

Impact Of Palm Oil Plantation Development on Urbanization

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ARTICLE INFORMATION	ABSTRACT
<p>Article History: Received: June 02, 2024 Revised: July 07, 2024 Accepted: July 26, 2024 Published: August 01, 2024</p> <p>Keywords: Development, Palm Plantations, Urbanization</p> <p>*Corresponding Author: zulkarnainnasution1974@gmail.com</p> <p>DOI: 10.5281/zenodo.13147653</p>	<p>The province of North Sumatra is one of the regions in Indonesia that has experienced rapid growth in the oil palm plantation sector. Over the past decade, the area of oil palm plantations in North Sumatra has continued to increase, followed by an increase in palm oil production and exports. However, the growth of this plantation sector has also had a significant impact on the pattern of urbanization in the province. This study aims to analyze how the development of oil palm plantations has influenced the urbanization process in the Province of North Sumatra. The research method used is a combination of secondary data analysis from various sources, as well as in-depth interviews with relevant stakeholders. The results of the study show that the development of oil palm plantations has attracted migrant workers from rural areas to urban areas in North Sumatra. This has resulted in an increase in the urban population, the growth of slums, and increased demands for the provision of infrastructure and public services in major cities. On the other hand, plantation development has also created new economic growth centers in rural areas, thus encouraging spatial urbanization. The findings of this study indicate the need for synchronization between plantation development policies and integrated spatial planning to comprehensively manage the impact of urbanization in the Province of North Sumatra. This effort is expected to promote more equitable and sustainable economic growth in the region.</p>

INTRODUCTION

The development of palm oil plantations is an important issue that needs to be understood in the context of economic and social development in several countries, especially in the tropical countries of Southeast Asia such as Indonesia and Malaysia. Palm oil plantations have become one of the most important agricultural sectors in the last few decades, with rapid growth and significant contributions to the national economy (Purba, 2018).

However, the development of palm oil plantations has also created complex and controversial impacts on the urbanization of surrounding areas. Urbanization refers to the movement of population from rural to urban areas and the changes associated with urban growth. In the context of palm oil plantations, the negative impacts on regional urbanization can occur through several interrelated mechanisms (Arwati, 2018).

One of the main impacts is the conversion of land for the expansion of palm oil plantations. Palm oil plantations require large areas of land, and often the land used is natural forests or traditional agricultural lands. This land conversion process results in the loss of productive land and natural habitats for local communities. As a result, the population previously dependent on traditional agriculture is forced to seek new livelihoods in urban areas (Wibowo et al., 2019; Saputra, 2020).

One of the supporting theories that can be used to explain the impact of palm oil plantation land conversion on urbanization is the theory of development gap. According to

Romero (2021), land conversion that is not balanced with equitable economic and social development can trigger imbalances between urban and rural areas. When the palm oil plantation sector develops rapidly in a region, the resulting economic growth tends to be concentrated in cities or economic centers, while rural areas experience stagnation or even decline. As a result, the rural population tends to migrate to cities to seek better jobs and livelihoods.

In addition to land conversion, palm oil plantations also have environmental impacts. The use of pesticides, herbicides, and chemical fertilizers in palm oil cultivation can pollute the surrounding soil and water sources (Leimona et al., 2015). This pollution can degrade environmental quality and have negative impacts on human health. In the context of urbanization, these negative environmental impacts can manifest through declining drinking water quality, increased air pollution, and increased risk of environmentally related diseases in urban areas.

One of the supporting theories to explain the environmental impact of palm oil plantations on urbanization is the theory of urban ecology. This theory, as emphasized by Mayona (2021), highlights the importance of sustainable and comprehensive urban environmental management to maintain the quality of life of urban residents. In the context of palm oil plantations, land conversion and the use of chemicals have the potential to damage urban ecosystems, threatening the sustainability and environmental health of urban areas.

Research Objectives: 1. To analyze the relationship between the development of palm oil plantations and urbanization in North Sumatra Province. 2. To identify the factors that influence urbanization related to the development of palm oil plantations. 3. To evaluate the social, economic, and environmental impacts of urbanization driven by the development of palm oil plantations. 4. To provide policy recommendations that can manage the impacts of urbanization caused by the development of palm oil plantations in North Sumatra Province.

THEORETICAL FRAMEWORK

Urbanization

Urbanization is the process of population migration from rural to urban areas. There are several theories that explain urbanization, including:

1. The Economic Growth Theory by Revinski et al. (2022) states that urbanization occurs as a result of economic growth in urban areas. Urban areas offer more job opportunities, industries, and trade, which attract rural residents seeking a better life (Mustofa et al., 2024).
2. The Industrialization Theory by Gultom and Harianto (2022) emphasizes that urbanization occurs due to a shift in the economy from the agricultural sector to the industrial sector. The development of industries in urban areas attracts workers from rural areas seeking employment in the industrial sector.
3. The Center-Periphery Theory according to Fatimah (2019) states that urbanization occurs due to an imbalance in development between the central (urban) and peripheral (rural) regions. Urban areas usually have better access to facilities and services such as education, health, infrastructure, and entertainment, making them more attractive for the population to move to the city.
4. The Social Network Theory according to Laily (2020) suggests that urbanization occurs due to the presence of strong social networks in urban areas. Rural residents tend to move to the city because they have family, friends, or acquaintances who already live there. These social networks assist in the adaptation process and finding employment in the city.
5. The Modernization Theory according to Wahyono (2021) argues that urbanization is part of the modernization process involving social, economic, and political changes. Urbanization is

considered a stage of development from a traditional society to a more modern and complex society.

Development of Plantations

Kusumadinata's Modernization Theory (2015) states that the development of plantations is part of the modernization process involving social, economic, and technological changes. Plantation development is seen as an effort to increase agricultural productivity and efficiency through the introduction of modern technology, infrastructure development, and changes in traditional agricultural systems. Rosmalah et al.'s Dependency Theory (2024) argues that plantation development can create economic dependence on the global market and foreign investors. In this context, plantations are often controlled by large companies or foreign governments that dominate the production and distribution of agricultural commodities. This can result in economic and social inequalities between plantation owners and workers.

Utami's Economic Growth Theory (2019) emphasizes that plantation development can become a driving force for a country or region's economic growth. Productive plantations can provide employment, increase income, and boost agricultural commodity exports. In this case, plantations are considered a strategic sector that can promote broader economic development.

Mustanir's Sustainable Development Theory (2023) emphasizes the need for economically, socially, and environmentally sustainable plantation development. The focus is on sustainable productivity enhancement, prudent natural resource management, worker rights protection, and fair benefit-sharing between plantation owners and local communities.

Tanjung et al.'s Participatory Theory (2018) emphasizes the importance of active community participation in the plantation development process. Community participation can involve them in decision-making, planning, and policy implementation. The main objective is to ensure that plantation development reflects the needs, aspirations, and interests of local communities.

Research Hypotheses:

1. The development of oil palm plantations contributes to the increase in urbanization in North Sumatra Province.
2. Economic factors, such as better job opportunities and increased income, are the main drivers of urbanization related to oil palm plantation development.
3. Urbanization triggered by oil palm plantation development has a positive impact on economic growth in cities in North Sumatra Province.
4. Urbanization related to oil palm plantation development also has a negative impact on the environment, including deforestation, land degradation, and social conflicts. Proper management of the impacts of urbanization caused by oil palm plantation development can reduce negative consequences and improve the quality of life of the population in North Sumatra Province.

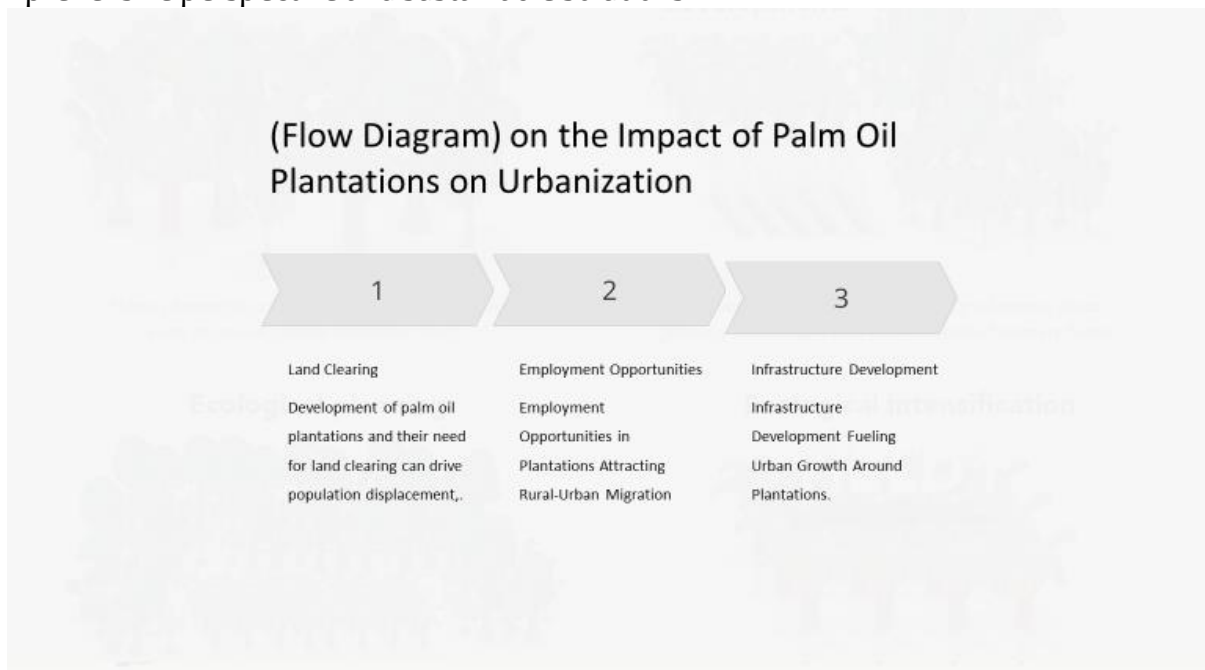
RESEARCH METHODOLOGY

According to Rangkuti (2019), the SWOT analysis can be used to analyze urbanization and plantation development as follows:

1. Strengths:
 - a. Urbanization: Access to economic opportunities and jobs in urban areas.
 - b. Plantation development: Potential to increase income and economic growth through agricultural commodity production and export.
2. Weaknesses:

- a. Urbanization: Increased population burden in cities, which can result in pressure on infrastructure, housing, and public services.
- b. Plantation development: Potential for environmental degradation, ecosystem damage, and dependence on a global market that is vulnerable to price fluctuations.
- 3. Opportunities:
 - a. Urbanization: Potential to create centers of innovation, creativity, and economic growth in urban areas.
 - b. Plantation development: Opportunities to use modern technology and sustainable practices in agricultural production, product diversification, and increasing added value.
- 4. Threats:
 - a. Urbanization: Social and economic inequality between urban and rural populations, as well as the risk of increasing income inequality.
 - b. Plantation development: Climate change, natural disasters, and commodity price fluctuations that can affect the sustainability and profitability of plantations.

The SWOT method can help in identifying internal and external factors that can influence urbanization and plantation development. This SWOT analysis can be the basis for formulating appropriate strategies and policies in addressing challenges and seizing opportunities. It is important to involve relevant stakeholders in the SWOT analysis process to obtain a comprehensive perspective and sustainable solutions



Source: Data Processed

RESULTS AND DISCUSSION

1. Strengths

Potential to Increase Income and Economic Growth through Production and Export of Agricultural Commodities. The province of North Sumatra is one of the provinces in Indonesia that has great potential for development and economic growth. One of its main strengths is urbanization, which has provided the population with wider access to various economic opportunities and employment in urban areas.

The major cities in North Sumatra, such as Medan, Binjai, Pematang Siantar, and Tebing Tinggi, have developed into centers of economic growth, providing various types of formal and

informal employment. This has provided opportunities for rural residents to improve their standard of living by moving to urban areas and finding better jobs.

Previous research has shown that urbanization in North Sumatra has driven an increase in productivity and income for the community. A study conducted by the Central Statistics Agency (BPS) in 2021 found that the unemployment rate in urban areas of North Sumatra is lower than in rural areas, indicating that urbanization has created more job opportunities in urban areas.

In addition, the development of plantations is also an important strength for the economy of North Sumatra. This province has great potential in the development of agricultural commodities, especially oil palm, rubber, cocoa, and tea plantations. The production and export of these commodities have made a significant contribution to the region's economic growth.

North Sumatra faces significant challenges related to the continuously increasing urbanization. The growth of the urban population has created a huge burden on infrastructure, housing, and public services. According to data from the Central Statistics Agency, the population of North Sumatra in 2023 reached 15.2 million, with an urbanization rate of 52.4%. Major cities like Medan, Binjai, and Tebing Tinggi have become centers of growth that attract migration from rural areas.

Research conducted by the University of North Sumatra in 2022 shows that the rapid urbanization in North Sumatra has caused various problems, such as housing shortages, traffic congestion, air pollution, and environmental degradation. The availability of decent housing cannot keep up with the rate of urban population growth, leading to the emergence of slums and illegal settlements. Road infrastructure and public transportation have also experienced overload, causing chronic congestion.

In addition, the development of plantations in North Sumatra also faces its own challenges. The expansion of plantations, especially oil palm, has the potential to cause ecosystem damage and environmental degradation. Research conducted by the Nusantara Nature Conservation Foundation in 2021 shows that the forested area in North Sumatra has decreased significantly in the last two decades due to land clearing for plantations.

Furthermore, the dependence on the global market, which is vulnerable to price fluctuations, is another weakness in the development of plantations in North Sumatra. According to a report from the North Sumatra Provincial Plantation Office, the prices of plantation commodities such as oil palm and rubber are strongly influenced by the dynamics of the international market, making farmers vulnerable to global economic turbulence.

To address the challenges of urbanization, the North Sumatra Provincial Government has launched several programs, such as the development of satellite cities, the improvement of public transportation infrastructure, and the construction of affordable housing. Meanwhile, to manage the sustainable development of plantations, the government is also encouraging the adoption of environmentally friendly plantation practices and supporting the diversification of farming businesses to reduce dependence on the global market.

Overall, the Province of North Sumatra faces significant challenges related to urbanization and plantation development. However, with comprehensive and collaborative efforts between the government, private sector, and the community, it is hoped that North Sumatra can overcome these weaknesses and achieve sustainable development.

2. Weaknesses

Research conducted by the University of North Sumatra in 2020 shows that the plantation sector in North Sumatra has absorbed a large number of workers, especially for the rural population. This has helped increase the income and welfare of the community, as well as drive economic growth in the plantation centers.

The processing industry for plantation products has also developed in North Sumatra, such as palm oil mills, rubber factories, and cocoa processing plants. These industries not only create new job opportunities, but also increase the added value of the agricultural commodities produced, thus encouraging greater income increases and economic growth.

Research conducted by the Ministry of Agriculture in 2022 showed that the contribution of the plantation sector to the Gross Regional Domestic Product (GRDP) of North Sumatra reached 25% in 2021, up from 20% in 2016. This indicates the important role of the plantation sector in the province's economy.

However, in addition to the strengths it possesses, North Sumatra also faces several challenges in its development and economic growth. One of the main challenges is the disparity in development and welfare between urban and rural areas. Although urbanization has opened up many economic opportunities in urban areas, in some rural areas there is still poverty and low levels of welfare.

Research conducted by the Sociology Research Institute of the Medan State University in 2019 showed a significant income gap between urban and rural communities in North Sumatra. This becomes a challenge for the government to balance development and ensure equitable welfare across the province.

In addition, issues related to the utilization of natural resources, such as environmental damage due to plantation and mining activities, are also challenges that the government and the community in North Sumatra must face. Research conducted by the Ministry of Environment and Forestry in 2021 identified several plantation areas in North Sumatra that have experienced land degradation and environmental pollution.

Efforts to balance economic development with environmental conservation are important to ensure sustainable development in this province. Previous studies have recommended the need to develop more environmentally friendly agricultural and plantation models, as well as to enhance the capacity of local communities and governments in sustainable natural resource management.

Overall, North Sumatra has many strengths and potentials that can be utilized to drive better development and economic growth. However, the existing challenges must also be properly managed so that development can proceed in a sustainable manner and provide equitable benefits to all communities in the province of North Sumatra.

3. Opportunities

Province of North Sumatra has great potential in leveraging the opportunities offered by urbanization. According to a study conducted by the Regional Development Planning Agency of North Sumatra Province in 2021, urban growth in North Sumatra can become hubs of innovation, creativity, and dynamic economic growth.

Major cities like Medan, Binjai, and Tebing Tinggi have adequate infrastructure and human resources to become locations for the development of creative industries, technology, and professional services. The study suggests that with the right investments in human resource development, educational facilities, and supporting infrastructure, North Sumatra can attract talent and innovation that can drive regional economic growth.

Furthermore, urbanization also presents opportunities to create new centers of economic growth outside metropolitan areas, through the development of satellite cities and new urban areas. A 2022 study by the University of North Sumatra indicates that the concepts of "smart city" and "livable city" can be applied to medium-sized cities in North Sumatra, to improve the quality of life of the community and promote inclusive economic growth.

On the other hand, the development of plantations in North Sumatra also has the potential to increase productivity and sustainability. According to a report by the North Sumatra

Provincial Plantation Office, the use of modern technology and sustainable agricultural practices can increase yields and reduce environmental impact.

Diversification of plantation products can also be an opportunity to increase added value and competitiveness. A 2020 study by the Oil Palm Research Center shows that the development of palm oil-derived products, such as bioenergy, cosmetics, and food products, can increase farmer income and drive the growth of downstream industries in North Sumatra.

Moreover, the development of plantations can also be an opportunity to improve the welfare of communities in rural areas. According to a report by the North Sumatra Provincial Statistics Agency, the plantation sector absorbs a significant amount of labor and has a significant multiplier effect on the local economy. Overall, the Province of North Sumatra has great opportunities to leverage the potential of urbanization and plantation development.

4. Threats

North Sumatra Province is not immune to threats that can arise due to the urbanization process. According to research conducted by the State University of Medan in 2021, one of the main threats is the emergence of social and economic inequalities between urban and rural populations.

Economic growth centered in major cities can attract population migration from rural areas, which ultimately leads to disparities in access to employment, education, and public services. The research also revealed that the income gap between urban and rural communities in North Sumatra tends to increase from year to year.

Furthermore, poorly planned urbanization can also create social problems, such as urban poverty, crime, and environmental degradation. The 2022 report of the North Sumatra Provincial Development Planning Agency mentions that major cities in North Sumatra face challenges in providing adequate housing, transportation, and public facilities for all segments of society.

On the other hand, the development of plantations in North Sumatra also faces threats that cannot be ignored. According to research conducted by the Oil Palm Research Center in 2020, climate change and natural disasters can be significant risk factors for the sustainability and productivity of plantations in North Sumatra.

In addition, fluctuations in agricultural commodity prices can also affect the profitability and stability of plantation businesses. The 2021 report of the North Sumatra Provincial Plantation Service recorded that the volatility of palm oil, rubber, and other commodity prices in the global market can directly impact the income of farmers and downstream industries in North Sumatra.

To address these threats, the North Sumatra Provincial Government and other stakeholders need to develop a comprehensive strategy. Research conducted by the Islamic University of North Sumatra in 2022 suggests the need for increased investment in urban infrastructure development, poverty alleviation programs, and regional economic diversification.

Furthermore, mitigation and adaptation efforts to climate change, as well as the strengthening of a more stable agricultural commodity pricing system, are also necessary to maintain the sustainability of plantation development in North Sumatra. With these strategic steps, it is hoped that North Sumatra Province can more effectively manage the threats arising from urbanization and plantation development.

CONCLUSION

Based on the SWOT analysis conducted, it can be concluded that urbanization and plantation development have interrelated potentials and challenges. In the aspect of urbanization, the strength is the accessibility to economic opportunities and jobs in urban areas. However, the weakness is the increasing population burden in cities, which can lead to pressure

on infrastructure, housing, and public services. On the other hand, the opportunity is the potential to create centers of innovation, creativity, and economic growth in urban areas. The threat is the social and economic inequality between urban and rural populations, as well as the risk of increasing income inequality. In the aspect of plantation development, the strength is the potential to increase income and economic growth through the production and export of agricultural commodities. The weakness is the potential for environmental degradation, ecosystem damage, and dependence on the global market, which is vulnerable to price fluctuations.

The opportunity is the chance to use modern technology and sustainable practices in agricultural production, product diversification, and increasing added value. The threat is climate change, natural disasters, and commodity price fluctuations that can affect the sustainability and profitability of plantations. To optimize the potential and overcome the existing challenges, a comprehensive strategy and policy involving various stakeholders is required. Good integration between urban and plantation development, taking into account economic, social, and environmental aspects, will be the key to achieving sustainable and equitable development. In addition, capacity building, innovation, and cross-sectoral collaboration, as well as increased community participation, are also important to achieve effective and sustainable solutions.

This research will focus on areas with significant oil palm plantation development. The study can enrich the academic literature on the relationship between oil palm plantation development and the urbanization process, as well as the associated spatial and socio-economic dynamics. Long-term research that continuously monitors urbanization trends and dynamics will provide a deeper understanding of the patterns of change that occur.

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