Spatial Utilization Development and Socio-Economic Facilities in the Surrounding Area of Sei Mangkei (Sez)

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Abstract

The existence of the Sei Mangkei Special Economic Zone (SEZ) in Simalungun Regency, North Sumatra Province, represents a government initiative to promote regional economic growth through industrial development, investment, and logistics activities. The development of the area has the potential to influence spatial utilization changes and the demand for socio-economic facilities in surrounding communities. This study aims to analyze spatial utilization developments, identify the condition of socio-economic facilities, and examine the relationship between the development of Sei Mangkei SEZ and regional development dynamics in its surrounding areas. This research employs a descriptive qualitative approach. Primary data are planned to be collected through observations, semi-structured interviews, and documentation, while secondary data will be obtained from government documents, statistical data, land-use maps, spatial planning documents, and relevant literature. Informants will be selected purposively from local government institutions, SEZ management, subdistrict and village officials, business actors, and community members. Data analysis consists of data condensation, data display, and conclusion drawing and verification. The research focuses on industrial areas, settlements, trade and services, transportation networks, as well as educational, healthcare, religious, and other public facilities. Since this study is still based on a research design, the results presented in this manuscript constitute an initial analytical framework that must be verified and completed with field data before being reported as research findings.

Keywords: Sei Mangkei SEZ; spatial utilization; socio-economic facilities; regional development; regional planning.

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Introduction

Regional development is a process related to changes in economic activities, the development of built-up areas, infrastructure improvements, and the provision of public service facilities. The development of a region is not only determined by economic growth but is also influenced by the region's ability to provide facilities and infrastructure that support the social and economic activities of the community. In regional planning, spatial utilization needs to be directed so that area development can take place in a planned, effective, and sustainable manner. One form of regional development that influences the dynamics of spatial utilization is the establishment of a Special Economic Zone (SEZ). An SEZ is an area with specific boundaries within the legal jurisdiction of the Unitary State of the Republic of Indonesia designated to conduct economic functions and obtain certain facilities. SEZ development is directed at increasing investment, strengthening industrial activities, creating employment opportunities, and encouraging regional economic growth.

Sei Mangkei SEZ is one of the special economic zones located in Simalungun Regency, North Sumatra Province. This area was established through Government Regulation Number 29 of 2012 and began operations in January 2015. Sei Mangkei SEZ covers an area of approximately 2,002.70 hectares, with its main activities comprising the palm oil processing industry, rubber processing industry, tourism, and logistics. The development of this area is directed at strengthening plantation resource-based downstream industries and increasing regional economic competitiveness.

The development of Sei Mangkei SEZ is also related to infrastructure development and increased investment activities. The presence of an industrial area has the potential to encourage the growth of economic activities in the surrounding region, especially regarding the needs for labor, transportation, housing, trade, and services. These conditions can influence spatial utilization patterns and the development of community activity centers. Industrial area development generally drives land-use changes from activities previously dominated by agriculture or plantations into built-up areas, settlements, trade, services, and other supporting facilities. These changes require attention because they can affect the spatial structure, community activity patterns, accessibility, and service facility needs. Spatial planning as regulated in Law Number 26 of 2007 includes spatial planning, spatial utilization, and spatial utilization control as an integrated part of the regional development process. In addition to spatial utilization changes, the development of Sei Mangkei SEZ is also related to the community's need for socio-economic facilities. Increased industrial activity and population mobility can elevate the demand for educational, healthcare, religious, commercial, transportation, and residential facilities. The availability of these facilities is a vital component in supporting community quality of life and sustainable area development.

Research by Hairani RS and Silvia indicates that the infrastructure development of Sei Mangkei SEZ has a correlation with the economic growth of Simalungun Regency as well as the socio-economic conditions of the community following the establishment of the special economic zone. Meanwhile, research by Riesfandiari et al. examines the impact of Sei Mangkei SEZ on the economy of Simalungun Regency. Both studies provide a foundation for understanding the relationship between industrial area development, infrastructure, and regional economic dynamics. From the perspective of spatial utilization changes, Harahap, Abdiyanto, and Milanie examined the transformation of mangrove land use in Medan Belawan, Medan Labuhan, and Medan Marelan subdistricts and its correlation with spatial planning policies. Their research demonstrates the importance of paying attention to land-use changes and their suitability to spatial planning in the regional development process. Although having different research objects, this study is relevant as a basis for understanding the dynamics of spatial utilization transformation resulting from human activities.

Based on previous research, studies regarding Sei Mangkei SEZ have largely focused on economic growth, investment, and infrastructure development. However, discussions that specifically integrate spatial utilization developments with the condition of community socio-economic facilities in surrounding areas still need to be further developed. Based on this description, this study aims to answer three research questions: how spatial utilization is developing in the area surrounding Sei Mangkei SEZ; what the condition of the community's socio-economic facilities is in that area; and how the development of Sei Mangkei SEZ correlates with spatial utilization changes and socio-economic facility needs. The research aims to analyze spatial utilization developments, identify the condition of socio-economic facilities, and examine the correlation between SEZ development and surrounding regional development dynamics.

Literature Review

A Special Economic Zone is an area designated to develop specific economic activities through the provision of facilities and incentives to increase investment and economic growth. SEZ development is directed toward industrial, trade, logistics, tourism, and other economic activities as regulated in laws and regulations. From a regional development perspective, an SEZ can act as an economic growth center that drives activity development in surrounding areas. The presence of an industrial zone can increase the demand for labor, infrastructure, transportation networks, settlements, and public service facilities. Sei Mangkei SEZ is an area whose primary activities include the palm oil processing industry, rubber processing industry, tourism, and logistics. The development of this area is expected to increase the added value of local resources and strengthen economic linkages between the industrial zone and its surrounding region.

Spatial utilization is the form of space utilization based on specific functions and activities to meet the living needs of the community. Spatial utilization can take the form of residential areas, trade and services, industry, agriculture, plantations, transportation, public facilities, and conservation areas. Law Number 26 of 2007 explains that spatial planning encompasses spatial planning, spatial utilization, and spatial utilization control. These three aspects serve as the foundation for guiding regional development to align with planned spatial functions. The development of an area can be marked by an increase in built-up areas, changes in land functions, the development of transportation networks, and an increase in community economic activities. In the context of Sei Mangkei SEZ, the growth of industrial activities has the potential to drive spatial utilization changes in surrounding regions. Harahap, Abdiyanto, and Milanie explained that land-use transformations need to be considered because they can affect environmental functions, area conditions, and the sustainability of community life. Therefore, spatial utilization developments around industrial zones must be examined by considering compliance with spatial plans and environmental conditions.

Socio-economic facilities are infrastructure and amenities that support the fulfillment of basic community needs and regional economic activities. The existence of these facilities plays a role in improving the quality of life, accessibility, and community welfare. Social facilities include educational, healthcare, religious, open space, and public service facilities. Meanwhile, economic facilities include markets, retail shops, trade and services, transportation, and business support facilities. Industrial area development can increase the demand for socio-economic facilities due to population growth, labor mobility, and business activities. Research by Hairani RS and Silvia shows that the infrastructure development of Sei Mangkei SEZ should be viewed not only from the side of economic growth but also from its connection to the socio-economic conditions of the community. Thus, the provision of socio-economic facilities needs to be adjusted to population growth, regional characteristics, and community service needs.

The development of an SEZ has linkages with spatial utilization changes and the demand for socio-economic facilities. Industrial activities can drive the growth of residential areas, trade, services, and transportation networks in the vicinity. Increased economic activity also has the potential to create new business opportunities for the community, such as daily necessities trade, food provisioning, transportation services, residential rentals, and other business activities. However, industrial area development can also pose challenges in the form of increased infrastructure needs, pressure on land use, changes in regional characteristics, and imbalances in the provision of public service facilities. Riesfandiari et al. explained the impact of Sei Mangkei SEZ on the economy of Simalungun Regency. This study serves as one of the bases for seeing that special economic zone development is linked to regional economic dynamics. Therefore, SEZ development must be integrated with surrounding regional planning so that economic growth can proceed hand-in-hand with improvements in environmental quality and public social services.

Research Methods

This study employs a descriptive qualitative approach to describe the development of spatial utilization and socio-economic facilities in the area surrounding Sei Mangkei SEZ, Simalungun Regency, North Sumatra Province. The descriptive qualitative approach is used to gain an understanding of regional conditions, changes in spatial functions, community activity developments, and the availability of socio-economic facilities based on field conditions and information from various sources.

The research location is focused on the area surrounding Sei Mangkei SEZ. The determination of observation boundaries is carried out by considering geographical proximity to the industrial zone, community activity linkages, accessibility, and functional relationships with the SEZ. Research data consist of primary and secondary data. Primary data are planned to be collected through field observations, semi-structured interviews, and documentation. Observations are conducted to identify spatial utilization conditions, built-up area development, road networks, settlements, trade and services, and the existence of socio-economic facilities.

Interviews are conducted with informants selected purposively based on their knowledge, experience, and involvement in area development. Informants include Sei Mangkei SEZ management, local government, relevant agencies, subdistrict and village officials, community leaders, business actors, and community members living around the area. Secondary data are obtained from the Central Bureau of Statistics of Simalungun Regency, local government documents, Regional Spatial Plan (RTRW) documents, Sei Mangkei SEZ development reports, land-use maps, scientific journals, books, and previous research.

Research observations focus on two main aspects:

1. Spatial utilization, including the development of industrial areas, settlements, trade and services, plantations or agriculture, transportation networks, and land-function changes.
2. Socio-economic facilities, including educational, healthcare, religious, commercial, transportation, residential, and public service facilities.

Data analysis is conducted through three stages as proposed by Miles, Huberman, and Saldaña: data condensation, data display, and conclusion drawing and verification. Acquired data are selected and grouped based on the research focus to be subsequently presented descriptively. Spatial data in the form of land-use maps and documentation of area conditions are used as supporting data to depict

spatial utilization developments. Data validity is strengthened through source and technique triangulation by comparing information from interviews, observations, documentation, and secondary documents.

Results

Sei Mangkei SEZ is a special economic zone located in Simalungun Regency, North Sumatra Province. This area was established through Government Regulation Number 29 of 2012 and began operations in January 2015. The area reaches approximately 2,002.70 hectares in size, with primary activities consisting of the palm oil processing industry, rubber processing industry, tourism, and logistics. Area development is directed at strengthening plantation resource-based downstream industrial activities and enhancing connectivity with other economic and logistics activity centers. The presence of Sei Mangkei SEZ gives the area a vital role in the economic development of Simalungun Regency. These conditions also offer regional development potential in surrounding areas as supporting zones for industrial activities, workforce housing, trade, and services. Data regarding regional conditions and socio-economic facility developments need to be supported by publications such as *Simalungun Regency in Figures* published by the Central Bureau of Statistics of Simalungun Regency.

The development of Sei Mangkei SEZ has the potential to influence the structure and patterns of spatial utilization in surrounding regions. Increased industrial activity and its supporting needs can drive the growth of built-up areas as well as land-function changes. Based on the research focus, spatial utilization development is directed toward several forms:

- Industrial areas serve as the main activity center of Sei Mangkei SEZ. Palm oil and rubber processing activities as well as logistics operations require land support, road networks, utilities, and production facilities. The development of these activities can increase linkages between the industrial zone and surrounding areas.
- Settlements: Increased industrial activity has the potential to increase housing demand for workers and economic support communities. Settlement developments can take the form of permanent houses, rental houses, boarding houses, and other residential facilities. Housing needs integrated with the industrial zone must also be considered in regional planning so that settlement growth can be directed and aligned with population needs.
- Trade and services: The growth of industrial activity and population mobility can open up opportunities for trade and services to develop. These activities include kiosks, eateries, daily necessity shops, transportation services, vehicle rentals, and other businesses. The development of trade and services has the potential to become a form of economic linkage between the industrial zone and local communities.
- Transportation networks: Transportation networks are a critical component in supporting industrial activities, goods distribution, and community mobility. The connectivity of Sei Mangkei SEZ with regional transportation networks is an important part of supporting logistics and industrial distribution activities. Improved accessibility can also influence the development of residential areas and economic activities along transportation corridors.

The development of spatial utilization needs to be further examined through observations and comparisons of land-use maps across multiple periods to determine actual spatial function changes. Industrial area development not only requires facilities for production activities but also demands socio-economic facilities that support community and worker life.

Table 1. Socio-economic facilities serving as the research observation focus.

Facility Type	Assessed Aspects
Education	Schools, educational access, and educational service needs
Healthcare	Community health centers (*Puskesmas*), clinics, hospitals, and healthcare access
Religious	Mosques, churches, and other religious facilities
Trade	Markets, retail shops, kiosks, and economic activity centers
Transportation	Roads, public transport, accessibility, and connectivity
Settlements	Permanent dwellings, rental houses, boarding houses, and worker housing
Public Facilities	Open spaces and public service amenities

The presence of educational facilities is an essential part of supporting community needs in the area surrounding the SEZ. Economic and residential developments must be followed by the availability of adequate and easily accessible educational facilities. Observations of educational facilities are directed at the quantity and type of educational infrastructure, physical condition, service coverage, and community accessibility. Healthcare facilities play an important role in meeting the health service needs of the community and workforce. Industrial activity growth also increases the demand for basic healthcare services and emergency response handling. Therefore, the availability of healthcare facilities needs to be assessed based on infrastructure condition, service capacity, location, and ease of community access. Religious facilities are social amenities supporting religious activities and community interaction. Settlement and population growth must be balanced with the provision of religious facilities that match community needs.

Trade and service facilities play a role in supporting community economic activities. SEZ development has the potential to increase demand for consumption goods, transportation services, food provisions, housing, and various other business activities. Trade and service facilities can also act as a bridge between the economic activities of the industrial zone and local community economic pursuits. Transportation and residential facilities have a close relationship with industrial zone development. The availability of adequate road networks can support worker and community mobility, while housing provision fulfills worker accommodation needs. Consequently, transportation and residential facilities must be addressed as part of the industrial area support system. All these facility conditions must be verified based on observation results and statistical data to determine their availability, distribution, and service affordability.

The development of Sei Mangkei SEZ is linked to spatial utilization dynamics in surrounding regions. Growing industrial activities can drive spatial demands for settlements, trade, services, transportation, and public service facilities. These linkages can be explained through several aspects:

1. Industrial development can increase land demand for production activities and supporting facilities.
2. Increased labor demand can drive the development of settlements and worker housing.
3. Increased population mobility can trigger the growth of trade and services.
4. Increased area activities require support from transportation networks and socio-economic service facilities.

Research by Harahap, Abdiyanto, and Milanie provides the perspective that land-use changes must be considered in relation to human activity developments and compliance with spatial planning policies. This perspective is relevant for examining spatial utilization developments around Sei Mangkei SEZ, particularly in identifying spatial function changes and potential pressures on land use. On the other hand, regional economic development does not automatically guarantee an equitable distribution of socio-economic facilities. Therefore, observations of available facility conditions, community needs, and service affordability are required. Industrial area development can provide opportunities for regional growth, but it also presents challenges in spatial management and the provision of socio-economic facilities.

Several issues that require attention in developing the area surrounding Sei Mangkei SEZ include:

- Spatial utilization control: Directing the development of built-up areas to comply with spatial plans.
- Settlement development: Addressing proper and affordable housing needs for workers and the community.
- Social facility improvement: Aligning community needs with the availability of educational, healthcare, and religious facilities.
- Economic facility development: Strengthening trade, services, and local community business opportunities.
- Regional accessibility enhancement: Strengthening transportation network connectivity between the industrial zone and community settlements.
- Institutional coordination: Improving integration among local governments, SEZ management, and the community in guiding regional development.

Based on these issues, the development direction for the area surrounding Sei Mangkei SEZ must be pursued through an integrated regional planning approach. Spatial utilization control needs to be aligned with the Regional Spatial Plan (RTRW) and area development plans. The provision of socio-economic facilities must consider population and worker needs, while trade and service development should provide opportunities for local communities to participate in economic activities. Furthermore, coordination between local governments and area management must be strengthened so that infrastructure, residential, and public service facility development can proceed in an integrated manner. Because field research data have not yet been presented, these directions remain an initial framework that must be adjusted based on observations, interviews, and documentation results.

Conclusion

The development of Sei Mangkei SEZ is a crucial factor in the regional development dynamics of Simalungun Regency. Industrial, investment, and logistics activities in the area have the potential to drive spatial utilization developments in surrounding regions, particularly in residential areas, trade and services, and transportation networks. Industrial area development is also related to the increased demand for socio-economic facilities, including education, healthcare, religion, trade, transportation,

and housing. The availability of these facilities is a vital component in supporting community and worker activities as well as maintaining the quality of life in the area surrounding the SEZ. Therefore, the development of the area around Sei Mangkei SEZ needs to be guided through integrated spatial planning, land-use change control, accessibility enhancement, and the provision of socio-economic facilities according to community needs. Synergy among local governments, area management, and the community is necessary so that SEZ development not only drives industrial growth but also supports balanced and sustainable regional development. Because the sources used at this preparation stage are still secondary documents and research designs, the descriptions of spatial utilization and socio-economic facility developments must be supplemented with observation findings, interview results, facility data, and field documentation before the manuscript is declared a final research report.

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