Pak. j. life soc. Sci. (2024), 22(1): 5028-5042 E-ISSN: 2221-7630;P-ISSN: 1727-4915

Pakistan Journal of Life and Social Sciences
www.pjlss.edu.pk

https://doi.org/10.57239/PJLSS-2024-22.1.00370

**RESEARCH ARTICLE**

# Prohibition of Transfer of Agricultural Land and Its Impact on Farmers' Welfare in Sleman Regency, Indonesia

Francisca Romana Harjiyatni*[1], Rini Anggraeni[2], Erna Sri Wibawanti[3], Paiman[4]

[1, 3]Department of Administrative Law, Faculty of Law, Janabadra University, Yogyakarta, Indonesia
[2]Department of Agribusiness, Faculty of Agriculture, Janabadra University, Yogyakarta, Indonesia
[4]Department of Agribusiness, Faculty of Agriculture, Universitas PGRI Yogyakarta, Indonesia

***ARTICLE INFO***

Received: Mar 16, 2024

Accepted: Jul 10, 2024

***Keywords***

Land conversion

Farmer welfare

Prohibit farmer

Regulation

***Corresponding Authors:**

fr_romana_harjiyatni@janabadra.ac.id

**ABSTRACT**

This study aims to analyze the regulations that prohibit farmers from changing land functions from agricultural land to non-agricultural lands and the fulfillment of farmers' rights to prosper associated with these prohibitions. The method used in this research was descriptive-analytic. Secondary data was collected by tracing laws and regulations governing the protection of agricultural land and prohibitions on land conversion and interviews with Land Deed Officials. Empirical data collected from surveys. Sampling was carried out purposively, namely, by determining research locations by considering certain objectives. A sample of 30 farmers was taken by simple random sampling from farmers who transferred their land and those who did not convert their land. The study results showed that the Sleman Regency Regulation first stipulates that 17,000 ha of land was prohibited from being converted. The control over the conversion of the 17,000 ha of land was carried out through a licensing mechanism. Second, in reality, farmers who only live from agriculture were usually less prosperous than farmers who convert agricultural land and use the land for non-agricultural activities. Thus, the prohibition of farmers from converting agricultural land into non-agricultural land violates the rights of farmers to live in prosperity. The research findings show that farmers who do not convert their agricultural land to non-agricultural land do not receive incentives, even though the welfare of these farmers is lower than farmers who convert agricultural land to other businesses. We recommend that the government must provide incentives fairly by establishing clear criteria that must be met for farmers to receive incentives. The incentives must also provide guarantees for improving the welfare of farmers.

## INTRODUCTION

Economic growth in Indonesia has led to changes in the economic structure leading to industry, namely changes in the function of agricultural land to non-agriculture. The issue of land conversion generally occurs in the agricultural sector, whose role is decreasing in line with changes in the economic structure (Alamsyar & Damayanti, 2018).

Land use change often occurs in developing countries. And currently, developing countries experience the highest average agricultural land conversion compared to developed and less developed countries. Loss of agricultural land is more intense in developing countries experiencing rapid economic growth and transitions in their financial structures. Not only Indonesia but other developing countries are also experiencing land conversion that is quite rapid. Depreciation or conversion of agricultural land is very intensive in Java (Sudiyarto & Indah, 2019), as well as land depreciation occurs in Sleman Regency.

Sleman is a regency on the slopes and under Mount Merapi. Based on its location, Sleman is a water catchment area and rice granary because the site is fertile and suitable for agriculture. Agricultural land must be maintained its function as agricultural land to ensure the availability of food for the community. In its development, agricultural land has been widely used for other activities, namely the conversion of agricultural land for settlements or other non-agricultural activities, including in the Sleman Regency. The highest land conversion in Sleman Regency occurred in groundwater bodies, paddy fields, and plantation areas (Aini et al., 2019)

To control land conversion in Sleman Regency, the Government determined the land in Sleman Regency as Sustainable Food Agriculture Food Land. Community members were prohibited from converting the function of the land into non-agricultural land. Meanwhile, farmers' income influenced farmers' awareness of maintaining sustainable agricultural land (Triyono et al., 2022; Rashid et al., 2023). In Addition, poverty in Indonesia was still relatively large and was greater in rural areas. An imbalance in development between villages as agricultural producers and cities as centers of activity and economic growth causes poverty in rural areas (Anwarudin & Dayat, 2019). The socio-economic conditions of farmer households related to the low income of farmers had triggered farmers to divert land for non-agricultural businesses (Harini et al., 2012). This condition raised a great motivation for the author to examine further about: How is implementing the regulation prohibiting land conversion suppressing the rate of land conversion and what are the implications of regulating the ban on the conversion of agricultural land for the welfare of farmers?

Land use change was an increase in land use or a land function change at different periods. In this case, land originally used for agricultural activities had changed its function into housing and settlements, industry, trade and services, offices, and other urban activities (Surya et al., 2020). The other researcher stated that land conversion was the change from one type of land use to another caused by the need for land areas for regional development. The most common land conversion was from agricultural to non-agricultural land due to industrialization (Warlina & Pradana, 2021).

Demand for non-agricultural land used increasing, while the land was unavailable to meet this demand. The increase gradually resulted in agricultural land being converted for non-agricultural use (Govindaprasad & Manikandan, 2014). In addition, agricultural land had a lower value than land for other functions, so conversion to non-agricultural land continued to occur (Prayitno et al., 2021).

One study's results showed that after the land conversion, the welfare of the farmer households decreased by 0.4% and was included in the high welfare category (Romadi et al, 2021). This research showed that land conversion caused a decrease in the level of welfare of farmers that was not significant. The results of research conducted by Al-Fajar et al (2017) showed that farmers obtained an increase in welfare value of 0.72% of the welfare value before land conversion. The results of this research show that farmers' income has increased after land conversion. Other research showed that agricultural land generated higher profits after conversion (Rondhi et al., 2018). In addition, it had a positive effect, namely the opening of new jobs, new business opportunities such as traders (selling near industrial factories), and the results of selling land, repairing houses, and buying new homes (Nangoi et al., 2021).

Because land conversion does not have a significant effect on decreasing farmer welfare, it even showed an increase in farmer welfare, causing land conversion to experience a sharp increase. Land conversion occurs mainly in areas where the community's economy was well-developed (Nuryartono et al., 2017). The Sleman area was an area that was growing, and the people's economy was increasing. This economic development goes hand in hand with the increasing conversion of agricultural land (Oktiana et al., 2020)

This conversion was the cause of reduced food in agricultural land. In the end, with insufficient food needs, national food security was reduced (Gultom et al., 2021; Mustapha et al., 2024) The transformation of agricultural land to non-agricultural land can threaten the sustainability of regional food security (Widowaty & Artanto, 2018; Kanval et al., 2024). For this reason, efforts were needed to control agricultural land conversion through legislation (Isa, 2006). Regulation was a solid guarantee in preventing the conversion of agricultural land. In the legal aspect, it was necessary to stipulate binding laws and regulations concerning the protection of productive farmland, which form the basis for determining the zoning of perennial agricultural land (Lee et al., 2020; Jadoon et al., 2024)

Currently, the Sleman Regency Government must carry out regulations from the center to protect agricultural land from converting into non-agricultural functions. To preserve agricultural land, the local government issues Sleman Regency Regional Regulation No. 6 of 2020 concerning the Protection of Sustainable Food Agricultural Land, which was the implementing regulation of Law no. 41 of 2009. Based on this regulatio s designated n, 17,000 ha of agricultural land in the district wa as perpetual pastoral land, which may not be converted. With this stipulation, farmers in the Regency who own land in the area may not restore their agricultural land into non-agricultural land.

On the other hand, it was difficult for farmers to increase their income for their daily needs by maintaining their land as agricultural land. As a result, revenue from the farming sector was lower than from other sectors. To increase income, the solution was often to use the land for activities other than agriculture. The prohibition on land conversion caused farmers to be unable to use their agricultural land for other activities that provided more welfare for farmers.

Upon the above literature, the following hypotheses are formulated: Upon the above literature, the following hypotheses were formulated that land conversion was thought to increase the welfare of farmers because they get additional income from land use for non-agricultural businesses.

## METHOD

### Study site

This research was conducted from November 2021 to November 2022, located in Sleman Regency, Special Region of Yogyakarta. Geographically, Sleman Regency was located between 110° 33′ 00″ and 110° 13′ 00″ East Longitude, 7° 34′ 51″ and 7° 47′ 30″ South latitude. The total area of Sleman Regency was 57,482 ha or 574.82 km2 or about 18% of the Province of Yogjakarta Special Region of 3,185.80 km2, with the farthest distance North–South 32 km, East–West 35 km. Administratively, it consisted of 17 districts, 86 villages and 1,212 hamlets.

## METHODOLOGY

The method used in this research was descriptive-analytic. Secondary data was collected by tracing laws and regulations governing the protection of agricultural land and prohibitions on land conversion and interviews with Land Deed Officials. Empirical data collected from surveys. Sampling was carried out purposively, namely the deliberately determining research locations by considering certain objectives; Sleman Regency was chosen as one of the rice-producing regions in the Special Region of Yogyakarta, which concerned rice production and productivity. A sample of 30 farmers was

taken by simple random sampling from farmers who transferred their land and those who did not convert their land.

### Research procedure

Observational data was first compiled, described, then analyzed by quantitative research methods, namely sampling from a population using questionnaires as data aids. Primary data were obtained directly from respondents through interviews using the questionnaire that has been provided. The primary data sources in this study came from rice farmers who diverted land and rice farmers who did not transfer land. Secondary data were in the form of data reports and official documents from agencies related to the research. This data was a general state of the research area, economy, population, and data related to the purpose of the study.

### 2.4. Variable observation

To find out the income of rice farmers who transfer land and do not transfer land, the amount of production costs and income of rice farming must first be known. Production costs are calculated by the formula TC = EC + IC. TC is the total cost of rice cultivation, EC is the total explicit cost, and IC = total implicit cost. Farm income: TR = PY × Y. TR = Total income of rice farming business with land conversion and non-land conversion (USD /ha/year). PY is the price of rice (USD /kg), and Y is the rice yield (kg). Rice farming income is calculated using the formula: Pd = TR - EC. Rice farming revenues that transfer land functions and those that do not transfer land functions (US$/ha/year). TR is the total income of farmers who transfer land functions and who do not transfer land functions (USD/ha/year). EC costs explicitly incurred for rice cultivation (USD /ha/year).

Farmers' total income was obtained from summing the farming and non-farming. The total net income of farmers was obtained by subtracting the total income of food and non-food expenditures. The conversion of agricultural land impacted farmer consumers, namely by calculating the difference between farmers' income before and after land conversion. The value of this difference will be averaged to get the average change in farmers' income due to land conversion.

## RESULTS

### Regulations concerning Land Conversion Control

Government intervention in land policy was needed to preserve agricultural land. The more progressive the Protection of Agricultural Land through the law, the more difficult it was to change agricultural land use. Control over the function of agricultural land was also regulated by Law no. 41 of 2009 concerning the Protection of Sustainable Food Agricultural Land, followed by Local Government Regulation of Sleman Regency Number 6 of 2020 concerning the Protection of Sustainable Food Agricultural Land. Sustainable Food Agricultural Land was land determined to be protected and consistently developed to produce plant and animal food for self-sufficiency and regional food security. These provisions indicated that protected agricultural land must be maintained to remain farmland and not function for purposes other than agriculture, animal husbandry, fisheries, and plantations. The government has designated 17,947.54 ha of Sustainable Food Agriculture Land and 534.50 ha of Sustainable Food Agriculture Reserves. The total area for sustainable food agriculture land was 18,482.04 ha spread over 16 sub-districts in Sleman Regency.

Based on the results of interviews with the Sleman Regency Land and Spatial Planning Office, this determination was intended to ensure the continuity of agricultural production and meet the needs of the growing population. Control of Sustainable Food Agricultural Land based on Article 18 was carried out by incentivizing farmers. Incentives were given to land owners, sharecroppers, and farmer groups in the form of; 1) land and building tax reduction; agricultural infrastructure development; 2) utilization of the results of research and development of superior seeds and seedlings; ease in accessing information and technology; 3) facilitation of agricultural production

facilities and infrastructure in the form of fertilizers, seeds, pesticides, and agricultural machinery; 4) integrated pest management assistance; and 5) farming insurance; awards for outstanding farmers.

Incentives were given by considering: 1) types of Sustainable Food Agricultural Land; 2) soil fertility; 3) land area; 4) irrigation; 5) level; 6) land fragmentation; 7) farming productivity; 8) location; 9) agricultural business collectivity; and 10) environmentally friendly farming practices. Violation of the provisions in this regional regulation was subject to criminal sanctions. Concerning criminal sanctions, article 37 stated that:

1). Any person or regional government official who performs the conversion of the function of Sustainable Food Agriculture Land as referred to in Article 21 paragraph (2) shall be punished with imprisonment and a fine as stipulated in Article 72 paragraph (1) and (3) of Law Number 41 of 2009 concerning Protection of Sustainable Food Agricultural Land namely:

   a). Individuals who carry out the conversion of the function of Sustainable Food Agriculture Land as referred to in Article 44 paragraph (1) shall be subject to imprisonment for a maximum of 5 (five) years and a maximum fine of USD 64,431.54.,

   b). Individuals who do not carry out the obligation to restore the condition of the Sustainable Food Agricultural Land to its original state as referred to in Article 50 paragraph (2) and Article 51 shall be subject to imprisonment for a maximum of 3 (three) years and a fine of up to USD 193,294.61, and

   c). If the acts referred to in paragraph (1) and (2) are committed by a government official, the penalty shall be added to 1/3 (one-third) of the penalty imposed.

2). Each regional government official authorized to issue permits for converting sustainable food agricultural land must comply with the provisions referred to in Article 21 paragraph (2). If the authorized official violates these provisions, the punishment is imprisonment and a fine, as stipulated in Article 73 of Law Number 41 of 2009 concerning the Protection of Sustainable Food Agricultural Land. If the authorized official violates these provisions, the punishment is imprisonment and a fine, as stipulated in Article 73 of Law Number 41 of 2009 concerning the Protection of Sustainable Food Agricultural Land.

Regulations prohibiting land conversion and its sanctions have been promulgated, and it is hoped that this will reduce the rate of land conversion. In reality, there have been many conversions of agricultural land to non-agricultural land every year and these regulations have not been implemented optimally against these violations. As a result of changes in the function of agricultural land, rice production is lost every year. Based on the empirical data obtained related to land conversion can be seen in Table 1.

**Table 1. Changes in land use and lost rice production in Sleman Regency**

| | Year | | |
|---|---|---|---|
| Information | 2020 | 2021 | 2022 |
| Productivity (tons/ha) | 5.84 | 5.96 | 5.73 |
| Area of land use change (ha) | 31.94 | 91.02 | 95.81 |
| Lost paddy production (tons) | 186.53 | 542.48 | 548.99 |

Source: Primary Data Analysis, 2022

Based on Table 1 shows that the area of change in land use has increased in three years, which affects expanding the amount of lost rice production.

**Agricultural Land Conversion and Welfare of Farmers**

The conversion of agricultural land functions was rife and used for business activities in the non-agricultural sector. The reduction in agricultural land that occurred in several villages was due to community needs, not due to a decrease in the quality of the land, but rather an economic calculation to carry out daily activities related to meeting household needs. The factor that most dominated land use changes was that people preferred to invest in their land. Agricultural land has turned into a trading and shopping center due to the needs and tendencies of the people who need space for economic activities. The conversion of agricultural land functions occurs because land ownership is generally private. The state guarantees ownership of property rights. This right opened opportunities for investment outside the farming sector (Umanailo et al., 2019).

Agricultural land converted into non-agricultural use will directly impact rice production and the value produced from that area. The amount of lost rice production was affected, among others, by the lost harvested area, the productivity of paddy fields, and the cropping pattern in one year. Harvested area was the total area of rice fields cultivated or harvested in one year. In this study, the researcher assumed that the farmers cultivated all of the missing paddy fields and there were no crop failures. It was also assumed that the cropping pattern for the entire land was harvested three times in one year. This means the lost harvested area was three times the converted paddy field area. The productivity of paddy fields was the yield per hectare of paddy fields. The productivity of paddy fields in this study was assumed to be the same, so there was no difference in the irrigation and the type of rice planted. The lost production value of paddy fields per year in Sleman Regency can be seen in Table 2.

**Table 2. Paddy Production Value In Lost Paddy Fields per Year in Sleman Regency**

| | Year | | |
|---|---|---|---|
| Information | 2020 | 2021 | 2022 |
| Lost low land rice production (tons/ha) | 186.53 | 542.48 | 548.99 |
| Low land rice commodity prices ($/kg) | 5,550.00 | 5,272.41 | 4,527.59 |
| The lost production value of lowland rice (USD) | 1,035,241.50 | 2,860,176.98 | 2,485,601.63 |

Source: Primary Data Analysis, 2022

Based on Table 2 shows that rice production's lost value every year has increased due to land conversion. Reduced agricultural land resulted in reduced rice production. The missing paddy production value each year increases when added up over 3 (three) years. The lost production value is USD 4,111,382.31.

The land conversion that occurs will reduce the total income of farmers because lose land that can be worked on. Land conversion begins with the transfer of land authority from farmers to other parties. Some farmers have sold part of their land and were still cultivating it, and some have sold out their land. Production yields from the land that has been sold are considered zero because, in the future, the land will become non-agricultural land. The average income change before the land conversion was assumed to be the total income of farmers from agricultural products and side income when the

researchers conducted interviews. Income after land conversion was assumed to be obtained from the calculation of income still cultivating the land and side income. Estimations regarding the average income before and after land conversion can be seen in Table 3.

**Table 3. The Average Income of Rice Farmers Who Carry Out Land Conversion and Non-Land Conversion**

| Information | non-land conversion | | land conversion | |
|---|---|---|---|---|
| | Per Farm/year | Per ha/year | Per Farm/year | Per ha/year |
| Land area (ha) | 0.22 | | 0.09 | |
| Production (kg) | 4,396 | 19,782 | 1,523.30 | 16,923.86 |
| Price ($) | 0.27 | 0.27 | 0.27 | 0.27 |
| Rice Farming Revenue ($) | 116,767.98 | 5,401.88 | 40,575.92 | 4,507.25 |
| Chili Farming Revenue($) | - | - | 11.90 | 140.52 |
| Total Farm Revenue ($) | 1,199.77 | 5,401.88 | 417.66 | 4,648.60 |
| Production Cost ($) | 324.05 | 1,545.57 | 57.57 | 647.98 |
| Paddy Farming Income ($) | 874.90 | 3,855.48 | 282.93 | 3,293.06 |
| Non-Farming Income ($) | 0 | 0 | 1,729.45 | 1,729.45 |
| Farmers Total Income ($) | 874.90 | 3,881.62 | 2,040.06 | 5,057.14 |

Source: Primary Data Analysis, 2022

Table 3 shows that the average land ownership of farmers who do not transfer land is 0.22 ha, wider than farmers who convert land functions. On the other hand, the average land ownership of farmers who carry out land conversion was 0.09 ha. The narrowing of agricultural land occurs because some farmers transfer their land to other people or use part of their land for buildings or residences so that the area of agricultural land becomes increasingly narrow.

The average production of farmers who did not transfer their land was 4,293.33 kg/farm or 19,782 kg/ha, higher than farmers who converted their production land, which was 1,523.30 kg/farm or 16,923.86 kg/ha. Its was because farmers who do not transfer their land are more intensive in managing their farming. In addition, farmers focus on managing their land because there are no other side jobs, while farmers who transfer their land were divided because they are more focused on working outside their farming business.

Judging from the income of farming, farmers who do not transfer their land were USD 1,208.48/farm or USD 5,438.17/ha were greater than farmers who convert their land, which was USD 408,43/Farm or USD 4,537.67/ha. In addition to rice, there was income from farming, namely chili, so the total income was USD 421.24/farm or USD 4,679.95/ha. Even so, the income of farmers who transfer their land is still lower than farmers who do not convert their land.

Judging from the total farming income, for farmers who did not transfer their land, it was USD 881,48 /farm or USD 3,881.62/ha, while for farmers who converted their land total farming income of USD 285.62 /farm or USD 3,315.51/ha. So if you look at it per hectare, the income of farmers who did not convert their land is higher because the productivity per ha was greater.

Furthermore, the researcher provides an overview of the total income of farmers obtained from farming and non-farming. The income of farmers who do not transfer their land was USD 881.48/farm or USD 3,881.62/ha, less than the total income of farmers who convert their land, which was USD 2,040.06/farm or USD 5,057.14/ha. This was because there was additional income from farmers converting land of USD 1,741.64, which came from non-farm income as traders, services, or laborers. Thus, the total income of farmers who converted the function of their land was greater than those who do not because farmers only focused on managing their land without any side jobs.

The conversion of agricultural land functions had an impact on farmer consumers. The effect on income was analyzed using descriptive quantitative, namely by taking the average difference in income. The difference in income was calculated by finding the difference between the farmer's income before the land conversion and the estimated income after a land conversion occurs. The value of this difference will be averaged to obtain the average change in farmer income due to land conversion.

Then the calculation of non-land conversion income and land conversion income is set aside. The results of this difference show the effect of agricultural land conversion on the income of local farmers. The calculation of the average change in farmer income can be seen in Table 4.

**Tabel 4. Difference in Income of Farmers Not Changing Land Functions and Farmers Changing Land Functions**

| Information | Non-land conversion | Land conversion | Income difference (USD) |
|---|---|---|---|
| | Per farm/year | Per farm/year | Per farm/year |
| Food Expenditures ($) | 373.94 | 293.10 | - |
| Non-Food Expenditure ($) | 289.68 | 734.24 | - |
| Total Expenses ($) | 663.62 | 1,027.34 | - |
| Total Farming Income ($) | 883.32 | 2,044.32 | 1,161 |
| Farmer Net Income ($) | 219.70 | 1,016.98 | 797.28 |

Source: Primary Data Analysis, 2022

Table 4 shows that the average difference in farmers' income was USD 1,161.00. The average farm total income decreased monthly by around USD 96.75; this will occur when part or all of the land was converted to non-agriculture. However, if farmers convert their land partially or completely but have

other income besides farming, the income of farmers who convert the land is higher than those who do not. The difference in income was USD 797.28/year or 66.30/month.

## DISCUSSION

### Implementation of Regulations Prohibition of Conversion of Agricultural Land Functions

Sleman is an area in the Province of the Special Region of Yogyakarta, Indonesia, designated as a water absorption area and rice barn for the people of the Special Region of Yogyakarta and its surroundings. The government made a policy to retain land in Sleman for agricultural land. Pasour (1982) said that "Agricultural land must be protected to ensure production of sufficient food and fiber to meet the requirements of a growing national and world population. In some cases, it was argued land should be protected to ensure the continuation of agricultural production in particular geographical regions. In this view, even if agricultural land was not required today, it will be required tomorrow."

Some argue that it was necessary to build protected areas in the agricultural land complex to preserve agricultural land. However, these protected areas must not be converted to non-agricultural use to stop the irreversible degradation of the best-quality soils (Busko & Szafranska, 2018; Zou et al., 2023).

Protection of agricultural land was necessary to ensure agricultural production and meet the needs of a growing population. Busko & Szafranska (2018) said that "Land conversion has a serious implication to food production, physical environment and wellbeing of farming, and rural communities, whose life was dependent on their land".

For this purpose, the government has designated Sustainable Food Agriculture Land (LP2B) and Sustainable Food Agriculture Reserve Land (LCP2B). The area of land use for LP2B in Sleman Regency was 17,947.54 ha, and LCP2B was 534.50 ha. The total land area was 18,482.04 ha which was prohibited from being converted into non-agricultural use.

Land designated as sustainable food agriculture (LP2B and LCP2B) was prohibited from being converted except for land acquisition for public purposes. Examples of land acquisition for general purposes were land acquisition for public roads, reservoirs, dams, irrigation, drinking water or clean water, drainage and sanitation, irrigation buildings, ports, airports, stations, railroads, terminals, public safety facilities, reserves, nature or generators, and power grids. In addition, the land was prohibited from being converted due to a disaster. Most of the land designated as agricultural land, which was prohibited from being converted, was community property rights. Therefore, the prohibition limited the freedom of landowners to use their land.

Administrative sanctions for violations of the obligations of people who own sustainable food agricultural land were written warnings, temporary suspension of activities, temporary suspension of public services, closure of locations, revocation of permits, cancellation of licenses, demolition of buildings, restoration of land functions, revocation of incentives, and or administrative fines. Administrative fines are as follows: a) compensating for the loss of agricultural land conversion to the owner and the obligation to replace the investment value of infrastructure, b) the obligation to return sustainable food agricultural land to its original condition after the function conversion was carried out. In addition, sanctions were also imposed on: 1). Regents/Mayors who did not take settlement steps related to the evaluation results of monitoring sustainable food agricultural land, and 2). The governor did not take any settlement steps related to the evaluation results of monitoring sustainable food agricultural land.

Criminal provisions will be imposed on cases of land conversion carried out by individuals, and these individuals cannot return the land to its original state. In addition, criminal sanctions were also imposed on government officials who issued permits for transferring sustainable agricultural land.

The increase in the area of change in land use and the amount of lost rice production described in Table 1 shows that the implementation of regulations had yet to be maximized. Even though rules regarding the prohibition of land conversion and sanctions have been enacted, changes in agricultural land use remain high. To overcome this, the Sleman Regency government set high costs for converting agricultural land in 2022.

**The Impact of Conversion of Agricultural Land Functions and Farmer Welfare.**

The policy of establishing Sustainable Food Agriculture Land was intended to maintain the existence of Sleman Regency as a food storage and water catchment area so that the government regulation and limits land use and conversion in some places in Sleman. However, this policy had a negative impact; people became attached to a particular livelihood. As a result, they were less able to optimize their assets (land) for purposes/utilization/other functions outside of agriculture. If the results obtained from the agricultural sector were less than those used for economic activities outside the farming sector, implementing program policies will have problems. The other study's results showed that the issues or causes of poverty were quite complex. Still, sustainable agricultural land programs had contributed to and exacerbated the problem of less prosperous communities (Busko & Szafranska, 2018).

This study also showed that farmers who convert agricultural land into non-agricultural land and those who do not convert agricultural land were more prosperous than farmers who convert their agricultural land. The results of an analysis of the data obtained from 15 farmers not converting their land and 15 farmers converting their land. Farmers who did not convert their agricultural land were higher income than farmers that converted their agricultural land. However, when coupled with the results from non-agricultural businesses, farmers who convert agricultural land had a much higher income than farmers who rely only on farming revenue. Therefore, it can be concluded that farmers will be more prosperous when they convert their agricultural land and rely on their income from non-agricultural businesses.

The research results in Table 4 shows a difference in farmers' income before and after converting agricultural land to non-agricultural businesses. This difference indicated that there was an increase in farmers' income. Therefore, farmers get additional income from non-agricultural businesses after farmers convert their land. This result differed from research (Yudhistira, 2013) which stated that the average difference in income was USD 213.32. On average, farmers will reduce their total monthly revenue by around 3.33 million rupiahs when all their land has been converted to non-agricultural functions by the developer. In addition, farmers' income decreases when farmers cannot use the land for other businesses that provide greater profits. In contrast, the results of this study indicated that when farmers used their land for non-farming companies, they earned more income than land used only for farming.

Thus, the ban on farmers converting agricultural land into non-agricultural to use for other businesses limits farmers' efforts to live a more prosperous life. Furthermore, the prohibition on land conversion was unfair to farmers who own land in areas designated as perpetual agricultural land because they can not use their land for non-agricultural activities that provide more welfare guarantees. While other farmers had agricultural land that was not included in sustainable agrarian land, converting agricultural land into non-agricultural businesses with more welfare guarantees was easy.

Welfare, in this case, was based on the parameters of income earned by farmers. Household welfare parameters include; family income level; composition of household expenditure by comparing

expenditure on food and non-food; family education level; family health level, and; housing conditions and household facilities. This case used the level of community income parameter to measure welfare, namely farmers' income from farming and non-farming businesses.

The existence of law was a means to realize the happiness and welfare of life. Strengthened by Jeremy Bentham's utility theory which emphasized that the purpose of the law was to understand what was useful for many people, namely to create the greatest possible happiness for as many people as possible. Thus, regulations prohibiting the conversion of agricultural land functions must be accompanied by means or objectives of realizing human happiness and prosperity. But, unfortunately, the prohibition on the transfer of functions has hampered people's efforts to become more prosperous (Handayani et al., 2018).

The findings show that the following factors increased the propensity of farmers to sell some or all of their farmland for non-agricultural land uses, examples being a shortage of children who will take over running the farm and a decrease in profits from the agricultural business. This factor increased the hope of farmers to sell part or all of their agricultural land (Zollinger & Krannich, 2002).

New Order period, from an economy with a dominant role of agriculture to an economy in which the position of agriculture was increasingly weakened. Second, what was considered the biggest cause was inequality in the distribution of land. Smallholder farmers with less than 0.5 ha of land ownership were increasing yearly, and they are even becoming landless farmers (farming workers). More and more agricultural areas are becoming non-agricultural, and farmers' access to water and land resources is increasingly difficult. The 2006 International Conference on Agrarian Reform and Rural Development (ICARRD) in Porto Alegre, Brazil, issued an agreement with all participating countries. The conference emphasized that poverty can be eradicated only by rearranging agrarian structures or land tenure, and at the same time, food sovereignty can be achieved.

Third, the government's lack of serious attention to the welfare of farmers. So far, the government has emphasized agricultural procedures, products, and food supply but had yet to be serious about increasing farmers' income. Fourth, what Subandriyo called "paradoxical productivity". The agribusiness system in Indonesia places farmers in a sandwiched position between two exploited economic forces. At the time of production, farmers face monopsonistic power when selling their products. Factors causing the high poverty rate of farmers: high production costs, starting from land management, use of tools and machinery, purchase of seeds, fertilizers, and chemical drugs accompanied by the withdrawal/abolition of agricultural subsidies, which are legalized by laws and regulations, and prices the low selling price received by farmers, according to the food import policy at harvest time, there is no protection for imported agricultural products. During the Covid-19 pandemic, promoting the function of land had a positive impact in the form of increasing the income of community members by using agricultural land for other activities for business purposes.

The increase in Indonesia's population was a challenge in meeting national food needs, while the conversion of agricultural land was unstoppable and continues to occur. Therefore, the massive land conversion will threaten the community's food security. For this reason, efforts must be made to control land conversion to maintain food availability for the community. Therefore, as a legal instrument, Law Number 41 of 2009 concerning the Protection of Sustainable Food Agricultural Land was a law aiming to prevent agricultural land conversion for the sake of national food security (Komaruddin & Handayani, 2017).

The best way to protect the conversion of agricultural land to non-agricultural use was to issue policies that support improving farmers' standard of living. With the issuance of this policy, it was hoped that the economic value of agricultural products will increase and become higher than non-agricultural products. Furthermore, the conversion of agricultural land functions was suppressed by guaranteeing the price of farm products at the farmer level so that it becomes an incentive for farmers

to maintain the sustainability of agricultural land owned and managed by farmers (Prasada & Masyhuri, 2019).

Another way to improve the welfare of farmers was to provide incentives to farmers. There must be the provision of incentives to increase the intention or motivation of farmers to increase their production, such as market guarantees, eliminating or mitigating all marketing and distribution constraints and costs, and procuring as much production infrastructure as possible (besides irrigation and others). By providing an incentive that can reduce operational costs and improve the welfare of farmers/landowners, every farmer whose land was converted into sustainable agricultural land had the right to receive incentives as long as he fulfilled his obligations. Other incentives included land and building tax exemption, agricultural insurance, whose premium was borne by the government to guarantee crop failure, and price guarantees (Subekti et al., 2017).

Farmers must get incentives that can improve the welfare of their families so that farmers do not want to sell/change the function of their agricultural land. The government must provide incentives fairly by establishing clear criteria that must be met for farmers to receive incentives (Subekti et al., 2017).

Meanwhile, to improve community food security, it was necessary to ensure the supply of agricultural land to increase agricultural production. Although paddy field conversion activities tend to cause, a decrease in output per unit of land, which was getting bigger from year to year, planting paddy fields tends to impact increasing production per unit of land, which was getting smaller. This trend occurred because the conversion of paddy fields was increasingly being diverted to areas with relatively high farming technology. In contrast, the transformation of paddy fields was increasingly being delayed in regions with lower farming technology. It's showed that the potential availability of natural resources (land and water) for paddy fields was increasingly limited (Irawan & Friyatno, 2002).

## CONCLUSION

The government issued regulations prohibiting land conversion and its sanction. However, these regulations had yet to control the land conversion rate effectively. In addition, sanction had yet to be implemented for violations of the provisions on land conversion. Therefore, the non-implementation of sanctions caused land conversion to remain high. Massive land use changes threaten the availability and security of people's food. Converting agricultural land and utilizing the land for non-agricultural businesses made farmers more prosperous. Increasing the welfare of farmers who convert their agrarian land has raised the conversion of agricultural land to non-agricultural functions. To overcome this, Law no. 41 of 2009 concerning the Protection of Sustainable Food Agricultural Land. If agricultural land owned by farmers was included in an area designated as Sustainable Food Agricultural Land, the ground was prohibited from being converted into non-agricultural use. Violation of this prohibition was subject to criminal and administrative sanctions. Furthermore, for the provisions prohibiting land conversion to be fair to the community, there must be incentives given to farmers who comply with the rules by not converting their agricultural land.

## AUTHOR CONTRIBUTIONS

Francisca Romana Harjiyatni (FRH): conceived the idea, designed the project, wrote the manuscript, conceptualized, curated the data, analyzed the data, investigated, developed the methodology, administered the project, reviewed writing & editing.

Rini Anggraini (RA): conceived the idea, designed the project, conceptualized, curated the data, analyzed the data, investigated, developed the methodology, reviewed writing & editing.

Erna Sri Wibawanti (ESW): designed the project, conceptualized, curated the data, analyzed the data, investigated, developed the methodology, reviewed writing & editing.

Paiman (P): conceptualized, curated the data, analyzed the data, investigated, developed the methodology, reviewed writing & editing.

## ACKNOWLEDGMENT

This work was supported by Directorate General of Higher Education, Research and Technology - Ministry of Culture Research and Technology Education of the Republic of Indonesia and the Productive Research Program for Education Fund Management Institutions (LPDP) of the Ministry of Finance of the Republic of Indonesia who have provided input for this research. Research obtains funding based on a contract between the Directorate General of Higher Education, Research and Technology - Ministry Of Culture Research And Technology Education of the Republic of Indonesia and Janabadra University No.: 125/E4.1/AK.04.RA/2021.

## REFERENCES

Aini, L. N., Dewi, W. S., & Isnawan, B. H. (2019). Identification of the agricultural land conversion rate in Sleman regency using remote sensing, *In IOP Conference Series: Earth and Environmental Science* (Vol. 393, p. 12074). IOP Publishing.

Alamsyar, A., M., B., & Damayanti, L. (2018). Conversion Of Agricultural Land And Its Impact On Rice Production In Sigi Regency, *Agroland : The Agriculture Science Journal*, 5(1), 32-43.

Al-Fajar, F., Noor, T.I., & Sudradjat,D. (2017). Dampak Alih Fungsi Lahan Terhadap Perubahan Tingkat Kesejahteraan Petani Padi Sawah Di Kelurahan Kersanagara, Kecamatan Cibeureum, Kota Tasikmalaya, Provinsi Jawa Barat, *Jurnal Ilmiah Mahasiswa Agroinfo Galuh*, 4(1), 787-795.

Anwarudin, O., & Dayat. (2019). The Effect of Farmer Participation in Agricultural Extension on Agribusiness Sustainability in Bogor, Indonesia, *International Journal of Multicultural and Multireligious Understanding*, 6(3), 1061-1071.

Busko, M., & Szafranska, B. (2018). Analysis of changes in land use patterns pursuant to the conversion of agricultural land to non-agricultural use in the context of the sustainable development of the Malopolska Region, *Sustainability*, 10(1), 136: 1-22.

Govindaprasad, P. K., & Manikandan, K. (2014). Agricultural land conversion and food security: a thematic analysis, *International Research Journal of Agriculture and Rural Development*, 3(1), 1:1-19.

Gultom, O. B., Ginting, B., Lubis, M. Y., Azwar, T. K. D., & Pasaribu, M. P. J. (2021). Repercussions of agricultural land conversion policy on food security in Indonesia, *In IOP Conference Series: Earth and Environmental Science* (Vol. 782, p. 32054). IOP Publishing.

Handayani, S. W., Fauzan, M., & Nasihuddin, A. A. (2018). Conversion of agricultural land policy in Indonesia, *In 2018 3rd International Conference on Education, Sports, Arts and Management Engineering (ICESAME 2018)* (pp. 252–254). Atlantis Press.

Harini, R., Yunus, H. S., Kasto, & Hartono, S. (2012). Agricultural Land Conversion: Determinants and Impact for Food Sufficiency in Sleman Regency, *Indonesian Journal of Geography*, 44(2), 120-133.

Irawan, B., & Friyatno, S. (2002). Dampak konversi lahan sawah di Jawa terhadap produksi beras dan kebijakan pengendaliannya. *SOCA: Jurnal Sosial Ekonomi Pertanian*, 2(2), 43858: 1-33.

Isa, A. (2006). Strategi pengendalian alih fungsi lahan pertanian, *In Prosiding Seminar Multifungsi dan Revitalisasi Pertanian. Badan Litbang Departemen Pertanian*. Ministry of Agriculture, Forestry and Fisheries Japan dan ASEAN Secretariat. Jakarta, 1-16.

Jadoon, A. K., Mahmood, T., Sarwar, A., Javaid, M. F., & Iqbal, M. (2024). Prediction of Stock Market Movement Using Long Short-Term Memory (LSTM) Artificial Neural Network: Analysis of KSE 100 Index. *Pakistan Journal of Life & Social Sciences*, *22*(1).

Kanval, N., Ihsan, H., Irum, S., & Ambreen, I. (2024). Human Capital Formation, Foreign Direct Investment Inflows, and Economic Growth: A Way Forward to Achieve Sustainable Development. *Journal of Management Practices, Humanities and Social Sciences*, *8*(3), 48-61.

Komaruddin, K., & Handayani, I. G. A. K. R. (2017). Legal Protection: Converting Agricultural Land To Residential Land (Legal Analysis of Agricultural Land Conversion), *Legal Standing: Jurnal Ilmu Hukum*, 1(2), 18–29.

Lee, C.-C., Chen, Y.-X., Wu, Y.-L., Yeh, W.-C., & Liang, C.-M. (2020). Multilevel Analysis of The Pressure of Agricultural Land Conversion, Degree of Urbanization and Agricultural Land Prices in Taiwan, *Land*, 9(12), 474: 1-21.

Mustapha, R., Fauzi, M. A., Soon, O. T., Wei, L. H., & Yee, C. M. (2024). Employee Perception of Whistleblowing in the Workplace: A Systematic Bibliometric Review. *Pakistan Journal of Life & Social Sciences*, *22*(1).

Nangoi, T. R. R., Laoh, E. O. H., & Baroleh, J. (2021). Dampak Alih Fungsi Lahan Pertanian Terhadap Pendapatan Petani Di Desa Solog, Kecamatan Lolak, Kabupaten Bolaang, Mongondow (The Impact of Agricultural Land Conversion on Farmers' Income in Solog Village Lolak Sub District Bolaang Mongondow Regency), *Journal of Agribusiness and Rural Development*, 3(3), 401–408.

Nuryartono, N., Tongato, A., Yusdiyanto, S., Pasaribu, S. H., & Anggraenie, T. (2017). Land conversion and economic development in Jawa Barat Province: Trade off or Synergy?, *In IOP Conference Series: Earth and Environmental Science* (Vol. 54, p. 12017). IOP Publishing.

Oktiana, U. N., Waluyo, W., & Nugroho, A. (2020). Pelaksanaan Perlindungan Lahan Pertanian Pangan Berkelanjutan Berdasarkan Regulasi Rencana Tata Ruang, *Jurnal Discretie*, 1(1), 16–24.

Pasour Jr, E. C. (1982). Agricultural Land Protection: Is Government Intervention Warranted, *Cato J.*, 2, 739.

Prasada, I. M. Y., & Masyhuri, M. (2019). The Conversion of Agricultural Land in Urban Areas (Case Study of Pekalongan City, Central Java), *AGRARIS: Journal of Agribusiness and Rural Development Research*, 5(2), 112–118.

Prayitno, P., Dinanti, D., Hidayana, I. I., & Nugraha, A. T. (2021). Place Attachment and Agricultural Land Conversion for Sustainable Agriculture in Indonesia, *Heliyon*, 7, 2: 1-12.

Rashid, A., Jehan, Z., & Kanval, N. (2023). External Shocks, Stock Market Volatility, and Macroeconomic Performance: An Empirical Evidence from Pakistan. *Journal of Economic Cooperation & Development*, *44*(2), 1-26.

Romadi, U., Budianto, Samantha, F.I. (2021). The Influence of Agricultural Land Transfer Towards The Level of Farmer Welfare In Kecamatan Lawang, *Jurnal Agriekstensia*, 20(2), 107-112.

Rondhi, M., Pratiwi, P. A., Handini, V. T., Budiman, S. A., & Sunartomo, A. F. (2018). Agricultural Land Conversion, Land Economic Value, and Sustainable Agriculture: A Case Study in East Java, Indonesia, *Land*, 7(148), 1: 1-19. https://doi.org/10.3390/land7040148.

Subekti, R., Sulistiyono, A., & Handayani, I. G. A. K. R. (2017). Solidifying the just law protection for farmland to anticipate land conversion, *International Journal of Economic Research*, 14(13), 69–79.

Sudiyarto, & Indah, P. N. (2019). The Impact of Agricultural Land Conversion to Toll Roads On Farmers "Perception And Welfare, *Asian Journal of Management Sciences & Education*, 8(1), 41: 40-49.

Surya, B., Ahmad, D. R. A., Sakti, H. H., & Sahban, H. (2020). Land Use Change, Spatial Interaction, and Sustainable Development in the Metropolitan Urban Areas, South Sulawesi Province, Indonesia, *Land*, 9(95), 2: 1-43.

Triyono, Rahmawati, N., Rozaki, Z., Widowaty, Y., Permatasari, A., Jumakir, & Suparwoto. (2022). The Willingness of Farmers to Preserve Sustainable Food Agricultural Land in Yogyakarta, Indonesia, *Open Agriculture*, 7, 724-732.

Umanailo, R., Nawawi, M., Umanailo, M. C. B., Malik, S., & Hentihu, A. (2019). Conversion of Farmland Namlea Subdistrict, *Int. J. Sci. Technol. Res*, 8(8).

Warlina, L., & Pradana, S. B. R. (2021). Sustainable Agricultural Land Management in Garut Regency, West Java Province, Indonesia, *Journal of Engg. Research*, (ASSEEE Special Issue), 1–15. https://doi.org/10.36909/jer.ASSEEE.16089

Widowaty, Y., & Artanto, I. O. (2018). Protection of Agricultural Land Sustainable Food for the Realization of Food Security in the Special Region of Yogyakarta, *In 4th International Conference on Food, Agriculture and Natural Resources (FANRes 2018)* (pp. 35–40). Atlantis Press.

Yudhistira, M. D. (2013). Analisis dampak alih fungsi lahan pertanian terhadap ketahanan pangan di Kabupaten Bekasi Jawa Barat, *Skripsi*. Program Sarjana, Institut Pertanian Bogor. Bogor.

Zollinger, B., & Krannich, R. S. (2002). Factors Influencing Farmers' Expectations to Sell Agricultural Land for Non-Agricultural Uses, *Rural Sociology*, 67(3), 442–463.

Zou, X., & Ratana-Olarn, T. (2023). Empowering Preservice Teachers: A Mentored Blended Learning Approach with MOOCs to Elevate Skills and Self-Efficacy. *Pakistan Journal of Life & Social Sciences*, *21*(2).