

FEASIBILITY ANALYSIS OF THE SORONG SPECIAL ECONOMIC ZONE (SEZ) LOCATION, PROVINSI PAPUA BARAT DAYA

Tamrin Tajuddin^{1*}, La Ibal², Masniar³

^{1,3} Industrial Engineering Study Program, Muhammadiyah University of Sorong, Sorong, Indonesia

² Urban and Regional Planning Study Program, Muhammadiyah University of Sorong, Sorong, Indonesia

*Correspondent Email: tamrintajuddinsorong@gmail.com

Received 2024-09-30 | Revision 2024-11-02 | Accepted 2024-12-19
Geography Study Program, Lambung Mangkurat University

Abstract: Government Regulation Number 31 of 2016 designated the Sorong Special Economic Zone (KEK) as the first Special Economic Zone in Papua. The establishment of the Sorong SEZ is expected to become a new center of economic growth in eastern Indonesia, in line with one of the principles of Nawacita, namely building Indonesia from the outskirts. This study employs the analysis of location feasibility, environmental feasibility, technical feasibility, and financial feasibility. The variables of this study are slope, land use, flood-prone, landslide-prone, and suitability of spatial pattern, as well as environmental feasibility, land use, flood-prone, landslide-prone, spatial planning, environment, technical, and economic and financial. The location of the Sorong SEZ in Provinsi Papua Barat Daya is based on the overlay with the Sorong Regency RTRW, most of the Sorong SEZ is an industrial area with a mostly gentle slope, not included in the landslide-prone area, but has a fairly high flood-prone area. Environmental feasibility dictates that the Sorong SEZ area is located in a coastal/beach area, thereby prohibiting companies from using groundwater as a raw water source for their operations. The existence of infrastructure such as the 50 MW PLN Power Plant, Arar Port, clean water network, and others makes the Sorong Special Economic Zone technically qualified as the Sorong Special Economic Zone. The Sorong Economic Zone Development Financing Plan, based on its economic and financial feasibility, provides the following details: The plan includes initial preparation costs of IDR 1,124,659,690,000, infrastructure costs of IDR 236,390,000,000, general facility costs of IDR 235,315,000,000, and basic infrastructure costs of IDR 800,000,000,000.

Keywords: Feasibility, Location, Special Economic Zone (KEK)

INTRODUCTION

Currently, the government has designated a KEK, an area with specific boundaries within Indonesia's territory, to perform functions with unique economic benefits. A KEK is an area with certain boundaries within the territory of Indonesia that is designated to carry out functions with special economic benefits. The main objective of developing a KEK is to encourage economic growth, equitable development, and increase national competitiveness (Jamil et al., 2024); (Sarfiyah et al., 2023). The development of SEZs

involves preparing regions with geoeconomic and geostrategic advantages, which serve as hubs for industrial activities, exports, imports, and other economic activities with high economic value and global competitiveness. The presence of SEZs is expected to strengthen the ability and competitiveness of the national economy through value-added industry, tourism, and value chain (Rachman & Syamsudin, 2019).

Government Regulation Number 31 of 2016 designated the Sorong Special Economic Zone as the first Special

Economic Zone in Papua. The establishment of the Sorong Special Economic Zone is expected to become a new center for economic growth in the eastern region of Indonesia, in line with one of the principles of Nawacita, namely developing Indonesia from the outskirts (Widodo et al., 2024). Located in Kampung Arar, Mayamuk District, KEK Sorong stands on an area of 523.7 Ha and has a strategic position on the international trade route between Asia Pacific and Australia (Misbahuddin et al., 2023); (Habibburrahim, 2023).

The Sorong Special Economic Zone (KEK) located in the Jalan Sele Strait has geoeconomic advantages, especially in the fisheries and sea transportation sectors. Its strategic location supports the development of the logistics, agro-industry, and mining industries. Utilizing this potential, we developed the Sorong KEK to support the shipbuilding, agro-industry, mining, and logistics industries. Estimates suggest that the Sorong KEK has the potential to attract investment of IDR 32.2 trillion and will employ 15,024 workers by 2025 (Ibal et al., 2024); (Madaul et al., 2024).

The Sorong Special Economic Zone not only offers job creation and investment opportunities, but also fosters infrastructure development, enhances connectivity, and improves the quality of human resources in the area (Ministry of Manpower of the Republic of Indonesia, 2023). By combining leading sectors such as fisheries, agro-industry (Madaul & Ibal, 2023), and logistics, the Sorong Special Economic Zone is expected to be able to form a sustainable economic ecosystem and provide a positive impact on the local community. The development of the Sorong Special Economic Zone is not only an economic project but also a strategic step to support the national development vision. By utilizing its geoeconomic potential and strategic location, the Sorong Special Economic Zone has the opportunity to become one of the main driving forces of the Indonesian economy, not only in Papua but also in eastern Indonesia in general. In the future, Sorong Special Economic Zone is expected

to be a catalyst for sustainable and inclusive economic growth, providing benefits to the community, government, and business world in the region. This research can offer insights into the sustainable development of the Special Economic Zone, focusing on the physical, economic, and environmental conditions.

In the research (Lihiang, 2016), Financial feasibility analysis of Bitung Special Economic Zone is financially feasible, but this study does not discuss the feasibility of the location. Furthermore, in the study (Andayani et al., 2019) the feasibility of the factory construction location is assessed using the criteria of market location, raw material source location, transportation, energy sources, labor sources, water and waste, and community response. Research conducted by (Bahri, 2014) indicates that the cocoa bean processing industry is feasible to implement. The study focuses on location feasibility, technical feasibility, financial feasibility, and environmental feasibility, based on the study's results.

LITERATURE REVIEW

Special Economic Zone (SEZ) is a specific geographic area within the legal territory of the Unitary State of the Republic of Indonesia. Regulations and laws designate this area to carry out specific economic functions and provide a number of special facilities (Setyawan & Prihatiningrum, 2024). The criteria for the feasibility of a KEK location are: (a) a detailed map of the development location and the area of the proposed KEK; (b) economic and financial feasibility; and (c) environmental feasibility, or AMDAL (Hadiyati, 2016).

The long-term increase in per capita income reflects the effort of regional economic development to improve the quality of life of people in a region. The main goal of regional economic development is to achieve high economic growth while reducing poverty, unemployment, and income inequality in the region. In addition, economic development also plays a role in

creating jobs for local residents, so that they can increase their income and meet their living needs, as well as reduce poverty and inequality in the region (Amalia et al., 2022).

A specific regulatory body manages a separate customs area that demarcates a Special Economic Zone (SEZ). The design of SEZs is to offer benefits to those operating within the area. In other words, SEZs are zones where the government hopes to encourage economic growth through increased customs, exports, and investment by offering various advantages to companies that choose to operate within the area (Ministry of Law and Human Rights, 2009)

The development of Special Economic Zones (SEZs) aims to accelerate economic development at the national level. Geoeconomic and geostrategic areas form SEZs, which function to accommodate various industrial activities, exports, imports, and other economic activities. SEZs cover several zones, including tourism, logistics, industry, exports, technology development, and other economic sectors. In SEZs, there are locations for micro, small, and medium enterprises (MSMEs) and cooperatives, both as business actors and supporters of other company activities. In addition, SEZs are also equipped with supporting facilities and housing for workers to facilitate the development process (Sepang & Uhing, 2019).

The Regional Spatial Plan (RTRW) must consider various social, political, economic, cultural, technological, and natural conditions. The goal is to ensure harmonious interaction between humans and the environment. RTRW should have implications for increasing security, comfort, and productivity and creating environmental harmony. Each district and city should have a spatial plan that functions as a tool to control changes in land use. However, in practice, the spatial planning process often prioritizes economic considerations over ecological interests (Haris et al., 2022).

Land suitability basically describes the level of suitability of a piece of land for a particular use. We can conduct this

assessment to evaluate the current condition (actual land suitability) or after making improvements (potential land suitability). Before making any interventions to overcome existing constraints, we determine the actual suitability of the land based on its physical data. This physical data includes soil and climate characteristics relevant to land use requirements (Luhukay et al., 2019).

RESEARCH METHODS

The research location is in Kampung Arar, Distrik Mayamuk, Kabupaten Sorong, Provinsi Papua Barat Daya. The determination of this location was done intentionally by considering that Kampung Arar is the location of the Sorong Special Economic Zone (KEK). This research was conducted in April 2024. The object of this research is the Sorong Special Economic Zone (KEK). The scope of this research is to analyze the feasibility of the location of the Sorong Special Economic Zone (KEK).

The data sources used in this study include primary data and secondary data. Primary data collection was carried out by means of surveys, direct interviews with the Arar village community and the Sorong Regency BPN. While secondary data was obtained from documentation and related institutions or agencies relevant to this study.

This study uses qualitative and quantitative analysis. Qualitative research methods are used to examine objects in natural conditions (Ali et al., 2022). On the other hand, quantitative methods represent a type of research that is more systematic, specific, structured, and well-designed from the outset to produce conclusions. Quantitative research emphasizes the use of numerical data, which makes it more detailed and clear. The analysis used in this study is spatial analysis and qualitative descriptive. The variables of this study are slope, land use, flood prone, landslide prone, and suitability of Spatial Pattern, as well as environmental suitability, land use, flood prone, landslide prone, spatial planning, environment, technical, as well as economic and financial.

- The data analysis used in this study is
- a. **Buffer Analysis**
Buffer analysis is the process of defining a zone around a point, line, or polygon that encompasses all areas within a specified distance of the feature. GIS typically presents the results of this analysis as new polygons (Syahputra et al., 2023).
 - b. **Scoring Analysis**
Scoring is a calculation method used to determine values based on a number of specific criteria. The higher the value of a criterion, the higher its ranking compared to other criteria. This method is used to assess the extent to which a characteristic of a criterion affects the prediction of an event (Syahputra et al., 2023).
 - c. **Overlay Analysis**
Overlay is an operation in GIS that combines several data sets with different themes that overlap each other to identify relationships between the data. This process integrates the geometry and attributes of the data to produce a new analytical map with a specific theme (Syahputra et al., 2023).
 - d. **Environmental Feasibility Analysis**
Environmental feasibility analysis through literature study (Munir et al., 2019) by analyzing the environmental conditions that will occur if the Sorong Special Economic Zone is running. Furthermore, we are scrutinizing the environmental effects, including those on mangrove and other plant species.
 - e. **Technical Feasibility Analysis**
The technical aspects studied include determining the location of the factory, production capacity, machinery and equipment, and the layout of factory facilities (Ramadhan et al., 2018).
 - f. **Financial Feasibility Analysis**
The financial feasibility analysis used in this study uses the cost, income and profit analysis formula (Purnawati et al., 2022).

g. **Potential Impact Analysis**

Analysis of the potential impact of each variable on the feasibility of the Sorong Special Economic Zone location.

RESULTS AND DISCUSSION

The feasibility of the Sorong Special Economic Zone (KEK) location in Southwest Papua Province can be analyzed using the variables of slope gradient, land use, flood proneness, landslide proneness, and suitability of Spatial Patterns, as well as environmental feasibility, land use, flood proneness, landslide proneness, spatial planning, environment, technical, and economic and financial.

1. Location Feasibility with Slope Gradient Variable

Evaluation of site feasibility considering slope variables involves an in-depth analysis of three different categories (Gafuraningtyas & Adi, 2023). By taking into account specific slope factors, we can identify the potential and challenges that may arise in the development of the area. Table 1 presents the slope of the Sorong Special Economic Zone location in Provinsi Papua Barat Daya.

Table 1. Area Based on Slope of Sorong Special Economic Zone Location, Provinsi Papua Barat Daya

No.	Slope	Information	Area (Ha)
1	0-8	Flat	335.13
2	8-15	Sloping	151.35
3	15-25	A bit steep	36.05
4	25-40	Steep	1.17
Total			523.7

Source: Kabupaten Sorong RTRW, 2023

Based on Table 1. The location of the Sorong Special Economic Zone which is on a steep slope (25 - 40%) covers an area of 1.17 Ha, while overall the location of the Sorong Special Economic Zone is dominated by flat slopes (0 - 8%) with an area reaching 335.13 Ha.

The Slope Map of the Sorong Special Economic Zone Location in Provinsi Papua Barat Daya is presented in Figure 1.

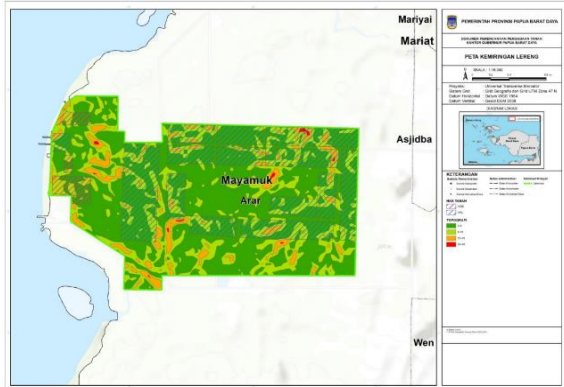


Figure 1. Map of Slope Division of Sorong Special Economic Zone Location, Provinsi Papua Barat Daya.

Based on the data in Table 1, the location of the Sorong Special Economic Zone in Provinsi Papua Barat Daya shows a varied slope distribution, with most of its area in the flat category (0–8%) covering an area of 335.13 Ha. This slope condition provides optimal potential for infrastructure development and economic activities because it minimizes construction costs and the risk of erosion or landslides.

Areas with gentle slopes (8–15%) covering 151.35 Ha are also still quite supportive of development, although they require more attention to drainage management. In rather steep areas (15–25%) covering 36.05 Ha, challenges begin to increase, especially in terms of land stability and the need for mitigation techniques such as terracing or retaining walls.

Meanwhile, areas with steep slopes (25–40%) covering only 1.17 Ha have significant limitations for large-scale development due to the risk of landslides and high construction costs. Overall, this analysis shows that the majority of the Sorong Special Economic Zone locations are very feasible for development,

but areas with steeper slopes require a more careful approach and technical intervention to reduce negative impacts on development's sustainability.

2. Location Feasibility with Land Use Variables

Evaluation of location feasibility by considering land use variables includes analysis of specific land use. Areas mandated for public facilities, such as the construction of the Sorong Special Economic Zone office, receive special attention in the context of land use. The area of land use at the Sorong Special Economic Zone Location in Provinsi Papua Barat Daya is presented in Table 2.

Table 2. Land Use Area at the Sorong Special Economic Zone Location, Provinsi Papua Barat Daya

No.	Land Use	Area (Ha)
1	Water Body	0.56
2	Dock	0.66
3	Forest	0.12
4	Industry	6.03
5	Plantation	301.70
6	Industry	2.16
7	Plantation	14.41
8	Industry	6.89
9	Plantation	191.17
Total		523.7

Source: Analysis Results, 2024

Each land use provides specific dimensions to the availability of space and the potential for environmental sustainability. By integrating these land use variables, the evaluation of site feasibility becomes more comprehensive, allowing the identification of optimal opportunities for sustainable development and in accordance with the needs of the local community. The Land Use Map at the Sorong Special Economic Zone Location, Provinsi Papua Barat Daya is presented in Figure 2.

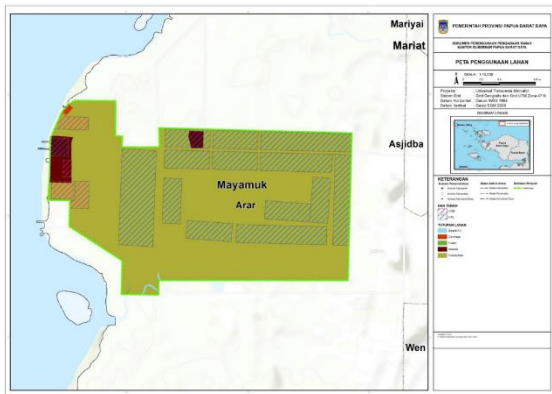


Figure 2. Land Use Map at the Sorong Special Economic Zone Location, Provinsi Papua Barat Daya

Based on Table 2, land use in the Sorong Special Economic Zone of Provinsi Papua Barat Daya shows a dominant plantation area with a total area of 507.28 Ha (301.70 Ha, 14.41 Ha, and 191.17 Ha). This condition reflects the great potential for the development of the agribusiness sector or plantation-based industry, but requires spatial adjustments to support the development of a more integrated Special Economic Zone. The industrial area covers 15.08 Ha (6.03 Ha, 2.16 Ha, and 6.89 Ha), which provides an initial foundation for manufacturing or logistics-based economic activities. The area for the dock of 0.66 Ha shows the strategic role of the Sorong Special Economic Zone in supporting maritime trade activities, although this facility needs to be expanded to meet greater operational needs.

The water body with an area of 0.56 Ha and forest area of 0.12 Ha indicate the need for attention to environmental conservation in order to maintain the sustainability of the ecosystem. In the context of SEZ development, this area must be managed carefully to prevent negative impacts on water resources and biodiversity. Overall, the diversity of land uses provides significant opportunities for the sustainable development of the Sorong SEZ. However, the successful management of this location depends on integrated planning that takes into account the needs of economic development, environmental sustainability, and the welfare of the local community.

3. Location Suitability with Flood Prone Variables

The evaluation of the location's feasibility by considering the flood hazard variable involves an in-depth analysis of three different categories. By considering the specific flood hazard factors, we can identify the potential and challenges that may arise in the development of the area. The Flood Hazard of the Sorong Special Economic Zone in Provinsi Papua Barat Daya is presented in Table 3.

Table 3. Area of Flood-Prone Area of Sorong Special Economic Zone Land Location of Provinsi Papua Barat Daya

No.	Flood Prone	Area (Ha)
1	Low	23.63
2	Currently	240.56
3	Tall	259.51
Total		523.7

Source: Analysis Results, 2024

Based on Table 3. that the location of the Sorong Special Economic Zone land in Provinsi Papua Barat Daya with a low flood-prone category reaches an area of 23.63 Ha, the moderate flood-prone category reaches an area of 240.56 Ha, and the high flood-prone category reaches an area of 259.51 Ha. The Flood-Prone Map of the Sorong Special Economic Zone Land Location in Provinsi Papua Barat Daya is presented in Figure 3.

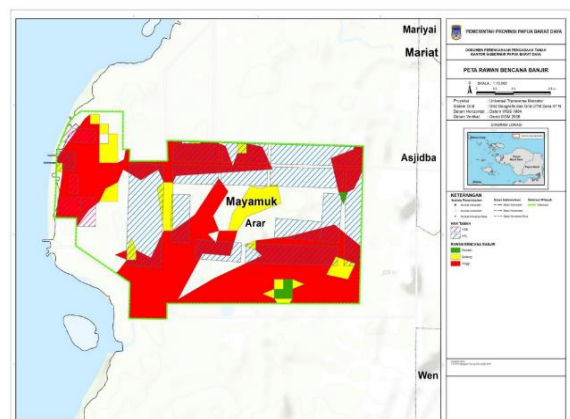


Figure 3. Flood-Prone Location Map of Sorong Special Economic Zone, Provinsi Papua Barat Daya

Based on Table 3, the location of the Sorong Special Economic Zone in Provinsi Papua Barat Daya has a significant distribution of flood vulnerability, with most areas in the high flood vulnerability category (259.51 Ha) and medium (240.56 Ha). This shows a major challenge in flood risk management, especially in critical areas that can affect the sustainability of infrastructure development and KEK operations. Areas with low flood vulnerability, which only cover 23.63 Ha, have greater potential for direct development without requiring significant technical intervention.

This condition underlines the importance of effective flood mitigation planning, such as the development of integrated drainage systems, the construction of embankments, and the application of rainwater management technologies. Furthermore, implementing nature-based strategies like reforestation and managing water catchment areas can enhance the location's resilience to flooding.

Overall, despite the significant challenges related to flood vulnerability, this evaluation still shows opportunities for the development of the Sorong Special Economic Zone, provided that there are comprehensive planning interventions to mitigate the negative impacts of flooding and increase environmental resilience.

4. Location Suitability with Variables Landslide

Evaluation of site feasibility by considering landslide variables is a crucial stage in assessing potential environmental and safety risks related to a project or development. The results of this analysis are expected to provide a solid foundation for decision-making related to site feasibility by comprehensively considering landslide variables. Therefore, we can take proactive measures to mitigate potential risks and guarantee the safety and sustainability of the project or development at the site (Manakane et al., 2023). Based on the overlay of the landslide-prone map at the Sorong Special Economic Zone Location,

Provinsi Papua Barat Daya, the Sorong Special Economic Zone falls into the low category, covering an area of approximately 523.7 Ha. The Landslide-Prone Map at the Sorong Special Economic Zone Location, Provinsi Papua Barat Daya can be seen in Figure 4.

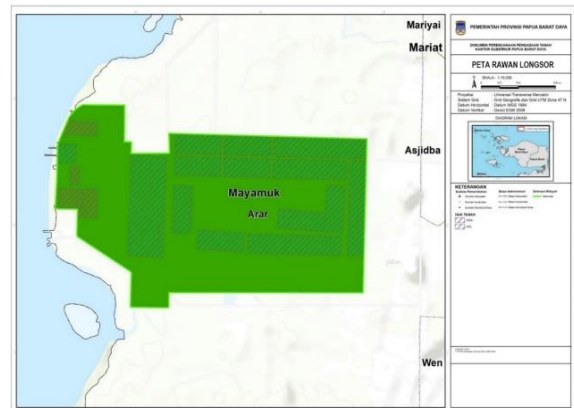


Figure 4. Landslide-Prone Location Map at the Sorong Special Economic Zone Land Location, Provinsi Papua Barat Daya

Based on the landslide hazard map analysis, the entire area of Sorong Special Economic Zone with an area of 523.7 Ha is included in the low landslide hazard category. This condition provides a significant advantage in terms of location feasibility due to minimal landslide-related risks.

Geotechnical safety in this area supports the implementation of large and small infrastructure development without requiring significant landslide risk mitigation intervention. This advantage also enables the planning focus to shift toward other aspects, such as drainage management and flood risk adaptation, which pose a higher risk category in certain parts of the SEZ area.

However, it is crucial to continuously monitor geological conditions and environmental dynamics, particularly to address potential changes resulting from development activities and climate change. Overall, the low landslide vulnerability category provides a strong basis for the safe and sustainable development of the Sorong SEZ.

5. Location Suitability with Spatial Planning Suitability Variables

Location feasibility involves a comprehensive evaluation of various variables, with spatial suitability being one of the crucial aspects. Spatial suitability refers to the extent to which the location meets the requirements and norms of established spatial planning. By considering all these factors, the evaluation of location feasibility with a focus on spatial suitability becomes a systematic and holistic step (Thahir, 2023).

Therefore, we can make decisions about development or activities at the location by taking critical aspects of spatial planning into account and ensuring a positive contribution to the surrounding environment. Based on the overlay with the Kabupaten Sorong RTRW, the majority of the Sorong Special Economic Zone in Provinsi Papua Barat Daya is classified as an industrial area. The Map of Suitability with the Sorong Regency RTRW Spatial Pattern at the Sorong Special Economic Zone Location, Provinsi Papua Barat Daya can be seen in Figure 5.

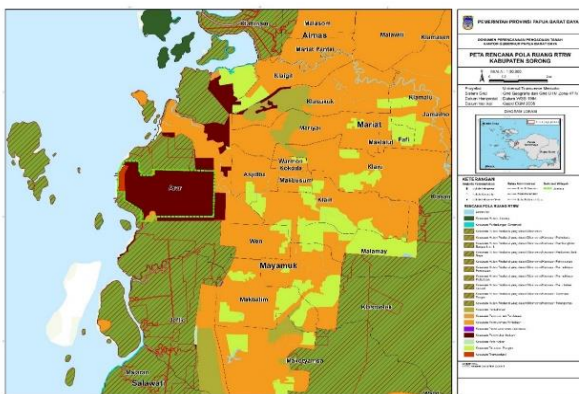


Figure 5. Map of Conformity with the Spatial Pattern of Kabupaten Sorong RTRW at the Sorong Special Economic Zone Land Location in Provinsi Papua Barat Daya

The planning location for the Sorong Special Economic Zone is in Distrik Klaurung, Kota Sorong. The revised document of the Provinsi Papua Barat Daya Spatial Plan (RTRW) for 2013-2033, when viewed in the regional constellation, designates Sorong City as the National

Activity Center in West Papua Province, based on the National RTRW. This city is a significant hub for growth, offering a wide range of national services, particularly in the economic sector, in alignment with current trends. The functions of Sorong City include: (a) Becoming a hub of activities that has the potential to be a gateway to the international region and encourage the development of the surrounding areas on a regional scale; (b) Providing transportation network services (air, land, sea) to support the national and provincial spatial structure with an orientation to other PKN and related PKW; (c) Acting as a service center, processing, and collection of goods nationally or serving several provinces; (d) Functioning as a national transportation hub covering several provinces; and e. Becoming a financial services center that serves national needs or several provinces.

6. Environmental Feasibility of Sorong Special Economic Zone

The Sorong Special Economic Zone will minimize or manage the significant negative impacts from industrial and tourism activities, making its development environmentally feasible. Owing to the scarcity of surface and groundwater, the Sorong Special Economic Zone permits only water-efficient industries (Kartika, 2016).

The area of the Sorong Special Economic Zone is located in a coastal area, so companies are prohibited from taking groundwater as a source of raw water in their business. Taking groundwater in large quantities will have fatal consequences, namely seawater intrusion. Water resources are one of the determining factors for industrial carrying capacity, so the Sorong Special Economic Zone Management Agency must be able to provide these water resources by building several lagoons or artificial lakes to accommodate rainwater.

Besides the limited water resources, the Sorong Special Economic Zone also faces energy source constraints. Therefore, the Sorong Special Economic Zone Management Board is required to establish fuel oil depots. Every industry is required to

process its liquid waste first in the Wastewater Treatment Plant (IPAL) before being released into a body of water (river) which eventually flows into the sea. The factory disposes of liquid waste that truly falls below the permitted quality standard threshold. Small and medium entrepreneurs and industries, typically lacking strong capital ownership, must prioritize assistance from management, both individually and collectively, in the construction and operation of IPAL (Sulaiman, 2016).

The road needs to be watered to prevent ARI, which could arise from the increased traffic flow. Watering the road is a necessary step. The road from the Petrochina road intersection to the Mariat tourist location is 2 km long and has a width of 30 meters. The main road, which runs parallel to Petrochina road, has a width of 20 meters for 5 km. The road is recommended to be divided into 2 lanes with a green lane in the middle. On the left side of the road from both directions, a sidewalk is built with conblock construction for pedestrians. To maintain the quality of the road and the aesthetics of the environment on the right and left sides of the road are equipped with canals or drainage channels.

To give rainwater as much as possible to seep into the ground, it is recommended that the roads around the Mariat tourist area be made with conblock construction. Only pedestrians should use the environmental roads in the Mariat tourist area. To avoid damaging the mangrove forest, piles support the wooden or bamboo construction of the roads above the water.

In the long term, what needs attention is the problem of piling up solid waste both organic and inorganic. Piles of waste will cause unpleasant odors, river shallowing, flooding, disease, and aesthetics will be lost. The sea will carry away the waste. The sea becomes dirty and unattractive. An examination of the possible effects of different environmental feasibility variables on the location feasibility of the Sorong Special Economic Zone reveals that the area can still develop sustainably, even though it faces some problems, such as a lack of water,

energy, waste, and waste management. The Sorong Special Economic Zone already has supporting technical infrastructure, including a 50 MW power plant, a port, and a clean water network, which are a strong foundation for the development of this area. However, it is important to integrate an environmental management approach into every aspect of operations.

Building artificial lakes to store rainwater and prohibiting groundwater extraction to prevent seawater intrusion can minimize the potential impact of water limitations. In addition, the provision of Wastewater Treatment Plants (IPAL) must be a priority to prevent water pollution and maintain the quality of the coastal environment. The Sorong Special Economic Zone must prioritize the operation of water-efficient and environmentally friendly industries, and small and medium enterprises require support for the construction of communal IPAL.

Increased traffic necessitates enhanced road designs featuring green lanes, efficient drainage systems, and water-absorbing road constructions like conblocks in tourist areas. Special roads for environmentally friendly pedestrians in mangrove areas, such as using piles, also support the sustainability of tourist areas. The problem of solid waste needs serious attention through integrated management, such as waste sorting, recycling, and sustainable domestic waste management. In the long term, proper management will reduce the risk of flooding, pollution, and aesthetic degradation of the area.

With the planned mitigation strategies and infrastructure support, the Sorong Special Economic Zone has enormous potential to become a new center of economic growth in Papua in line with the principles of sustainable development and Nawacita.

7. Technical Aspect Feasibility Analysis

Government Regulation Number 31 of 2016 designated Sorong Special Economic Zone as the first Special Economic Zone in Papua. It is hoped that Sorong Special

Economic Zone can become a new center of economic growth in eastern Indonesia, aligning with one of the principles of Nawacita, namely building Indonesia from the periphery. Located in Arar Village, Mayamuk District, Sorong Special Economic Zone was built on an area of 523.7 hectares and has a strategic position on the international trade routes of Asia Pacific and Australia. Based on the feasibility of the investment aspect, Sorong Special Economic Zone has infrastructure to support SEZ activities. The Sorong Special Economic Zone area boasts the following infrastructure:

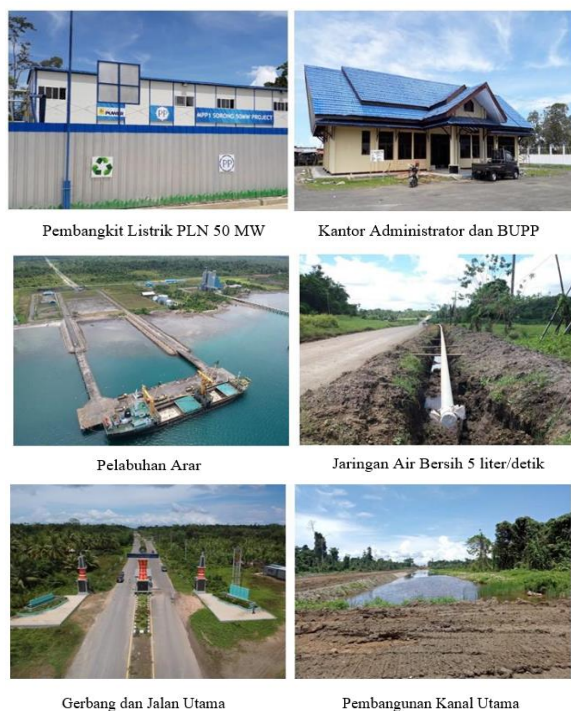


Figure 6 Supporting Infrastructure for Technical Aspects of the Sorong Special Economic Zone (KEK) Plan

The existence of infrastructure such as the 50 MW PLN Power Plant, Arar Port, Clean Water Network, and others make the Sorong Special Economic Zone technically qualified as the Sorong Special Economic Zone through Government Regulation Number 31 of 2016 concerning the Determination of the Sorong Special Economic Zone. Sorong Special Economic Zone has advantages in terms of technical aspects with adequate supporting infrastructure, such as a 50 MW PLN Power

Plant, Arar Port, and clean water network. This infrastructure ensures operational feasibility for industrial and logistics activities, supporting the region's competitiveness at the international level, especially on the Asia-Pacific and Australian trade routes. Arar Port as a strategic infrastructure supports export-import activities which are the core of the development of the Special Economic Zone.

Although the technical infrastructure has met the eligibility standards, challenges remain, especially in ensuring a stable energy supply to meet industrial needs, as well as efficient clean water management given the limited water resources in coastal areas. Waste management systems, both liquid and solid, must also be optimally prepared to prevent negative impacts on the surrounding environment.

With the existing infrastructure foundation and mature technical risk mitigation plan, the Sorong Special Economic Zone is not only technically feasible, but also has great potential to become a center of economic growth that supports sustainable development in eastern Indonesia. Proper management and development will strengthen investment attractiveness while encouraging the optimization of the Sorong Special Economic Zone's role in supporting the Nawacita principles.

8. Financial and Economic Feasibility

The establishment of supporting infrastructure is essential for the success of industrial development. The Sorong Special Economic Zone would prioritize the logistics sector by enhancing the connectivity between raw material sources, industrial centers, and their distribution networks. The developed industry seeks to incorporate locally obtained raw materials and integrate into the national logistics chain. The development of the Sorong area's potential will optimize the tourism potential in the Arar area and the metropolitan potential in the Katapop area. Both potential developments do not stand alone, but are a unity that supports efforts to realize an

economic area based on the support of the logistics industry.

To establish a dynamic economic region, it is essential to develop both basic infrastructure and supporting infrastructure for industry. As an effort to spur industries that are currently operating such as marine fisheries, palm oil and sago, as well as to attract new investment in potential sectors such as tourism and mining, and also to attract potential industries supporting logistics, initial investment is needed. This initial expenditure is intended as public investment, especially in the provision of supporting logistics infrastructure.

The initial investment is collaboratively made by the national and regional governments, complemented by regional contributions. The government's development initiatives serve as a foundational and strategic foothold for future progress, encompassing land preparation and the procurement of essential infrastructure, including roads, energy, clean water, telecommunications, and other public facilities such as places of worship, sports venues, and recreational areas.

Meanwhile, development carried out by the private sector, as a contribution from the private sector, is a scope that has the potential for economic returns such as the development of supporting logistics infrastructure industries: ports, medium and large industries based on local commodities (fisheries, sago, seaweed, etc.). The financing plan for the development of the Sorong Special Economic Zone is based on an analysis of economic and financial feasibility. The Financing Plan for the Development of the Sorong Economic Zone with the following details: initial preparation costs of IDR 1,124,659,690,000, infrastructure costs of IDR 236,390,000,000, general facility costs of IDR 235,315,000,000, and basic infrastructure costs of IDR 800,000,000,000.

The potential impact of economic feasibility variables on the Sorong Special Economic Zone's location indicates a significant opportunity for the area to develop into a center of economic growth in

Southwest Papua. With a total financing plan of IDR 2,396,364,690,000, which includes initial preparation costs, infrastructure, public facilities, and basic infrastructure, the Sorong Special Economic Zone has a solid economic foundation to attract investment. This initial expenditure, which involves synergy between the central government, regional governments, and the private sector, is an important foundation for creating a dynamic economic zone.

The Sorong Special Economic Zone not only relies on local commodity-based industries like fisheries, palm oil, sago, and seaweed, but also aims to bolster the national logistics system. This strengthens the region's position as a strategic link between raw material sources, industrial centers, and distribution, as well as increasing the region's attractiveness to investors in potential sectors such as tourism and mining.

However, the success of the development of this area is highly dependent on the realization of public investment in basic infrastructure, such as roads, energy, clean water, and other public facilities. In addition, private sector contributions in building supporting logistics infrastructure, including ports and industrial areas, are key to driving long-term economic growth.

CONCLUSION

The conclusion of this study is The conclusion of this study is the location of the Sorong Special Economic Zone in Provinsi Papua Barat Daya based on the overlay with the Sorong Regency RTRW, most of the Sorong Special Economic Zone is an industrial area with a gentle slope, not included in the landslide-prone area, but has a fairly high flood risk. Environmental feasibility dictates that the Sorong Special Economic Zone area is located in a coastal area, thereby prohibiting companies from using groundwater as a raw water source for their operations. The existence of infrastructure such as the 50 MW PLN Power Plant, Arar Port, Clean Water Network, and others make the Sorong Special Economic Zone technically qualified as the Sorong Special Economic

Zone. The economic and financial feasibility of the Sorong Economic Zone Development Financing Plan is based on the following details: initial preparation costs of Rp1,124,659,690,000, infrastructure costs of Rp236,390,000,000, public facility costs of Rp235,315,000,000, and basic infrastructure costs of Rp800,000,000,000.

The suggestion from this research is that the government can accelerate and increase the success of the development of the Sorong Special Economic Zone as a center for sustainable economic growth in Provinsi Papua Barat Daya.

REFERENCE

- Ali, MM, Hariyati, T., Pratiwi, MY, & Afifah, S. (2022). Quantitative Research Methodology and Its Application in Research. *Education Journal*.2022, 2(2), 1–6.
- Amalia, F., Sinaga, R., Asyari, Soeyatno, RF, Silitonga, D., Solikin, A., Hubbansyah, AK, Siregar, RT, Maulina, D., Kusumaningrum, R., Stockony, NF, Litriani, E., & Ladjin, N. (2022). Economic development. *Widina Bhakti Persada Bandung*
- Andayani, L., Rahmaddiansyah, & Deli, A. (2019). Feasibility Analysis of Location of Pipil Corn Dryer Plant Development at PT. Golden Daru Utama. *Agricultural Student Science*, 4(4), 263–272.
- Bahri, TS (2014). Analysis of Location and Financial Feasibility of Cocoa Processing Industry Development on the East Coast of Aceh Province. *Agriseip*, 15(1), 38–46. <https://jurnal.unsyiah.ac.id/agriseip/article/view/2086%0Ahttps://jurnal.unsyiah.ac.id/agriseip/article/viewFile/2086/2037>
- Gafuraningtyas, D., & Adi Wibowo. (2023). The Influence of Slope in Determining the Suitability of Settlement in Greater Bogor. *Geomedia: Geographical Scientific and Information Magazine*, 21(2), 125–134.
- Habibburrahim, L. (2023). Implementation of Blue Economy in Special Economic Zones (KEK) to Support National Resilience. *LEMHANAS RI*
- Hadiyati, N. (2016). Planning for the Establishment of Batam City as a Special Economic Zone in the Framework of Regional Autonomy. *Brawijaya University Thesis*, 1–142.
- Haris, FD, Sitorus, SR ., & Tjahjono, B. (2022). Suitability of Regional Spatial Planning (RTRW) based on Flood Hazard Using Process Hierarchy Analysis in Kuningan Regency. *Region: Journal of Regional Development and Participatory Planning*, 17(1), 124. <https://doi.org/10.20961/region.v17i1.44172>
- Ibal, L., Murni, Madaul, RA, Abubakar, E., & Edwar, RC (2024). Participation of Arar Village Community in Land Acquisition for Development for Public Interest in Sorong Special Economic Zone, Southwest Papua Province. *Indonesian National Service Journal (JPN)*, 5(2), 478–484. <https://doi.org/10.35870/jpni.v5i2.859>
- Jamil, R., Putri, C., Azman, & Fanny. (2024). Implications of the Establishment of Special Economic Zones on Investment Permit Regulations in Batam City. 1(3), 28–35.
- Kartika, T. (2016). The Impact of Tourism Development on Economic, Socio-Cultural and Physical Environmental Aspects in Panjalu Village. *Journal of Hospitality and Tourism*, 3, 1–113. P
- Ministry of Manpower of the Republic of Indonesia. (2023). Projection of Manpower Needs in the Sorong Special Economic Zone (KEK). 1–105.
- Lihang, EA (2016). Analysis of the Prospects of the Bitung Special Economic Zone (KEK). *Journal of Business and Management Research*, 4(1), 83–98.
- Luhukay, MR, Sela, RLE, & Franklin, PJC (2019). Analysis of Land Use Suitability of Settlement Based on Geographic Information System (GIS) in Mapanget District, Manado City.

- Spatial, 6(2), 271–281.
- Madaul, RA, & Ibal, L. (2023). Review Study of Sorong Regency Spatial Planning 2012 - 2032. *Ecosystem Scientific Journal*, 23(3), 658–672. <https://doi.org/10.35965/eco.v23i3.3907>
- Madaul, RA, M, UH, & Hilmansyah, H. (2024). Land Acquisition Analysis For Public Interest In Sorong Special Economic Zone (KEK) Southwest Papua Province. 22(2), 171–179.
- Manakane, SE, Latue, PC, & ... (2023). Identification of Landslide-Prone Areas in the Wai Batu Gajah Watershed, Ambon City Using the Slope Morphology Method and Storie Index. *Multidisciplinary Journal Warehouse ...*, 1, 29–36.
- Misbahuddin, M., Akil, N., Syarifuddin, U., & Saharuddin, S. (2023). Analysis of the Development Model of the Sorong Special Economic Zone (SEZ) on the Economic Growth of West Papua Province. *YUME: Journal of Management*, 6(1), 345. <https://doi.org/10.37531/yum.v6i1.3659>
- Munir, M., Saraswati, Faizah, S., & Rifa'i, Y. (2019). Business Feasibility Study in Environmental Aspects. *Journal of Islamic Economics*, 03, 157–191. <https://doi.org/10.33507/lab.v4i01>
- Purnawati, E., Karimuna, L., & Sakir, S. (2022). Financial Feasibility Analysis Of Touch Processing Business In Wulanga Village, West Muna Regency (Case Study: Al Fatah Home Industry). *Tekper: Journal of Technology and Management of Agricultural Industry*, 3(1), 25. <https://doi.org/10.33772/tekper.v3i1.26178>
- Rachman, NA, & Syamsudin, S. (2019). Analysis of Pandeglang Community Perception and Readiness in Facing the Implementation of the Tanjung Lesung Tourism Zone Special Economic Zone (KEK). *Management Science*, 4(2), 107–124. <https://doi.org/10.30656/sm.v4i2.843>
- Ramadhan, MI, Isharyani, ME, & Sitania, FD (2018). Feasibility Analysis of Technical Aspects of Biopharmaceutical Processing Industry Using Tiwai Onion as Raw Material. *Journal of Industrial Systems Engineering*, 7(2), 99. <https://doi.org/10.26593/jrsi.v7i2.2974.99-110>
- Sarfiah, SN, Septiani, Y., & Sugiharti, RR (2023). The Role of Kendal as a Special Economic Zone in Economic Transformation: Strategic Analysis and Implementation Through SWOT Matrix. *Journal of Economics Research and Policy Studies*, 3(1), 47–65. <https://doi.org/10.53088/jerps.v3i1.601>
- Sepang, JL, & Uhing, Y. (2019). Analysis of the Business Environment of the Bitung Special Economic Zone (SEZ). *EMBA Journal: Journal of Economics, Management, Business and Accounting Research*, 7(4), 5338–5347.
- Setyawan, B., & Prihatiningrum, N. (2024). Analysis of Infrastructure Progress and Utilization of Fiscal Facilities in the Galang Batang Special Economic Zone (KEK). *Journal of Customs and Excise Perspectives*, 8(1), 1–19.
- Sulaiman, F. (2016). *Sustainable Industrial Area Management Strategy*. Untirta Press
- Syahputra, GS, Firdaus, HS, & Sukmono, A. (2023). Evaluation of the Feasibility of Industrial Areas in Demak Regency. *Undip Geodesy Journal*, 12(1), 82–90.
- Widodo, S., Rahman, RHA, & Ibal, L. (2024). Analysis of Sustainable Infrastructure Development in Sorong Regency Based on Environmentally Technological Criteria. *Geografika Journal (Geografi Lingkungan Lahan Basah)*, 5(1), 1–8.