

Development of Transportation Infrastructure in the Development of Paratourism Areas in Silalahi Sabungan District

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Abstract — *This study aims to analyze the influence of transportation infrastructure development on the development of the tourism sector in Silalahi Sabungan District, Dairi Regency, which has great potential as a leading tourist destination in the Lake Toba area. The qualitative research approach is used by observation, interview, and document analysis methods to obtain data related to the condition of transportation infrastructure, development challenges, and its impact on tourism. The results of the study show that the current condition of transportation infrastructure in Silalahi Sabungan District is still inadequate, characterized by poor road quality, limited supporting facilities, and lack of public transportation. Key challenges in infrastructure development include budget constraints, difficult geographical conditions, and lack of integrated planning. These obstacles affect tourist accessibility and travel comfort, which is an obstacle in optimizing the region's tourism potential. However, the development of proper transportation infrastructure has a significant impact on the tourism sector. Adequate infrastructure can improve accessibility, improve tourist mobility, and encourage local economic growth through increased tourist visits and the development of new destinations. For this reason, collaborative efforts are needed between the government, local communities, and tourism business actors in designing sustainable infrastructure development, taking into account social and environmental impacts. This study concludes that the development of transportation infrastructure is a key factor in advancing the tourism sector in Silalahi Sabungan District. With integrated and sustainable planning, this area has the potential to become a leading tourist destination that contributes to the local economy while preserving the environment and culture*

Keywords: *Transportation infrastructure, tourism, regional development, Silalahi Sabungan, Lake Toba*

I. Introduction

Silalahi Sabungan District, which is located in Dairi Regency, North Sumatra, has huge natural tourism potential, such as Lake Toba and the surrounding area which has natural and cultural tourism attractions. This potential must be supported by the development of adequate transportation infrastructure in order to improve accessibility, comfort, and service quality

for tourists. Good transportation infrastructure not only facilitates the mobility of visitors, but also contributes to the improvement of the local economy and the sustainability of the tourism area. However, although this area has great potential, the current transportation infrastructure is still limited. Roads connecting tourist centers with the surrounding area are often damaged or inadequate, and the lack of public transportation means makes many tourists feel difficult. Therefore, the development of transportation infrastructure is essential to support the sustainable development of the tourism sector.

In addition, limited transportation conditions also have an impact on increasing logistics costs for the community and local tourism business actors. The existence of poor transportation infrastructure makes the distribution of tourism goods and services inefficient, so that it can affect the price and quality of tourism products and services offered. This reduces the competitiveness of the Silalahi Sabungan tourism area compared to other areas that have better accessibility. Furthermore, this lack of development of transportation infrastructure not only affects tourist visits, but also hinders the potential for local economic growth that should be maximized. Therefore, better and integrated planning and development of transportation infrastructure is needed, in order to support smoother accessibility for tourists, facilitate the distribution of goods and services, and encourage regional economic growth through the tourism sector. Silalahi Sabungan District, located in Dairi Regency, North Sumatra, has extraordinary natural tourism potential, especially with the existence of Lake Toba which is world-famous as a leading tourist destination. In addition, the area is also rich in natural beauty, local culture, and natural resources that can be developed to attract tourists. However, even though this potential is very large, the development of tourism areas in Silalahi Sabungan still faces various challenges that hinder the progress of the tourism sector and the regional economy.

One of the main problems faced by Silalahi Sabungan District in the development of tourism areas is the limited infrastructure that supports the accessibility of tourist areas. The roads that connect tourist attractions with economic centers and other areas are often in poor condition, with a lot of damage and a lack of adequate maintenance. This inadequate infrastructure condition causes access to tourist



areas to be difficult and uncomfortable, both for domestic and foreign tourists. In addition, the lack of public transportation facilities available to transport tourists from one place to another is also a major obstacle in the development of the tourism sector.

The lack of transportation options makes it difficult for tourists to explore existing attractions, which in turn can affect the level of visits and length of stay of tourists. Therefore, the development of better transportation infrastructure is very important to support the development of tourism areas in this area. Another problem faced is the limited promotion and marketing of the Silalahi Sabungan tourist area. Although it has extraordinary natural attractions, the lack of effort to introduce this area to tourists outside the region makes the tourism potential not fully utilized. It is also related to the lack of cooperation between local governments, tourism business actors, and the community in creating a more integrated and sustainable tourism ecosystem.



Figure 1.1 Location of Silalahi Sabungan District

On the other hand, the development of tourism areas that are not well planned can have a negative impact on the environment. Poor management of tourist areas can threaten the preservation of local nature and culture, which will actually harm the tourism sector in the long run. Based on these conditions, the development of tourism areas in Silalahi Sabungan District needs serious attention, both from the local government and the private sector. Development efforts that involve improving transportation infrastructure, more effective promotion, and environmentally friendly management are needed to support this area to become a superior and sustainable tourist destination. Transportation infrastructure development is a series of activities carried out to improve or build transportation facilities and infrastructure to support the smooth mobility of goods and people. This process is very important, especially in areas that have the potential for tourism or rapid economic growth. Transportation infrastructure development typically involves several stages from planning to evaluation to ensure that the infrastructure built can function properly. The first stage is to identify problems that exist in the existing transportation infrastructure. Here, an assessment of

The condition of existing roads, bridges, terminals, and other means of transportation. In addition, it is also important to identify transportation needs for the sectors to be supported, such as tourism, trade, or industry.



Natural Attractions of Paropo Beach, Silalahisabungan District, Dairi Regency – Tourism Research



Silalahi Tourism Village

Figure 1.2 Some Tourist Attractions in Silalahi Sabungan District Identify

Potential areas that need transportation development, such as access to tourist attractions, connections between regions, and other economic potential.

This planning also considers factors such as traffic capacity, transportation safety, and environmental impact. After the needs are identified, the next stage is to make technical designs for the construction of roads, bridges, and other transportation facilities. This design must consider safety factors, environmental sustainability, and transportation efficiency. Included in this stage is the selection of suitable materials and construction methods. In addition to roads and bridges, this stage also includes the planning of supporting transportation facilities, such as terminals, bus stops, parking, and public transportation systems (buses, public transit, etc.). The design of this facility must also pay attention to comfort and accessibility for users. The development of transportation infrastructure requires considerable funds. Therefore, efforts are needed to obtain funding, either through the local or central government budget, or through investment from the private sector. This process

It also includes planning regarding the allocation of funds and the sources of financing to be used. If possible, cooperation with the private sector (Public Private Partnership / PPP) can be applied to finance transportation infrastructure projects, especially those that require large costs and have the potential to generate revenue from transportation services. The

transportation infrastructure development process involves various integrated stages, starting from planning, design, funding, implementation, to maintenance. This process requires good coordination between various parties to ensure that the infrastructure built can effectively support the needs of the community, the economic sector, and the tourism sector. Success in developing transportation infrastructure does not only rely on physical development, but also involves continuous maintenance and evaluation to achieve maximum results.

II. LITERATURE REVIEW

Definition of Transportation Infrastructure

Transportation infrastructure is an important component in the development of tourism areas. According to Miro (2018), transportation infrastructure includes all facilities and infrastructure that support the movement of people and goods from one place to another, including highways, bridges, ports, and airports. Gunawan (2020) added that good transportation infrastructure plays a catalyst in accelerating the development of economic zones, including tourism, by improving connectivity and accessibility.

The Role of Transportation Infrastructure in the Development of Tourism Areas

According to Inskeep (1991), the success of a tourism area is highly dependent on its accessibility. This includes the availability and quality of adequate transportation infrastructure, so that tourists can easily reach tourist sites.

Darmawan (2020) emphasized that the development of transportation infrastructure that is integrated with tourism areas is able:

1. Increase tourist attraction.
2. Increase tourist visits.
3. Encourage local economic development.

Tourism Area Development Concept

According to Cooper et al. (2008), the development of tourism areas must be based on the principle of sustainability, where the infrastructure built not only supports tourism growth but also minimizes negative impacts on the environment. Suyitno (2020) stated that the development of tourism areas in remote areas such as Silalahi Sabungan District requires a collaborative approach between the government, the private sector, and local communities, with priority on the development of sustainable transportation infrastructure.

The Impact of Transportation Infrastructure on Tourism

Kotler et al. (2016) highlight that transportation infrastructure has a direct impact on tourist satisfaction, especially in terms of accessibility, convenience, and travel efficiency. Poor infrastructure can reduce tourists' interest in visiting a destination.

Putra and Sari (2020) explained that the impact of transportation infrastructure includes:

1. Economy: Growth in local people's income through increased tourism activities.
2. Social: Increase the involvement of local communities in tourism management.
3. Environment: May affect the quality of the environment, depending on the development approach taken.

Case Study and Relevance to Silalahi Sabungan

According to BPS Dairi Regency (2020), Silalahi Sabungan District has great tourism potential, especially Lake Toba as

its main attraction. However, limited accessibility is one of the main obstacles. Simanjuntak (2020) stated that the development of transportation infrastructure such as highways, tourist piers, and public transportation routes in Silalahi Sabungan will increase connectivity to this area, so that it can attract more tourists.

III. METHOD

This research uses a qualitative method, which according to Creswell (2018) aims to explore phenomena in depth by exploring the meaning of participants' experiences, perceptions, and views in certain contexts. A qualitative approach was chosen to understand the relationship between the development of transportation infrastructure and its impact on the tourism area in Silalahi Sabungan. Sugiyono (2020) emphasized that qualitative research is suitable for examining social and policy issues, such as the development of transportation infrastructure, because this method can explore more contextual and interpretive data.

The type of research used is case studies, which according to Yin (2018) is an in-depth research strategy on a phenomenon in a real-life context, especially when the boundary between the phenomenon and its context is unclear. According to Patton (2015), data sources in qualitative research can be: Primary Data: In-depth interviews with key informants, such as local governments, tourism actors, and local communities. Secondary Data: Related documents such as regional development planning (RPJMD), statistical reports, and literature about the Silalahi Sabungan area.

According to Kvale and Brinkmann (2015), in-depth interviews allow researchers to dig into in-depth information from informants regarding their views on transportation infrastructure development. According to Spradley (2016), direct observation can provide a real picture of the condition of infrastructure and the dynamics of the local community in Silalahi Sabungan District.

Data Analysis Techniques This study uses thematic analysis, which according to Braun and Clarke (2006) is a method to identify, analyze, and report patterns (themes) in data. To ensure the validity and reliability of the data, strategies are used: According to Denzin (2018), triangulation involves collecting data

from various sources (interviews, observations, and documentation) to validate the findings. According to Lincoln and Guba (1985), member checks are carried out by asking participants to review the results of the interviews to ensure the accuracy of the data. Merriam (2009) suggests transparent documentation of the research process to increase the confidence of research results

IV. Results and Discussion

What is the current condition of transportation infrastructure in Silalahi Sabungan District

The actual condition of transportation infrastructure in Silalahi Sabungan District, including road conditions, supporting facilities, and accessibility to tourist areas, especially in supporting tourism development in the area. This information was obtained from observations, interviews, and documentation. Silalahi Sabungan District is one of the areas in Dairi Regency which is directly adjacent to Lake Toba. The area has great tourism potential, including the natural scenery of Lake Toba, local culture, and history.

However, the existing transportation infrastructure is not fully adequate to support the optimization of tourism potential.



Figure 4.1 Condition of Transportation Infrastructure in Silalahi Sabungan

District Road conditions are the main element in transportation infrastructure that affect accessibility to tourism areas. Based on the observations:

1. Road Quality:

- a. Most of the main roads leading to Silalahi Sabungan District have been paved, but many of them are in a damaged or pothole condition, especially in areas close to tourist areas.
- b. Most of the connecting roads between villages in Silalahi Sabungan District are still in the form of dirt or gravel roads, making them difficult for vehicles to pass, especially during the rainy season.

2. Road Width and Capacity:

- a. The roads in this area are generally narrow and can only accommodate one lane of vehicles with limited capacity, which makes it difficult for tourists who use buses or large vehicles.

3. Maintenance Conditions:

- a. Road maintenance is still minimal. Based on interviews with local communities, road repairs are carried out sporadically and not routinely.

Public Transportation

1. Transportation Availability:

Public transportation in Silalahi Sabungan, such as village transportation or motorcycle taxis, is very limited. Tourists often have to use private vehicles to reach the area, which is an obstacle for tourists from outside the area.

2. Transportation Routes:

Public transportation routes are only available to a few major villages, while tourist areas such as the beaches around Lake Toba do not have adequate public transportation access.

3. Rates and Operating Hours:

Transportation costs are often non-standard, and operating hours are limited to morning to evening, making accessibility a challenge.

Transportation Infrastructure Supporting Facilities

1. Bridges and Drainage:

- a. The connecting bridges between villages, although they exist, are quite concerning. Some wooden bridges are already fragile and in need of immediate repair.
- b. Poor drainage systems cause roads to be easily flooded during rain, which further exacerbates road damage.

2. Road Signs and Lighting:

- a. Road signs are very minimal, especially in the area leading to tourist attractions. This makes it difficult for tourists to find tourist locations easily.
- b. Street lighting is very limited, especially in rural areas, so traveling at night becomes risky.

3. Parking Area:

- a. Parking facilities in tourist areas are inadequate. Many tourists have to park their vehicles on the side of the road, which can hinder traffic.

Accessibility to Tourist Areas

1. Travel Time:

From the center of Sidikalang (the capital of Dairi Regency), the journey to Silalahi Sabungan takes about 1.5–2 hours by private vehicle, depending on the road conditions.

2. Access from the Big City:

Tourists from Medan need about 4-5 hours to reach Silalahi Sabungan District by land. This trip was quite tiring due to the bumpy road conditions at several points.

3. Water Transportation:

As one of the areas located on the shores of Lake Toba, water transportation has the potential to be developed. However, currently piers and water transportation facilities such as motorboats are still very limited and not well organized for tourist needs.

Views of the Community and Tourists

1. Local Community Views:

Based on interviews, the community revealed that the government's lack of attention to transportation infrastructure is the main obstacle in promoting tourism. They hope that there will be an increase in roads and public transportation that can support the local economy.

2. Traveler's View:

Tourists state that although this area has great natural attractions, accessibility is one of the main obstacles. Many tourists are reluctant to return because they feel that the journey to Silalahi Sabungan is too difficult.

Overall, the condition of transportation infrastructure in Silalahi Sabungan District still needs a lot of improvement to support the development of tourism areas. The limited quality of roads, public transportation, and supporting facilities are the main obstacles in attracting tourists and developing the potential of the region. With planned infrastructure improvements, this area has a great opportunity to develop as a leading tourist destination.

What are the challenges in the development of transportation infrastructure to support the development of tourism areas in Silalahi Sabungan District

The development of transportation infrastructure in Silalahi Sabungan District faces various challenges that affect the effectiveness of development in supporting tourism areas. Here is a detailed discussion of these challenges:

Budget Constraints and Development Priorities

1. Limited Budget:

Local governments often have limited budget allocations for infrastructure development, especially in remote areas such as Silalahi Sabungan. Existing funds are more often focused on areas with developing economic potential. According to interviews with local officials, infrastructure development in

Silalahi Sabungan is often delayed because funds are diverted to projects in other areas that are considered more urgent.

2. Low Priority:

This area has not been considered a top priority in the district's infrastructure development plan, despite having great tourism potential. This has led to slow efforts to develop transportation infrastructure.

Geographical and Topographic Conditions

1. Remote Locations:

Silalahi Sabungan District is located in a fairly remote area, with difficult access from the city center of Sidikalang and other major cities. This location makes the cost of building roads, bridges, and other facilities higher.

2. Difficult Topography:

The region is dominated by hilly and steep terrain, so it requires special planning and construction techniques to build a durable and safe infrastructure. High rainfall in this area also increases the risk of landslides, which often damage roads and hinder connectivity.

Limited Resources and Experts

1. Material Resources:

Construction materials such as asphalt, cement, and iron must be transported from outside the area, which increases the cost and time of labor. Basic infrastructure such as concrete plants or material warehouses is not yet available in the region.

2. Experts and Contractors:

The availability of experienced experts and contractors to build infrastructure in these remote areas is still limited. Local contractors often face technical obstacles in handling large-scale projects.

Lack of Adequate Public Transportation

1. Transportation Service Limitations:

The absence of well-organized public transportation is the main obstacle in supporting tourist accessibility. This affects the number of tourist visits, especially from outside the region.

2. High Cost for Tourists:

Tourists who have to rely on private vehicles or rental transportation face higher travel costs, thus reducing the appeal of the area.

Lack of Integrated Planning

1. Masterplan Limitations:

The development of transportation infrastructure in Silalahi Sabungan does not have a master plan that is integrated with the tourism area development plan. As a result, development is often poorly coordinated.

2. Lack of Collaboration:

The lack of synergy between local governments, local communities, and tourism business actors causes obstacles in the planning and implementation of infrastructure projects.

Environmental Impact

1. Environmental Damage:

Infrastructure development, especially roads and bridges, has the potential to damage local ecosystems if not well planned. This can reduce the attraction of natural tourism which is the mainstay of Silalahi Sabungan District.

2. Lack of Environmental Studies:

Infrastructure projects are often not preceded by adequate environmental impact analysis, potentially causing problems such as soil erosion and water pollution.

Lack of Local Community Awareness and Support

1. Low Awareness of Tourism:

Some local communities are not fully aware of the economic potential that can be generated from tourism development. This causes public support for infrastructure development to sometimes be suboptimal.

2. Difference of Importance:

In some cases, there are differences of opinion between the government and local communities regarding development priorities, which can slow down project implementation.

Infrastructure Maintenance Issues

1. Inconsistent Maintenance:

Infrastructure that has been built is often not maintained regularly, so it is quickly damaged. This is exacerbated by the lack of allocation of funds for maintenance.

2. Influence of Weather and Nature:

Extreme weather such as heavy rain and potential flooding around the Lake Toba area accelerates the damage to roads and other infrastructure.

Challenges in the development of transportation infrastructure in Silalahi Sabungan District are very complex, including budget limitations, geographical constraints, lack of integrated planning, and social and environmental challenges. Overcoming these challenges requires close cooperation between local governments, local communities, and tourism business actors, with the support of policies oriented towards sustainable development.

How does the development of transportation infrastructure affect the development of the tourism sector in Silalahi Sabungan District

Transportation infrastructure plays an important role in encouraging the growth of the tourism sector in Silalahi Sabungan District, which is one of the areas with superior tourism potential on the shores of Lake Toba. The influence of transportation infrastructure can be analyzed through various aspects, ranging from accessibility, tourist comfort, to impact on the local economy.

1. Better Accessibility

The development of transportation infrastructure such as roads, bridges, and public transportation facilities directly increases accessibility to tourist areas. Good quality roads make it easier for tourists to reach tourist attractions in Silalahi Sabungan District, such as the beaches on the shores of Lake Toba and tourist villages that store the richness of local culture. With easier access, the travel time from big cities such as Medan or Sidikalang to Silalahi Sabungan can be shortened, so that tourists are more interested in visiting. It also allows for an increase in the number of domestic and international tourists.

2. Increased Passenger Comfort and Satisfaction

Good transportation infrastructure provides comfort for tourists during the trip. Smooth roads, adequate lighting facilities, and the presence of road signs can provide a more positive travel experience. Travelers who feel comfortable tend to spend more time in tourist areas, increasing consumption of local services such as lodgings, restaurants, and souvenir shops. In addition, a good experience encourages tourists to recommend the region to others.

3. Increasing Mobility and Local Economic Activity

Transportation development also has an impact on the mobility of local communities. With better road access, people can easily bring agricultural products, handicrafts, or

other products to the market or to tourist areas to sell to tourists. Local tourism business actors, such as lodging and restaurant managers, are benefiting directly from the increase in the number of tourist visits. Economic activity increased, creating new jobs, especially in the transportation, trade, and tourism services sectors. Regional revenue from the tourism sector also increases through taxes or tourism levies.

4. Development of New Destinations

Good transportation infrastructure allows the development of new tourist destinations in areas that were previously difficult to reach. For example, the construction of roads to remote areas around Lake Toba can open up opportunities for exploration of nature, culture, or historical tourism that is not yet known. The new destination provides diversification for the tourism sector of Silalahi Sabungan District, so that tourists have more choices

Activities and attractions. It also helps to encourage economic growth in previously underdeveloped villages.

5. Increasing the Competitiveness of Tourist Areas

Silalahi Sabungan District competes with other tourist areas around Lake Toba in attracting tourists. Adequate transportation infrastructure is one of the determining factors for the competitiveness of tourist destinations. Destinations with easy access and good transportation facilities are more in demand by tourists. With more advanced infrastructure, Silalahi Sabungan can compete with other leading destinations such as Parapat or Balige.

6. Reducing Disparities Between Regions

The development of transportation infrastructure in Silalahi Sabungan also plays a role in reducing the development gap between the central area and the suburban area. With adequate infrastructure, the region can be better integrated into the regional economy. People in Silalahi Sabungan District can enjoy the benefits of more equitable development, both through increased access to public services and greater economic opportunities.

The development of transportation infrastructure has a significant influence on the development of the tourism sector in Silalahi Sabungan District. Adequate infrastructure not only improves accessibility and comfort for tourists, but also has a positive impact on the local economy, the development of new destinations, and the competitiveness of the region. However, these development efforts must be carried out with sustainable planning to minimize negative impacts on the environment and local communities

CONCLUSION

The development of transportation infrastructure in Silalahi Sabungan District plays an important role in supporting the development of tourism areas in the region. Based on the analysis and discussion in this study, several conclusions can be described as follows:

1. Transportation infrastructure in Silalahi Sabungan District is still inadequate to support tourism needs optimally. Damaged roads, limited public transportation, and lack of supporting facilities such as street lighting, signs, and parking areas are the main obstacles in supporting accessibility and comfort for tourists.
2. The development of transportation infrastructure in the region faces a variety of challenges, including budget

constraints, difficult geographical conditions, lack of integrated planning, and lack of community support. These challenges affect the speed and quality of infrastructure development that is urgently needed to advance the tourism sector.

3. Adequate transportation infrastructure has a significant impact on the development of the tourism sector. Increased accessibility allows more tourists to visit, while travel convenience increases travelers' satisfaction, encouraging them to spend more time and money in the region. In addition, infrastructure development also opens up opportunities for the development of new destinations, strengthens regional competitiveness, and improves the economy of local communities.

4. The development of transportation infrastructure must be carried out in a planned and sustainable manner by considering social, economic, and environmental aspects. Collaboration between the government, the community, and business actors is needed to overcome the existing challenges. In addition, monitoring the environmental and social impacts of infrastructure development must be a priority so that tourism development does not damage the beauty and uniqueness of this area.

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