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Study of Infrastructure Arrangement In Accordance With The Needs of Seberang Belawan Fishing Village Settlements To Support Fisheries Activities

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Abstract — This study aims to examine the arrangement of infrastructure in accordance with the needs of settlements in Seberang Belawan Fishing Village to support fishery activities and improve community welfare. Seberang Belawan Fishing Village is one of the coastal areas where the majority of the population depends on the fisheries sector. However, the current infrastructure condition is inadequate, with major problems such as damaged roads, limited docks, and lack of access to clean water and sanitation. This hinders the productivity of fishermen and the quality of life of the community. This study uses a qualitative approach with a descriptive method. Data collection was carried out through interviews with local communities, field observations, and documentation analysis. The results of the study show that the current infrastructure is insufficient to support fisheries activities optimally. Therefore, better infrastructure arrangements are needed, such as the construction of roads that are resistant to flash floods, pier repairs, the provision of fishery product processing facilities and more adequate access to clean water. This infrastructure arrangement is expected to increase fisheries productivity, improve the socio-economic welfare of the community and create a more sustainable environment. This research provides important recommendations for planning and infrastructure development in coastal areas, with a focus on environmentally friendly development and in accordance with the needs of fishing communities.

Keywords: Infrastructure Arrangement, Seberang Belawan Fishing Village, Fisheries Activities, Welfare Improvement, Infrastructure Development, Coastal Infrastructure

I. INTRODUCTION

The Seberang Belawan Fishing Village is one of the coastal areas that has an important role in supporting the fisheries sector in Indonesia. As a fishing village, this area is the center of economic activities of the community which is mostly dependent on marine products, both through fishing and processing of fishery products. However, the infrastructure in this region is often inadequate to support the needs of the community and fisheries activities optimally. Infrastructure problems in the Seberang Belawan Fishing Village include road facilities, connecting bridges, fish landing places (TPI), clean water networks, waste management, and decent housing facilities. This condition not only hinders economic activities, but also reduces the quality of life of the community. Therefore, the study of infrastructure arrangement in accordance with the needs of fishermen's settlements is very important to support the sustainability of fishery activities and improve the welfare of coastal communities.

Figure 1.1 Planning Location in Sebrang Belawan Fishing Village

Infrastructure is a vital component that supports daily activities, including economic activities such as fisheries. Limited road facilities, difficult accessibility, especially during the rainy season, lack of adequate fish landing places (TPI), and supporting infrastructure such as sanitation, clean water, and waste management are the main obstacles in this area. In addition, the residential conditions of fishing communities are generally still far from livable standards, with many houses made of simple materials and vulnerable to natural disasters such as flash floods and strong winds. The lack of suitable infrastructure not only impacts the efficiency of fishery activities but also affects the quality of life of the community. Limited storage facilities for fish catches cause a high level of damage to fishery products, while difficult market access reduces the competitiveness of production products. On the other hand, environmental problems such as

water pollution and sewage accumulation further worsen the condition of the region, threatening the sustainability of marine ecosystems that are the main source of livelihood.

In line with the increasing need for sustainable development in coastal areas, it is important to formulate infrastructure arrangements that can meet the needs of the people of Seberang Belawan Fishing Village. Planned infrastructure arrangements will not only support fisheries activities more effectively but also improve community welfare through the provision of decent basic facilities. Through this study, it is hoped that the right solution can be found to design residential infrastructure that suits the needs of the fishing community. This is important to support the sustainability of fishery activities, preserve the coastal environment, and create safe, comfortable, and livable residential areas. The Seberang Belawan Fishing Village faces various phenomena that reflect infrastructure problems and their impact on fishery activities and the quality of life of the community. Some of the phenomena that are of concern in this study include As a coastal residential area, the infrastructure in the Seberang Belawan Fishing Village is still far from adequate to support the needs of the community. Some of the infrastructure-related phenomena that are the main problems include inter-regional connecting roads that are often in a damaged or unpaved condition so that they are difficult to pass, especially in the rainy season. The available fish landing places (TPI) are not enough to accommodate fishermen's catches, and the lack of adequate cold storage facilities causes the catch to be easily damaged. Clean water is difficult to obtain, the sanitation system is not organized, and the availability of electricity is often unstable, thus hindering people's daily activities.

Figure 1.2 Illustration of Infrastructure Planning in Seberang Belawan Fishing Village

As a coastal area, Seberang Belawan Fishing Village is vulnerable to environmental disasters such as flash floods, abrasion, and strong winds. This phenomenon is exacerbated by the lack of infrastructure protection such as embankments or breakwaters, as well as the condition of people's houses which are generally made of simple materials so that they are easily damaged. Poorly managed community activities have led to a decline in environmental quality, which has a direct impact on the sustainability of the fisheries sector. Several phenomena related to environmental problems include domestic waste and plastic waste are found in the surrounding waters, threatening the marine ecosystem which is the main source of livelihood for the fishing community. The conversion of land and mangrove logging for residential purposes has caused damage to ecosystems that should function as natural protectors from abrasion. Infrastructure and environmental problems have a direct impact on the welfare of the people of Seberang Belawan Fishing Village. Some of the welfare indicators that are hampered include the lack of storage facilities and market access, making it difficult for fishermen's fishery products to compete, so their income tends to be low. Densely populated and unhealthy settlements, limited access to education, and lack of health facilities hinder communities from achieving a better quality of life.

This phenomenon also reflects the development gap between coastal areas and urban areas. Underallocated resources for coastal areas often cause areas such as Sebrang Belawan Fishing Village to lag behind in terms of infrastructure development and public services. The above problem phenomenon shows the need for an in-depth study of the arrangement of infrastructure in accordance with the specific needs of the Seberang Belawan Fishing Village. This study is expected to produce recommendations that are not only oriented towards physical development but also consider environmental sustainability, improving the community's economy, and strengthening the region's resilience to disasters. The right infrastructure arrangement will support fishery activities as the main sector of the community while improving their overall welfare.

II. LITERATURE REVIEW

Definition of Infrastructure

Infrastructure is the physical facilities and supporting systems needed to support economic, social, and environmental activities of the community. According to Mulyani (2018), infrastructure consists of physical facilities and infrastructure that function to facilitate community activities and support sustainable development. Infrastructure includes roads, clean water, sanitation, health facilities, education, and electricity.

Kodoatie (2018) divides infrastructure into two main categories:

1.Economic Infrastructure: Supports direct economic activities, such as roads, ports, fish landing sites (TPIs), and markets.

2.Social Infrastructure: Supporting the welfare of the community through the provision of health, education, sanitation, and decent housing facilities.

Infrastructure Needs for Coastal Areas

Coastal areas have distinctive infrastructure needs due to their location close to the sea and high risk of environmental disasters such as flash floods, abrasion, and strong winds. According to Soetomo (2018), infrastructure needs in coastal areas must consider:

1. Ease of accessibility to support community activities.
2. The availability of basic facilities such as clean water, sanitation, and electrical energy.
3. Protection against disaster risk through the construction of embankments, breakwaters, or mangrove management.

Tambunan (2018) added that the arrangement of coastal infrastructure must be community-based (community-based development), so that it can be adjusted to local characteristics and community needs.

The Concept of Decent Housing

A settlement deserves to be defined as a residential area that meets health, safety, and comfort standards. According to Turner (2018), decent settlements should include:

1. Access to basic needs: Such as clean water, sanitation, and electricity.
2. Environmental safety: Including protection against natural disasters.
3. Social facilities: Such as schools, health clinics, and places of worship.

Hidayat (2018) emphasized that coastal settlements must pay attention to good environmental management to reduce the impact of pollution and maintain marine ecosystems.

Supporting Infrastructure for Fisheries Activities

According to Fauzi and Anna (2018), the fisheries sector needs infrastructure that supports the main activities of fishermen, such as:

1. Fish Landing Site (TPI): As the main location for loading and unloading catches.
2. Cold Storage: A fish storage facility to maintain the quality of the catch.
3. Transportation Access: To accelerate the distribution of catches to local and regional markets.
4. The availability of this infrastructure not only increases production efficiency but also strengthens the competitiveness of fishery products in the market.

Principles of Infrastructure Arrangement

Infrastructure arrangements must be oriented towards sustainability and community participation. According to Giffinger et al. (2018), there are three main principles in infrastructure structuring:

1. Economic Sustainability: Supporting the increase in people's income.
2. Social Sustainability: Ensuring the comfort and safety of the community.
3. Environmental Sustainability: Preserving coastal ecosystems for future generations.

Purnomo (2018) added that infrastructure arrangements must be able to integrate community needs, local potential, and adaptation to climate change.

III. METHOD

Qualitative research methods are research approaches used to understand meanings, experiences, and social phenomena in depth in natural contexts (Milanie et al., 2020; Tarigan & Hakim, 2024; Tarigan et al., 2024). According to Creswell (2018) Qualitative research is an approach used to explore and understand the meaning given by individuals or groups to a social problem or phenomenon, as stated by Yin (2000 in Nuraini, 2019 and Nuraini 2024). Data is collected in the form of words, images, or documents that are analyzed to find patterns and themes (Nuraini, 2019; Nuraini, 2024). Furthermore, Sugiyono (2018) qualitative research is a research method used to research the condition of objects naturally. Researchers are key instruments in collecting data through in-depth interviews, observations, and documentation (Milanie et al., 2022; Milanie, 2021, Milanie et al., 2022; Nuraini, 2019; Nuraini, 2024).

According to Creswell (2018), qualitative research has the following characteristics:

1. Natural Context: Research is conducted directly at the location of the object to gain an in-depth understanding.
2. Researcher as the Main Instrument: The researcher directly conducts data collection and analysis.
3. Narrative Data: The data collected is in the form of descriptions or narratives, not numbers.
4. Inductive Approach: Data analysis is carried out from specifics to generalizations.
5. Focus on Meaning: The research aims to understand the community's perspective on the phenomenon being studied.

According to Sugiyono (2018), data collection techniques in qualitative research include:

1. In-Depth Interview: This technique is used to dig up information from the fishing community in Sebrang Belawan Fishing Village about the infrastructure needs and its impact on their lives.
2. Direct Observation: The researcher conducts direct observation of the condition of infrastructure and fishery activities in the field.
3. Documentation: Using secondary data in the form of reports, maps, government documents, and previous research results to support the analysis.

Data analysis techniques in qualitative research according to Miles and Huberman (2018) involve three main steps:

1. Data Reduction: Simplify and sort through data to find relevant patterns.
2. Data Presentation: Displays data in descriptive or visual form, such as tables, diagrams, or thematic narratives.
3. Draw Conclusions: Identify key themes and relationships between data to formulate research results.

Triangulation is used to improve the validity and reliability of data. According to Sugiyono (2018), triangulation can be done by combining data from various sources (source triangulation), method (method triangulation), and time (time triangulation) (Nuraini, 2019; Nuraini, 2024).

IV. RESULTS AND DISCUSSION

What is the current condition of the infrastructure in the Sebrang Belawan Fishing Village

Seberang Belawan Fishing Village is one of the coastal areas located in the administrative area of Paluh Kurau Village, Hamparan Perak District, Deli Serdang Regency, Indonesia. As a fishing settlement area, infrastructure in this area is very important to support people's daily lives, both in social, economic, and environmental aspects. However, the current infrastructure condition faces various challenges that affect the quality of life of the community.

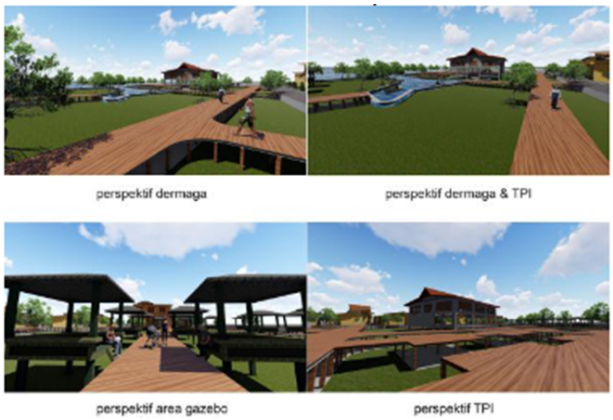

Figure 4.1 Illustration of Infrastructure Design

1. Accessibility and Transportation
a. Road Conditions: The roads in Seberang Belawan Fishing Village are still mostly in inadequate condition. Many main roads are in the form of dirt or paving that is damaged, making it difficult to pass, especially during the rainy season due to flooding. This causes people's mobility to be limited, especially for the distribution of fish catches to the market.
b. Public Transportation Access: Transportation to the village is limited, so people rely on traditional boats or private vehicles. This condition makes it difficult for them to get quick access to health services, education, or markets.
2. Availability of Clean Water
a. Water Sources: The majority of people still use well water that is polluted by seawater intrusion, so it is not suitable for consumption. Some residents rely on rainwater for drinking needs, while others buy clean water from outside the village at an additional cost.
b. Sanitation: Sanitation facilities in this village are very minimal. Most homes do not have adequate septic tanks, so household waste is directly dumped into the sea or river. This worsens water quality and poses health risks.
3. Drainage System
a. Waterway Condition: The drainage system in Seberang Belawan Fishing Village is almost non-existent. As a result, during the rainy season, villages often experience waterlogging or flash flooding. Poor drainage also results in standing water becoming a breeding ground for mosquitoes, which can trigger diseases such as dengue fever.
4. Housing
a. House Conditions: Most of the houses in this village are built independently with non-durable materials, such as wood and boards. Many houses stand above the sea with support poles, which are susceptible to abrasion and damage from ocean waves.
b. Population Density: This village has a high population density, so the distance between houses is very close. This poses a fire risk and makes it difficult to ventilate the air, which has an impact on health.
5. Electricity and Energy
a. Electricity Availability: The majority of homes in Kampung Nelayan Seberang Belawan are connected to the electricity grid, but the electricity supply is often unstable. Periodic power outages are an obstacle for people who use electricity to store fish catches or other household needs.
b. Alternative Energy: There is almost no use of alternative energy such as solar panels or biogas, so society is completely dependent on conventional power grids.
6. Fisheries Infrastructure
a. Fish Landing Sites (TPI): This village does not have adequate fish landing sites (TPI). The catch is often handled on the beach or in people's homes, which do not meet hygiene standards. This can affect the quality of fish and the competitiveness of the product in the market.
b. Cold Storage: There are no adequate fish storage facilities in this village. Fishermen must sell their catch immediately or face the risk of product damage.
c. Boats and Fishing Gear: Most fishermen use traditional boats with simple fishing gear, which limits their catch and ability to compete with fishermen from other regions.
7. Education and Health Facilities
a. Schools: Educational facilities in the village are limited, with only primary schools available. To continue to a higher level of education, children must go to other areas that are further away.
b. Health Facilities: There are no health centers or permanent health facilities in this village. The community depends on posyandu or mobile clinics that only attend periodically.
8. Environment and Waste Management
a. Household Waste: The waste management system is very minimal. Garbage is often dumped directly into the sea, which causes environmental pollution and damages coastal ecosystems.
b. Mangroves: Mangrove forests around the village have largely been reduced due to land conversion and human activities. In fact, mangroves are important to protect the village from abrasion and flooding.
The current infrastructure condition in the Seberang Belawan Fishing Village is still far from adequate. The main problems include accessibility, availability of clean water, sanitation systems, housing, fishery facilities, and education and health. Inadequate infrastructure not only hinders people's daily activities but also has a direct impact on their productivity and welfare, especially in supporting fishery activities. For this reason, serious attention is needed from the government and related parties to carry out structural improvements and development in a holistic and sustainable manner.
What are the infrastructure needs needed to support settlements and fishery activities of fishing communities
The need for infrastructure to support the settlement and fishery activities of the fishing community in the Seberang Belawan Fishing Village includes various important aspects, ranging from accessibility, fishery facilities, to basic services such as clean water and electricity. Adequate infrastructure not only improves people's welfare but also boosts the productivity of economic activities, especially the fisheries sector.

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Figure 4.1 Illustration of Infrastructure Design to Support Settlements

1. Improved Accessibility and Transportation
a. Adequate Roads: Construction or repair of main roads and environmental roads in the village is needed. Concrete or asphalt roads are essential to support community mobility, especially when distributing catches.
b. Water Transportation Facilities: Considering that this village is connected to the mainland by waterways, a small safe and stable pier is needed to facilitate the entry and exit of community boats.
c. Public Transportation: The provision of affordable water-based public transportation will help communities access public services, such as markets, schools, and health facilities.
2. Availability of Clean Water and Sanitation
a. Water Treatment System: A clean water treatment plant is needed to address the problem of seawater intrusion and pollution. This system can be in the form of a community-scale water treatment facility that is able to provide decent drinking water for all residents.
b. Environmental Sanitation: The construction of public toilets and centralized septic tanks is essential to reduce seawater and river pollution from domestic waste.
c. Good Drainage: An adequate drainage system is necessary to prevent flooding and waterlogging, especially during the rainy season or tidal floods.
3. Livable Housing
a. Home Rehabilitation: It requires a program to repair or build a livable house that is resistant to natural disasters, such as strong winds and flash floods.
b. Environment-Based Settlements: Fishermen's houses need to be designed with sanitation, ventilation, and waste management aspects in mind to create a healthy and comfortable environment.
Supporting Infrastructure for Fisheries Activities
1. Fish Landing Sites (TPI)
a. An adequate and hygienic Fish Landing Site is indispensable to accommodate and process fishermen's catches before they are marketed. This TPI must also be equipped with weighing facilities, fish washing stations, and temporary storage areas.
2. Cold Storage or Refrigerated Warehouse
a. To maintain the quality of the catch, the fishing community needs low-temperature fish storage facilities. Cold storage allows them to store fish for longer, thus increasing the bargaining power in the market.
3.Modern Fishing Gear
a. The procurement of more modern and environmentally friendly fishing gear will increase fishermen's productivity and maintain the sustainability of the marine ecosystem. In addition, the government needs to provide training on the use of these tools to fishermen.
4. Boats and Boat Engines
a. The rejuvenation of traditional boats and the provision of more efficient boat engines are urgent needs to support the mobility of fishermen, especially to go further ashore and catch more fish.
5. Fisheries Training and Technology Center
a. Training facilities are needed to provide knowledge about modern fisheries techniques, catch management, and diversification of processed fish products. With this training, the community can improve the quality and selling value of their catches.
Economic and Social Supporting Infrastructure
1. Markets and Sales Facilities
a. The construction of local markets or fish catch sales centers around the village will help fishermen sell their catch directly without having to go to other areas. This market can also be the center of people's economic activities.
2. Stable Electricity and Alternative Energy
a. A stable power grid is needed to support household and fishing activities. The use of alternative energy, such as solar panels, also needs to be developed as sustainable energy solutions, especially for cold storage and lighting at night.
3. Education and Health Facilities
a. Schools: The provision of secondary schools in the village will increase access to education for the children of fishermen.
b. Health Centers or Health Clinics: Easily accessible permanent health facilities are needed to serve the health needs of the public, especially in emergency situations.
4. Communication and Internet Facilities
a. The provision of a stable telecommunication and internet network will support community activities, such as marketing catches online or obtaining real-time marine weather information.
Environmental Management Infrastructure
1. Waste Management
a. An integrated waste collection and management system is needed to reduce environmental pollution. Temporary landfills and recycling facilities must also be provided.
2. Mangrove Forest Rehabilitation
a. Replanting mangrove forests around the village is a priority to protect the village from abrasion, flash floods, and other coastal disasters. Mangroves also support marine ecosystems that are the source of livelihood for fishermen.
The infrastructure needs in the Seberang Belawan Fishing Village include various aspects that support each other between settlements and fishery activities. Basic infrastructure such as roads, clean water and electricity are essential for daily life. On the other hand, fishery facilities such as TPI, cold storage and modern fishing gear are needed to increase fishermen's productivity. In addition, attention to environmental management, education and health must also

be part of a holistic development strategy. By meeting this infrastructure need, the lives of fishing communities can be improved, while supporting the sustainability of coastal ecosystems.

What is the right infrastructure arrangement strategy to increase the productivity and welfare of the people of Seberang Belawan Fishing Village

Seberang Belawan Fishing Village is a coastal community that is rich in fishery potential but faces major challenges in terms of infrastructure. When a fisherman named Pak Ahmad left for the sea in the morning, he had to pass through the flooded streets of the village. With his simple fishing gear and small boat, he bets against the waves to get a catch for his family. However, when he returned to the dock, he faced another problem: there were no adequate fish landing spots, so his catch often lost quality before being sold. On the other hand, his wife, Mrs. Ani, faces the challenge of getting clean water for daily needs because their house's well is polluted with salt water.

Infrastructure Structuring Strategy

To overcome this challenge, strategic steps are designed with the aim of increasing the productivity and welfare of the people of Sebrang Belawan Fishing Village. This strategy involves a local needs-based approach, strengthening fisheries potential, and sustainable environmental management.

1. Road Construction and Accessibility

The roads in the village are repaired using concrete materials that are resistant to flash floods, making it easier for fishermen like Pak Ahmad to move. Access to fish markets is also improved, allowing catches to be transported faster and more efficiently. Water transportation, such as motorboats to connect villages with the surrounding area, is provided to overcome the obstacles of land transportation that are often interrupted.

2. Improvement of Fisheries Facilities

A modern Fish Landing Site (TPI) was built on the shores of the village. This TPI is equipped with facilities for washing, weighing, and storing fish in cold conditions. The available cold storage allows Pak Ahmad to store his catch longer, so there is no need to sell fish at low prices in markets that are too saturated. In addition, the government provides modern, environmentally friendly fishing gear to help fishermen increase productivity without damaging the marine ecosystem.

3. Clean Water and Sanitation Provision

A clean water treatment system is installed in the village, using simple desalination technology to treat seawater into drinking water. With this facility, Mrs. Ani no longer needs to buy clean water at high prices. In addition, environmental sanitation is improved through the construction of public toilets and household waste management to maintain the cleanliness of the village.

4. Housing Rehabilitation

The home rehabilitation program is implemented to improve the living conditions of the community. Fishermen's houses that are prone to flash floods are repaired using materials that are resistant to coastal weather, such as ironwood or light concrete. The design of the house is made higher to prevent puddles from entering when the tide rises.

5. Economic Diversification and Empowerment

Mothers in villages like Mrs. Ani are encouraged to take part in training on processing fish catches into value-added products, such as shredded fish or crackers. A small processing facility was established to support this venture. On the other hand, young villagers are given training in digital marketing technology to market seafood online, opening up wider marketing opportunities.

6. Coastal Environment Rehabilitation

The mangrove forests around the village began to be rehabilitated to protect the village from abrasion and flash floods. The program involves local communities, who take turns planting mangrove seedlings in coastal areas. Awareness of the importance of protecting marine ecosystems is also increased through campaigns and training on environmental management.

CONCLUSION

Based on the results of the research on the arrangement of infrastructure in accordance with the needs of settlements in the Sebrang Belawan Fishing Village to support fishery activities, it can be concluded that several main points can be concluded as follows:

The current infrastructure condition in the Sebrang Belawan Fishing Village is still far from adequate. Poor road access, lack of fishery facilities such as fish landing places and cold storage, and lack of clean water supply are the main obstacles for communities to increase their productivity and welfare. In addition, houses that cannot withstand flash floods and lack of sanitation affect the overall quality of life of the community.

To realize the ideal infrastructure arrangement in the Sebrang Belawan Fishing Village, the involvement of various parties, both the government, the community, and the private sector, is needed in supporting the funding and implementation of these programs. Additionally, it is important to ensure that infrastructure planning accommodates the needs of fishing communities in a sustainable manner. Thus, proper infrastructure arrangement will be the key to increasing the productivity and welfare of the people of Sebrang Belawan Fishing Village, creating a better life, and supporting the sustainability of the fisheries sector in the area.

REFERENCE

[1] Angrosino, M. (2019). Doing Ethnographic and Observational Research. Sage Publications.

[2] A Sugiarto, RK Ramadania (2023). Economic and Spatial Regional Integration and Its Impacts on Regional Development in North Tapanuli Regency. International Journal of Social Science, Education, Communication and Economics (SINOMICS JOURNAL).

[3] A Sugiarto, SPR Manalu, and Pakpahan (2023). The Effect of the Number of Tourist Visits and Restaurant Tax on the Economic Growth of North Tapanuli Regency with PAD as an Intervening Variable. Jesya (Journal of Sharia Economics and Economics) 6 (1), 221-232.

[4] A Sugiarto, RK Ramadania (2023). Deli River Land Management for Sustainable Urban Development Based on Regional Regulations (RTRW/RDTR)

(Case Study: Deli River Bank, Medan Maimun District). Jesya (Journal of Sharia Economics and Economics) 7 (1), 618-626.
[5] C Nuraini, B Alamsyah, PS Novalinda, A Sugiarto (2023). Planning with 'Three-World Structures': A Comparative Study of Settlement in Mountain Villages. Journal of Regional and City Planning 34 (1), 55-82.
[6] Creswell, J. W. (2018). Research Design: Qualitative, Quantitative, and Mixed Methods Approaches. London: Sage Publications.
[7] Fauzi, A., & Anna, S. (2018). Sustainable Fisheries Management: Theory, Policy, and Implementation. Jakarta: Gramedia Pustaka Utama.
[8] Giffinger, R., et al. (2018). Sustainable Urban Development: Concepts and Strategies. Berlin: Springer.
[9] Hidayat, R. (2018). Ecology of Coastal Settlements: Principles and Applications. Surabaya: Universitas Airlangga Press.
[10] Codoatie, R. J. (2018). Infrastructure and Coastal Area Management. Yogyakarta: Andi Publisher.
[11] Mulyani, S. (2018). Infrastructure Development in Indonesia: Challenges and Solutions. Jakarta: Salemba Empat Publishers.
[12] Milanie, F., Sari, A. K., & Saputra, H. (2020). An Effect of Empowerment Organizational Structure and Job Design Employee Effectiveness Work in the Office Directors of PTPN II Tanjung Morawa. International Journal of Management, 11(5).
[13] Milanie, F. (2021). Analysis Atmosphere Management of Price Reduction and Product Quality on Consumer Buying Interest in the Covid-19 Pandemic. Budapest International Research and Critics Institute-Journal (BIRCI-Journal), 4(3), 7344-7352.
[14] Milanie, F., Aryza, S., Sitepu, S. A., & Syahfitri, E. S. (2022, July). Instrument to Accelerate the Development of Klambir Lima Tourism Village with the Regional Existence Study Method. In Proceedings of the National Seminar on Social, Humanities, and Technology (pp. 145-150).
[15] Purnomo, D. (2018). Infrastructure Adaptation to Climate Change. Bandung: ITB Press.
[16] Soetomo, S. (2018). Community-Based Development: A Participatory Approach to Coastal Areas. Malang: UMM Press.
[17] Sugiyono. (2018). Quantitative, Qualitative, and R&D Research Methods. Bandung: Alfabeta.
[18] Tambunan, T. (2018). Economies of Coastal Regions: Theory and Practice. Jakarta: UI Press.
[19] Tarigan, R. R. A., & Hakim, T. (2024). Strengths Weaknesses Opportunities Threats Analysis in Improving Shallot Business Strategies. Contributions of Central Research Institute for Agriculture, 18(4), 187-192.
[20] Tarigan, R. R. A., Hakim, T., & Sembiring, G. T. (2024). Sustainable Shallot (Allium cepa L) Farming Development Model in Payung Village, Karo Regency. Journal of Information Technology, computer science and Electrical Engineering, 1(3), 458-463.
[21] Turner, J. (2018). Housing by People: Autonomy in Building Environments. London: Marion Boyars Publishers.