

Challenges and Opportunities of Traditional Agriculture in the Era of Food Security

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ABSTRACT

As with previous qualitative studies using a descriptive approach, qualitative research using a descriptive approach functions to describe the main topics used in this study including traditional agriculture, resilience, challenges, and opportunities for traditional agriculture. The data used in this study are secondary data that researchers obtain from credible websites, scientific articles, books, and various other sources used in each study. Challenges and Opportunities for traditional agriculture are analyzed using the SWOT analysis tool with more comprehensive results below. The conclusion in this article show that traditional agriculture has more threats and weaknesses than strengths and advantages. Its strengths and opportunities can also be eroded slowly if technological advances in the era of modern agricultural food security are increasingly unstoppable. The strengths and opportunities in question include having machines that are more often used by the community and literacy around agriculture is not yet evenly distributed. While the weaknesses and threats are slow production, old-fashioned, Lagging behind technological advances, Low food security, Decreasing production, and Market dominated by modern agriculture.

Keywords: Challenge, Oportunity, Food Security, Traditional Agriculture

ABSTRAK

Seperti halnya studi kualitatif sebelumnya menggunakan pendekatan deskriptif, penelitian kualitatif menggunakan pendekatan deskriptif berfungsi untuk mendeskripsikan topik utama yang digunakan dalam penelitian ini termasuk pertanian tradisional, ketahanan, tantangan, dan peluang pertanian tradisional. Data yang digunakan dalam penelitian ini adalah data sekunder yang diperoleh peneliti dari situs web yang kredibel, artikel ilmiah, buku, dan berbagai sumber lain yang digunakan dalam setiap penelitian. Tantangan dan Peluang untuk pertanian tradisional dianalisis menggunakan alat analisis SWOT dengan hasil yang lebih komprehensif di bawah ini. Kesimpulan dalam artikel ini menunjukkan bahwa pertanian tradisional memiliki lebih banyak ancaman dan kelemahan daripada kekuatan dan kelebihan. Kekuatan dan peluangnya juga dapat terkikis secara perlahan jika kemajuan teknologi di era ketahanan pangan pertanian modern semakin tak terbendung. Kekuatan dan peluang yang dimaksud antara lain memiliki mesin yang lebih sering digunakan oleh masyarakat dan literasi seputar pertanian belum merata. Sedangkan kelemahan dan ancamannya adalah produksi yang lambat, kuno, Tertinggal dari kemajuan teknologi, Ketahanan pangan yang rendah, Penurunan produksi, dan Pasar yang didominasi oleh pertanian modern.

Kata kunci: Challenge, Opportunity, Ketahanan Pangan, Pertanian Tradisional

INTRODUCTION

Food availability is closely related to land availability because sufficient and productive agricultural land is the main prerequisite for producing adequate food. Related to the research of (Mulyani, 2017) which revealed that the condition of land resource availability can be a threat to national food security and sovereignty. Most of the main food production comes from rice fields on Java Island, but in the last two decades there has been intensive conversion of rice fields while the opening of new rice fields cannot keep up. The results of the study indicate that to meet food needs until 2050, it is necessary to expand the area of rice fields by around 6.08 million hectares and dry land by around 11.75 million hectares. Further research by (Maharani, 2016) with spatial analysis using various maps covering land cover, peatland distribution, delays in new permits, forest area status, permits, and agricultural spatial planning directions. The results of the analysis indicate that of the total abandoned land of 29.8 million hectares, only around 7.9 million hectares have the potential to be developed as agricultural land in the future. However, the potential land area is not yet sufficient to meet the land needs to achieve the food self-sufficiency target to support Indonesia's efforts as the world's food barn by 2045. The results of another study conducted by related to food security in North Sumatra province, concluded that the area of rice harvest and land productivity have a significant positive impact on the rice availability ratio. On the other hand, the amount of rice consumption has a negative and significant impact, while rice stock has a positive but insignificant impact and rice prices have a negative but insignificant impact on the rice availability ratio.

Food security is not only related to the completeness of food supplies, but also to accessibility and level of safety. As seen in a study conducted by (Nurhemi, 2014), the use of technology only has a small impact on food crop productivity, indicating low technology adoption at the farmer level. In other words, improvement efforts are still needed in three aspects of food security, namely availability, accessibility, stability and food safety. The results of this study are supported by research by (Pujati, 2020) involving 35 districts/cities in Central Java Province. There are indications that the three variables studied, namely availability, affordability, and utilization of food, do not have a significant impact on increasing the Food Security Index. However (Nurhemi, 2014) stated that the three provinces with the highest Food Security Index are East Java, Central Java, and West Java.

On the other hand, (Rachmaningsih, 2012) analyzed using a tobit model with panel data covering 190 districts/cities in Eastern Indonesia in the period 2008-2010. Based on the classification of food security levels, the majority of households in Eastern Indonesia are categorized as vulnerable to the risk of food insufficiency. Food security in this region is influenced by several factors, including the percentage of poor people, Gross Regional Domestic Product (GRDP) per capita, female illiteracy rate, and average length of schooling. Through the results of the elasticity analysis, it was concluded that education has the most significant impact on the level of food security in Eastern Indonesia. In line with the research of (Devi, 2020) who conducted an analysis of socio-economic factors that play a role in the level of food security in

Indonesia by utilizing household-level data from the fifth Indonesian Family Life Survey, with an estimated total of 9,819 households. The results of the study concluded that the variables that influence household food security are factors such as age, marital status, education level, type of work of the head of the household, sanitation aspects such as the presence of toilets and water sources in the house, location of the household, and also the type of main fuel used for cooking (Dalimoenthe, 2022).

At the national level, (Firdaus, 2015) found that in the last six years Indonesia has succeeded in achieving sufficient food availability to meet the needs of its population in terms of quantity, but the quality of food consumption of the average Indonesian people has still not reached the recommendations recommended by nutritionists. The challenges towards sustainable food security in Indonesia until 2025 will be increasingly complex. Therefore, several changes in the proposed policy approach include changing the goal from food self-sufficiency to achieving food independence, replacing the approach of increasing food production with a focus on increasing the income of farmers and rural communities, and changing the target of fulfilling the quantity of food consumption to fulfilling diverse, balanced, and safe food consumption (Anggraeni, 2019). In the study by, it was found that the policy in the form of providing Direct Cash Assistance had a positive impact on recipient households in several aspects, including the level of calorie and protein intake per capita per day and the level of food expenditure per capita and the share of expenditure allocated for food. The results of the study also showed that Direct Cash Assistance changed the food consumption patterns of recipient households (Amrullah, 2020).

In the midst of food security being a major issue that must be addressed, traditional agriculture has its own challenges to follow because the achievement of food security is accompanied by advanced technology brought by superior human resources who have qualified education. However, on the other hand, traditional agriculture has its own market share for development. Therefore, this study aims to analyze the Opportunities and Challenges of traditional agriculture developing in the era of food security achieved by agricultural methods that already use high technology.

RESEARCH METHODS

Based on the comprehensive explanation of the introduction above, it can be shown that this study is a type of qualitative research with a descriptive approach (Lexy J. Moleong, 2018). As with previous qualitative studies using a descriptive approach, qualitative research using a descriptive approach functions to describe the main topics used in this study including traditional agriculture, resilience, challenges, and opportunities for traditional agriculture (Nartin et al., 2024). The data used in this study are secondary data that researchers obtain from credible websites, scientific articles, books, and various other sources used in each study (Amane et al., 2023). Challenges and Opportunities for traditional agriculture are analyzed using the SWOT analysis tool with more comprehensive results below (Hasan, 2011).

RESULT AND DISCUSSION

Food Security

Food availability is closely related to land availability because sufficient and productive agricultural land is the main prerequisite for producing adequate food. Related to the research of (Mulyani, 2017) which revealed that the condition of land resource availability can be a threat to national food security and sovereignty. Most of the main food production comes from rice fields on Java Island, but in the last two decades there has been intensive conversion of rice fields while the opening of new rice fields cannot keep up. The results of the study indicate that to meet food needs until 2050, it is necessary to expand the area of rice fields by around 6.08 million hectares and dry land by around 11.75 million hectares. Further research by (Maharani, 2016) with spatial analysis using various maps covering land cover, peatland distribution, delays in new permits, forest area status, permits, and agricultural spatial planning directions. The results of the analysis indicate that of the total abandoned land of 29.8 million hectares, only around 7.9 million hectares have the potential to be developed as agricultural land in the future. However, the potential land area is not yet sufficient to meet the land needs to achieve the food self-sufficiency target to support Indonesia's efforts as the world's food barn by 2045. The results of another study conducted by related to food security in North Sumatra province, concluded that the area of rice harvest and land productivity have a significant positive impact on the rice availability ratio. On the other hand, the amount of rice consumption has a negative and significant impact, while rice stock has a positive but insignificant impact and rice prices have a negative but insignificant impact on the rice availability ratio.

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Traditional Agriculture and Modern Agriculture

Impact is the desire to persuade, convince, influence or impress others, with the aim that they follow or support his wishes. The entry of modern tools in the field of agriculture has more or less had an impact on life. In the past we saw many villagers using traditional tools. Such as hoes, plows, cows, and so on. Sickles, to carry out agricultural activities. Nowadays, people are starting to look at using more modern agricultural tools, such as tractors to do the work of loosening agricultural land, rice cutting machines, and many more that can replace the function of harrows and human power (Rifani, 2019).

The following are the positive impacts caused by the transformation of agricultural tools (Azhad & Anggraeni, 2022): a). Making it easier for farmers to plow

and harvest their rice fields, namely with the help of threshers and tractors. b). Can produce superior plant seeds. c). Agricultural productivity will increase. In addition to having positive impacts, the following are negative impacts if agricultural tools are transformed (Lestari & Rahardjo, 2022): a). Loss of social interaction between farmers when harvesting. b). Reducing the number of farmers who actively work in their fields. c). Creating dependence and addiction to technology.

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In accordance with the researcher's statement in the research methodology section, to determine the opportunities and challenges for traditional agriculture to develop in the era of food security which has a level of technology detailed in the SWOT analysis section in the following table.

Table 1. SWOT Analysis

Strength	Weakness	Opportunity	Threat
The tools used are better understood by farmers	Slow production	Have a loyal market	Low food security
Technological progress literacy is not yet evenly distributed	Old-fashioned		Decreased production
	Lagging behind technological advances		Market dominated by modern agriculture

Source: Processed by Author, 2025

Based on the results of the SWOT analysis above, it can be concluded that traditional agriculture has more threats and weaknesses than strengths and advantages. Its strengths and opportunities can also be eroded slowly if technological advances in the era of modern agricultural food security are increasingly unstoppable. The strengths and opportunities in question include having machines that are more often used by the community and literacy around agriculture is not yet evenly distributed. While the weaknesses and threats are slow production, old-fashioned, Lagging behind technological advances, Low food security, Decreasing production, and Market dominated by modern agriculture.

CONCLUSION

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