has food security, meaning that it can meet the food and nutritional needs of each family member (Food Security Council, 2009).

According to Suhardjo (1996) the condition of household food security can be reflected by several indicators, including: (1) the level of damage to crops, livestock, fisheries; (2) Decrease in food production; (3) The level of food availability in the household; (4) Proportion of food expenditure to total expenditure; (5) Fluctuations in the prices of main food commonly consumed by households; (6) Changes in social life such as migration, selling/doubling their property, borrowing); (7) Food consumption conditions (eating habits, quantity and quality) and (8) Nutritional status. With regard to indicators (7) and (8) indicators of food security can be seen from household food consumption and the nutritional status of the community (Suharyanto, 2011).

Food security is realized if in general two aspects have been met at once. The first is the availability of sufficient and equitable food for the entire population. Second, every citizen has physical and economic access to food to meet nutritional adequacy to live a healthy and productive life from day to day. Food security at the household level is the foundation for community food security,

which in turn becomes a pillar for regional and national food security (Saliem & Ariani, 2016).

RESEARCH METHODS

The analytical method used in qualitative research is descriptive analysis to approach the situation, structure, behavior, and performance (SSPP). The use of this approach is based on the consideration that accusations of being sensitive (vulnerable) to food often occur in underdeveloped villages. The results of this study indicate that the performance of food production, especially rice or rice, has increased significantly from year to year, but the increase in production has not been able to offset the growth of rice consumption which grew higher than the growth of rice production. This shows that in terms of food availability, food security in the research area is still very low (Development, 2012).

The research was conducted in Kudus Regency. Determination of the location is done purposively (deliberately). The research location was chosen on the grounds that most of the agricultural land was converted to non-agricultural land. Data collection was carried out in 2019-2020. The data used in this study consisted of secondary data. The data is obtained from agencies or institutions related to the substance of the research, such as the Central Statistics Agency (BPS), as well as the Agriculture and Food Service of Kudus Regency.

RESULTS AND DISCUSSION

Change of Function of Rice Fields

In the agricultural sector, Kudus Regency was formerly known as a rice barn area. One of the areas is in the district invitation, Holy However, after slowly Rice fields are converted into industrial and residential land causing the land area and rice production to decrease from time to time. Here there is a need for the role of the Regional Government to increase rice production so that this phenomenon can be overcome.

Table 1. Land Area Agriculture

No	Year	Agricultural Land		Non-Agricultural Land	Total Number
		Ricefield	Not Rice Field		
1	2014	20,653	7,555	14,308	42,516
2	2015	20,590	9,791	12,135	42,516
3	2016	20,590	9,791	12,135	42,516
4	2017	20,561	9,791	12,164	42,516
5	2018	18,477	10,919	13,120	42,516

Source: Kudus Regency in Figures

Based on the table above, it can be seen that the area of rice fields has decreased from year to year. In 2014 the area of paddy fields was 20,653 Ha. During the 2015-2016 period, Kudus Regency experienced a stable agricultural land area of 20,590 hectares. Compared to the 2017-2018 period, which experienced a significant land use change of 2,084 hectares due to the expansion of the industrial area expansion area in Kudus Regency.

Table 2. Land According to Type Irrigation

No	Year	Irrigation	Rainfed	Tidal Swamp	Lebak Swamp	Amount
1	2014	13,964	6,689	0	0	20,653
2	2015	14,057	6,533	0	0	20,590
3	2016	14,055	6,535	0	0	20,590
4	2017	14,034	6,527	0	0	20,561
5	2018	11,667	6,495	63	252	18,477

Source: BPS Kudus Regency

The area of rice field agricultural land by type of irrigation in Kudus Regency in 2017-2018 successively the land that experienced the conversion of rice fields from the largest was irrigated rice, which was 2,367 Ha. While the amount of decrease in rainfed rice fields for the 2017-2018 period was 32 hectares. From these data, it can be seen that the largest land area experiencing conversion of rice fields is irrigated rice fields, this situation will have an impact on substantial cost losses because the costs incurred by the government to build irrigated rice fields are quite expensive and irrigated rice fields are rice producers. with the highest productivity and intensity of rice plants compared to rainfed rice fields.

The conversion of paddy fields is very influenced by demand for land according to economic sector, namely non-agricultural and agricultural use. Conversion of paddy fields to non-agricultural uses shows a larger amount than to other agricultural uses, such as for settlements/housing, industrial zones, facilities and infrastructure and other uses. Meanwhile, the use for agriculture is still limited to the use of the livestock, plantation,

food crops and fisheries sectors (Irawan and Friyatno 2002) .

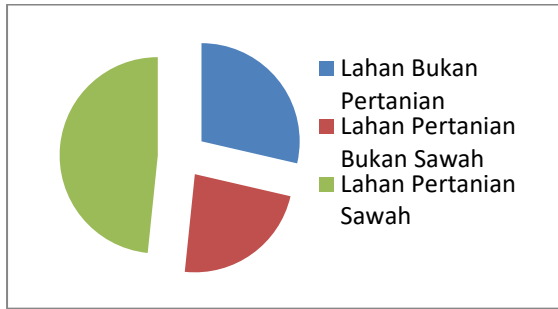


Figure 1. Land Agriculture

Source: BPS Kudus Regency (processed)

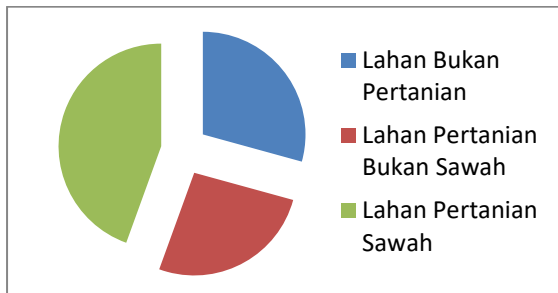


Figure 2. Land Farming After Change

Source: BPS Kudus Regency (processed)

The picture above shows a decrease in the area of paddy fields from 48.36% to 43.46%. If the issue of conversion of rice fields is not followed up by the local government, it will reduce the production of the land, coupled with the increasing population, causing the need for land to also increase and the need for food, especially rice, will also increase along with population growth . & Rosa, 2018) .

The increase in population is also accompanied by an increase in demand for housing (housing), so it is also necessary to increase infrastructure development such as roads, markets, shops, trade centers and other

facilities and infrastructure, as well as an increase in employment opportunities, so that many investors flock to establish industrial estates, minimarkets, trade, and services and so on.

The high rate of conversion of paddy fields has implications for decreasing food availability for the population so that it will have an impact on decreasing food production, especially rice which can pose a threat to the food security of the population. The increasing population demands food availability and higher food production in the midst of the increasingly large conversion of agricultural land for food crops in Kudus Regency (Prasada & Rosa, 2018).

Causes of the Aih Function of Rice Fields

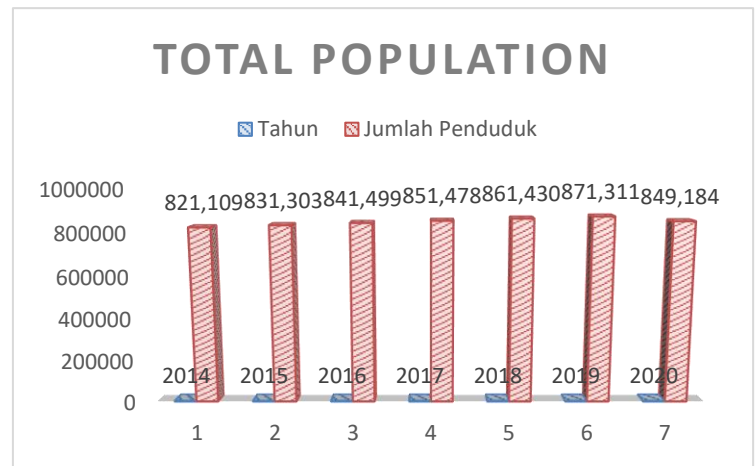


Figure 3. Amount Resident

Source: BPS Kudus Regency

Population growth something region besides influenced_by fertility and Mortality is also influenced by factors migration. From BPS data Regency Kudus in 2014 the population was 821,109 people. During 2015-

2016 there was an increase in the population 10,196 souls. In addition, during the 2017-2018 period, the increase in population reached 9,952 people. Furthermore, in 2019-2020 the population decreased by 22,127 people. This figure is a combination of fertility, mortality and migration.

High population growth rate in the district Holy because high birth and migration rates. This is due to the economic growth in Kudus Regency namely by the construction of industrial centers, shops, trade and service centers, as well as the role of the Kudus Regency which has an attraction for immigrants. It is proven by the highest population density occurring in areas close to industrial areas or economic centers in Kudus Regency.

When viewed from the development of the area of rice fields and the population of Kudus Regency until 2020, it can be seen if the population growth of Kudus Regency from year to year has increased, with increasing population growth, the demand for land (rice fields) cannot be avoided anymore, with the shrinkage of paddy fields per year is considered by the author to be quite high. The demand for land for various purposes, be it housing, industry, trade, infrastructure, markets and others will continue to increase from year to year, so the local government must make strict rules to limit the shrinkage of the land (rice fields).

Rapid economic growth and the many industries that are developing in the Regency Holy is one of the pull factors for immigrants to migrate from their area of origin to Kudus Regency. In addition, the role of Kudus Regency as a kretek city causes Kudus Regency to be the residence of workers who work in the Kudus area and its surroundings, this is also reinforced by the strategic location of Kudus Regency.

The rapid growth of Kudus Regency was also accelerated by the presence of two tombs of Walisongo members in Java, namely Sunan Kudus and Sunan Muria. In addition, the existence of a designation as a kretek city, which is an activity in the industrial sector in factories in Kudus Regency, has opened up opportunities for the development of production, trade and service activities widely in Kudus Regency.

There is the development of the north coast highway infrastructure in Kudus Regency. And with the existence of factories built in strategic places, it attracts investors to invest in Kudus Regency, one of which is in the property sector (buildings), be it housing, warehousing, shops, or industrial area development.

With the increase in residential areas, warehousing, shops and industrial areas, the demand for land is also increasing, so that the practice of changing the function of rice fields is also increasing and cannot be avoided anymore. There is a transformation of the

economic structure that leads to an increase in the role of the industrial and service sectors, changing the amount and rate of use of production factors such as labor, capital, and land between sectors. The strategic geographical location allows Kudus Regency as an industrial area, as well as population growth that continues to increase, bringing consequences to changes in resource allocation, especially land resources. As a result, there will be a reallocation of land resources between sectors, where the reallocation is prioritized to uses that have the highest rate of return, such as use for industrial activities as the main activity that can attract the development of other activities such as settlements, trade and other infrastructure. so that land conversion is inevitable.

Table 3. Impact of the Conversion of Rice Fields on Rice Production and Food Security

No	Variable Indicator	Mark
1	Amount Availability Main Food (rice) in 2019	1,065.866 _
2	Amount Resident year 2019	860055
3	Percentage Availability Main Food	123.93

Source: Agriculture and Food Service of Kudus Regency

Table 4. Impact of the Conversion of Rice Fields on Rice Production and Food Security

No	Variable Indicator	Mark
1	Amount Availability Main Food (rice) in 2020	1,511.808 _
2	Amount Resident year 2020	865,969
3	Percentage Availability Main Food	174.58

Source: Agriculture and Food Service of Kudus Regency

The achievement of the main food availability indicator in 2020 in Kudus Regency was 174.58%, this indicator has increased when compared to 2019 of 123.93%. This is due to the large amount of rice aid that has entered Kudus through the COVID-19 pandemic social assistance so that food supplies in Kudus increase.

Table 5. Amount Production

No	Year	Production Paddy	Harvest Area	Profitability (tonnes/Ha)
1	2019	166,494 tons	25,015 Ha	6.65
2	2020	167,878 tons	25,555 Ha	6.57

Source: Agriculture and Food Service of Kudus Regency

of lowland rice production from 2019-2020 has increased by 1,384 tons, this is due to the use of good agricultural technology and supported by the socialization of good farming practices by the Agriculture and Food Office of Kudus Regency so that the risk of crop failure (puso) can be avoided.

To achieve food self - sufficiency based on independent rice production, participation from various parties, both from the local

government, namely through the agriculture and food service, must implement a policy or a good method of farming so that crop yields can be expected to meet the demand for rice in Indonesia. Kudus District. The spatial planning office must also firmly determine which areas can be converted and which areas cannot be converted so that investors cannot buy people's land (rice fields) at will with the aim of converting it.

In addition to the need for strict and firm legislation, the apparatus must also be disciplined and consistently carry out the applicable laws and regulations. Perpetual land mapping, such as a proposal from the agriculture and food office, the spatial planning office also needs to coordinate with the irrigation service so that land in areas that have fertility levels with good quality and irrigation are known and how large the land is. From the results of coordination with several of these services, the spatial planning office will make a draft regulation on eternal land and mapping its territory.

The conversion of land functions has resulted in farmers who were originally cultivating food crops and being able to fulfill their own food availability (rice) for their households to not have rice and have to buy it. Another impact of land conversion is the loss of their livelihood as a farmer, the loss of job opportunities in farming. With the loss of livelihood as a farmer, income and purchasing power will decrease and have an impact on

decreasing the economic accessibility of farm households to food.

Efforts to control the negative impact of land conversion for food crops can be done by developing a land compensation system. For the agricultural sector and rural areas, the conversion of land for food crops has two main impacts, namely a decrease in food production capacity and a decrease in the absorption capacity of agricultural labor. Therefore, the amount of compensation given must at least be able to restore the balance of food supply and the balance of employment opportunities in rural areas which are disturbed due to the conversion of land for food crops (Irawan and Friyatno 2002).

Limitations in study this is researcher still not yet involve variable other and the coverage area still small, input from researcher is add variable other as well as add more area big.

CONCLUSION

The conversion of paddy fields has a major impact on rice production in Kudus Regency. This can occur because of the need to construct buildings, whether in the form of housing or industrial areas, thereby changing the role of agricultural land into non-agricultural land. There is a need for the participation of the Regional Government to overcome these problems so that there is no shortage of main food needs (rice). Protection of food agricultural land is an integral part of

regional spatial planning. For this reason, the protection of food agricultural land needs to be carried out by determining food agricultural areas that need to be protected. Food agriculture area is part of the arrangement of rural areas in the district.

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