

Planning Strategy to Improve Accessibility in Remote Areas Through Transportation Infrastructure in Lahomi District

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Abstract - This study aims to analyze the role of city facilities in encouraging community participation in urban planning in West Nias. Community participation is an important element in the success of sustainable and inclusive urban development, while adequate city facilities have the potential to be a means of social interaction that can stimulate community involvement. With a descriptive-qualitative approach, this study evaluates the availability, condition, and accessibility of city facilities, including green open spaces (RTH), transportation infrastructure, and community activity centers. The results of the study indicate that although regional expansion aims to improve public services, the challenges faced by West Nias in maintaining and repairing public facilities hinder the optimization of community participation. The inadequate condition of facilities, limited accessibility especially for vulnerable groups, and the lack of transparency of information related to urban planning are the main obstacles that need to be overcome. This study suggests improvements in the management and accessibility of city facilities through collaboration between the government and the community to create an urban environment that supports active citizen involvement. These findings are expected to be the basis for formulating policies and strategies for developing more inclusive and sustainable urban infrastructure in West Nias.

Keywords : Urban Facilities, Community Participation, Urban Planning, West Nias.

I. INTRODUCTION

Good transportation planning in remote areas such as West Nias requires a comprehensive approach. An effective transportation infrastructure and service network is needed to support regional development, which requires in-depth identification of the potential and conditions of the region. Spatial and spatial data must support a comprehensive transportation infrastructure plan, taking into account population distribution and economic centers connected through a solid network (Adisasmita, 2010).

The development of transportation infrastructure in remote areas such as West Nias still faces various challenges that hinder the accessibility and connectivity of the region. One of the main challenges is budget constraints that have an impact on the slow development of transportation facilities and infrastructure. This condition is exacerbated by difficult

geographical characteristics, such as hilly topography and limited access, which make infrastructure development increasingly complex and costly. As an area that is still in the developing category, West Nias requires an adequate transportation network to connect economic, health, and education centers. Low accessibility in this area results in limited public access to essential services and wider economic opportunities, and has an impact on economic and social backwardness. In addition, the lack of transportation infrastructure connecting remote areas and major growth centers causes uneven development and a widening gap in access.

The government, through the National Long-Term Development Plan (RPJPN) and regional development policies, encourages the improvement of transportation infrastructure to support equity and economic growth. However, implementation at the regional level still requires focused strategic planning and collaboration between local governments and the private sector to overcome funding limitations and maximize regional potential. Transportation planning is multimodal, involving various modes of transportation, disciplines, and related institutions. With a multidisciplinary and multisectoral approach, it is hoped that transportation planning in West Nias can overcome regional isolation and support accessibility and sustainable development.

Lahomi District, which was inaugurated as the capital on November 26, 2008 based on Law No. 46 of 2008, is one of the administrative areas in West Nias with an area of around 43.50 km². Based on 2021 data, this area has a population of 10,587 people with a density of 242 people per km², indicating a relatively moderate density level for an area dominated by villages. This sub-district has 11 villages/sub-districts with a postal code of 22864, and is registered with the Ministry of Home Affairs code 12.25.01 and the BPS code 1225020. This sub-district has several unique characteristics that make it important for studies of economic growth and increasing accessibility. With a relatively small area, the population distribution in Lahomi is relatively centralized, allowing significant opportunities for economic development. Road infrastructure is a vital component, because the area consisting of 11 villages requires good accessibility to improve the efficiency of inter-village transportation and facilitate the



distribution of agricultural products and local products, especially in Lahomi District. Here is a map:

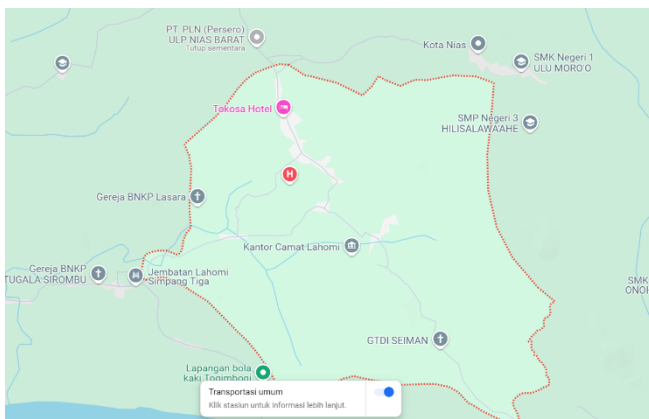


Image: Lahomi District, West Nias
Source: google maps

Lahomi District, West Nias Regency, plays a strategic role in driving the economy and administration in this region. As the center of government, Lahomi District is the central point of various social and economic activities of the community. However, like many areas in West Nias, Lahomi District also faces various challenges related to limited transportation infrastructure that affect accessibility and connectivity between regions. With the increasing population and community needs, Lahomi District requires adequate infrastructure to support this growth. One of the challenges faced is the limited road conditions and the quality of infrastructure that is not yet adequate to accommodate the increasing flow of transportation. This makes it difficult for the community to access important facilities such as markets, health centers, schools, and government offices, especially for residents who live in rural or more remote areas around Lahomi District.

These limitations also have an impact on the economic sector. Roads that are not well connected between villages and sub-districts make the distribution of goods slow and inefficient, increase transportation costs and hinder trade activities and the distribution of local agricultural products. In addition, the difficulty of access to the sub-district center reduces the opportunity for people to engage in more productive economic activities. To overcome these challenges, infrastructure planning is needed that focuses on improving accessibility and connectivity, especially in Lahomi Sub-district as the main center of activity in West Nias. The strategy of building roads, bridges, and efficient public transportation is very important to connect villages with the sub-district and district centers. Continuous improvement and maintenance of infrastructure will allow for increased mobility, support the growth of the local economic sector, and expand community access to public service facilities.

In the long term, infrastructure improvements in Lahomi District are expected to have a positive impact on economic growth and overall community welfare in West Nias Regency, making it a more independent and developed region amidst geographical and infrastructure limitations. Therefore, formulating a planning strategy to improve accessibility in Lahomi District, West Nias through the development of

transportation infrastructure is very important. With a comprehensive and targeted strategy, it is hoped that Lahomi District, West Nias can have adequate transportation access, improve community welfare, and accelerate local economic growth through better connectivity.

Formulation of the problem

1. What is the current condition of transportation infrastructure in Lahomi District and its impact on accessibility?
2. What are the challenges faced in developing transportation infrastructure in these remote areas?
3. What strategies can be implemented to improve accessibility through transportation infrastructure in Lahomi District?

Research purposes

1. To identify the current condition of transportation infrastructure and its impact on community accessibility in Lahomi District.
2. To identify the challenges faced in developing transportation infrastructure in remote areas of Lahomi District.
3. To formulate effective planning strategies to improve accessibility through the development of transportation infrastructure in Lahomi District.

II. LITERATURE REVIEW

1. Definition of Accessibility

Accessibility refers to the ease of access to services, resources, and opportunities needed to meet basic needs, such as education, health, and employment. Good accessibility contributes to economic growth and improved quality of life. Accessibility is a concept that encompasses the ease of reaching services, resources, and opportunities needed to meet the basic needs of individuals and communities, including education, health, and employment. This concept is very important, because good accessibility contributes significantly to economic growth and improved quality of life. According to Bhatta (2010), good accessibility not only facilitates physical movement but also expands social and economic opportunities for individuals. When people have good access to essential services, they are better able to participate in economic and social activities, which in turn can increase productivity and overall well-being.

In remote areas, accessibility is often hampered by poor infrastructure conditions. Tukamuhabwa et al. (2017) explained that limitations in community mobility in remote areas can be caused by inadequate transportation infrastructure, such as damaged roads, lack of public transportation, and long distances from service centers. This situation makes it difficult for residents to access quality education, adequate health services, and employment opportunities, thus potentially exacerbating poverty and social inequality.

2. The Role of Transportation Infrastructure

Transport infrastructure plays a very important role in improving accessibility, especially in remote areas. Good roads, bridges and public transport are the foundation that allows people to connect with service centers, markets and other opportunities. Gwilliam (2003) emphasized that

transport infrastructure not only facilitates physical mobility but also contributes to social and economic development. With good roads, people can easily access health services, education and employment, all of which are essential to improving their quality of life. According to a World Bank report (2010), investment in transport infrastructure can reduce travel costs and increase the frequency of mobility. This has a direct impact on local economic development. With better access to markets, farmers and small business owners can sell their products at better prices and gain access to cheaper inputs. In addition, better accessibility can attract investment and new business development, create jobs and stimulate economic growth. More than just improving access, good transport infrastructure also plays a role in improving community resilience to disasters. In emergency situations, fast and efficient access to rescue and relief services is essential. Good roads and bridges ensure that aid can reach areas in need quickly, reducing the impact of natural disasters and increasing communities' ability to recover.

3. Infrastructure Planning Strategy

Community needs analysis is a crucial first step in transportation infrastructure planning. By collecting data and feedback from local communities, planners can better understand the challenges they face and the specific needs that need to be met. This method can involve surveys, interviews, and focus groups to gain a comprehensive picture of the existing social, economic, and infrastructure conditions. In this way, planning can be more targeted and relevant to the local context. Mapping the existing transportation network helps in identifying critical points and connectivity between different areas. This process involves the use of mapping technology and geographic data analysis to evaluate the condition of existing infrastructure and potential for development. With accurate mapping, planners can determine the most efficient transportation routes and priorities for repair or new infrastructure development (Haworth et al., 2016). In addition, mapping can also help in understanding community movement patterns and identifying underserved areas.

III. METHOD

The approach in this study uses a qualitative descriptive methodology. The selection of a qualitative approach is in accordance with the research theme which is descriptive in nature. The data collection procedure involves four basic types, namely observation, interviews, documents, and visual images (Creswell, 2013). The qualitative descriptive method is used to obtain secondary data through library methods or document and literature studies. Secondary data are collected from various sources, including books, theses, journals, legislation, the internet, lecture materials, and mass media. Meanwhile, primary data are obtained through in-depth interviews with sources who are experts or related officials who have competence in the field that is the focus of the research, namely transportation.

Data analysis was carried out descriptively with a thematic approach which includes data reduction, data presentation, and drawing conclusions.

IV. RESULT AND DISCUSSION

1. The current condition of land transportation infrastructure and its impact on community accessibility in Lahomi District.

In an effort to improve accessibility for the community in Lahomi District, it is important to identify the current condition of land transportation infrastructure. Land transportation infrastructure includes roads, bridges, and other supporting facilities that enable the movement of goods and people in the area. Currently, the condition of transportation infrastructure in Lahomi District still faces various challenges. Many roads are not yet properly paved, making access difficult, especially during the rainy season when the roads become muddy and slippery. In addition, the existence of inadequate or damaged bridges also hampers mobility, isolating several remote areas. The impact of this condition is very significant, where people have difficulty reaching basic service centers such as health, education, and markets. This hampered accessibility also has an impact on the local economy, because farmers and entrepreneurs have difficulty marketing their products to a wider market. By understanding the condition of the existing transportation infrastructure, strategic steps can be taken for better improvement and development, so that accessibility for the community in Lahomi District can increase significantly. Identifying the condition of transportation infrastructure can also provide a clear picture of the needs and development priorities needed to improve accessibility. Through data collection and analysis, it is hoped that crucial points that need to be repaired can be found, such as roads that are often damaged or transportation routes that are not well served. This will facilitate more targeted planning in infrastructure development, so that government and private sector programs can be more effective and efficient.

In addition, this identification effort is also important to involve the community in the planning process. Local communities can provide valuable information about the real conditions they face, as well as their expectations and needs for transportation infrastructure. By involving the community in decision-making, it is hoped that solutions can be created that are more in line with their needs, as well as increasing a sense of ownership and responsibility for the infrastructure being built.

A deeper understanding of the current state of transportation infrastructure and its impact on community accessibility in Lahomi District can support the development of more inclusive and sustainable policies. Thus, improving transportation infrastructure will not only benefit the community today, but will also have a long-term positive impact on the economic and social development of the area. This is in line with the goal of creating better accessibility for all levels of society, especially in remote areas that require more attention in the development of transportation infrastructure.

2. Challenges faced in developing transportation infrastructure in remote areas of Lahomi District.

The development of transportation infrastructure in remote areas, such as Lahomi District, faces various complex and diverse challenges. One of the main challenges is the budget constraints that are often experienced by local governments.

Limited funding hampers the ability to carry out comprehensive infrastructure repairs and development. In addition, the geographical conditions of Lahomi District, which is hilly and located in a coastal area, add to the difficulties in road construction and transportation accessibility. Difficult terrain often requires more expensive and time-consuming technology and construction methods, thus slowing down development progress. Another challenge is the lack of skilled human resources in the field of construction and infrastructure maintenance. The lack of trained workers can result in low-quality development and difficulties in maintaining existing infrastructure. In addition, the lack of coordination between government agencies and stakeholders can also hamper the implementation of transportation projects. Many projects are not well integrated, which can lead to overlapping or even wasting resources.

Social aspects are also significant challenges. Local communities may not fully realize the importance of developing transport infrastructure or may be resistant to proposed changes. This can make it difficult to garner community support for transport projects. In addition, environmental issues, such as the risk of ecosystem damage due to infrastructure development, also need to be considered, as this can trigger protests from environmental groups and hinder the development process. In an effort to overcome these challenges, a comprehensive and inclusive approach is needed in planning and developing transport infrastructure in Lahomi District. One important step is to increase budget allocations for transport projects, both from the central and regional governments, and involve the private sector in financing through a public-private partnership (PPP) scheme. With greater investment, it is hoped that infrastructure development can be carried out more effectively and on time.

It is also important to involve communities in the planning and implementation of infrastructure projects. Through public consultation and active community participation, stakeholders can understand the needs and expectations of the community, while reducing resistance to change. This approach can also increase the sense of ownership of the infrastructure being built by the community, making them more committed to maintaining and preserving the facilities. In terms of human resources, training and education for local workers in the construction and maintenance of infrastructure should be a priority. Through specially designed training programs, local communities can be involved in infrastructure development, while also providing them with valuable skills to improve their future employment opportunities.

Coordination between government agencies also needs to be strengthened to ensure that transportation projects run smoothly and are integrated with broader regional development plans. With a clear coordination mechanism, the potential for overlapping and waste of resources can be minimized, as well as increasing efficiency in project implementation. In addition, a comprehensive environmental impact assessment must be carried out before starting an infrastructure project, to ensure that development does not damage the local ecosystem. An environmentally friendly approach will support the sustainability of the project and reduce the risk of conflict with groups concerned about the environment. With this planned and synergistic strategy, it is hoped that the development of transportation infrastructure in Lahomi District can overcome existing challenges and increase community accessibility effectively. The community

will have easier access to public services, economic centers, and job opportunities, which in turn will contribute to improving the welfare and economic development of the region as a whole.

3. Effective Planning Strategy in Improving Accessibility Through Transportation Infrastructure Development in Lahomi District

Lahomi District in West Nias has an urgent need to formulate an effective planning strategy to improve accessibility through the development of transportation infrastructure. In this context, the integration of transportation modes is a key aspect that must be considered. The integration of transportation modes in Lahomi is very important to ensure that this area can be well connected to the surrounding districts and villages. Currently, limited road infrastructure and minimal integration between transportation modes result in slow and inefficient movement of goods and passengers. This situation not only results in higher transportation costs but also limits community mobility, which has a direct impact on local economic development.

As stated by Jinca (2006), the integration of transportation modes plays a very important role in forming a comprehensive transportation system, connecting land, sea, and ferry transportation modes into an integrated whole. In the context of Lahomi District, the development of road infrastructure connecting seaports and other transportation points is very crucial. For example, by increasing the integration between land and sea transportation modes, the distribution time of goods such as agricultural products can be shortened. This will encourage more affordable transportation costs for the community, which in turn can increase their accessibility to markets and other resources. The challenges in integrating these transportation modes cannot be ignored. The lack of adequate infrastructure and the lack of a support system for the movement of goods and passengers between modes are significant obstacles. For example, local transportation modes such as motorcycle taxis often dominate the movement of people in areas that are difficult to reach. Therefore, comprehensive and strategic planning is needed to improve the integration of transportation modes. The development of docks, integrated terminals and other supporting infrastructure at strategic points can help improve accessibility to remote areas, which will contribute positively to the economic and trade sectors in Lahomi District and the West Nias region as a whole.

4. Network Development Strategy

In formulating a strategy for developing a transportation network in Lahomi District, it is important to pay attention to the limitations of access and infrastructure that are still limited, especially to connect remote areas. Therefore, the approach that can be applied includes several strategic steps. First, opening access to isolated areas is very important to support local economic growth and reduce disparities between regions. By connecting isolated areas with economic centers, it is hoped that local potential can be maximized.

Second, the connection of Lahomi District with service and trade centers needs to be improved. Better access to public services and facilities such as health and education will accelerate economic growth in relatively underdeveloped areas. This connectivity will also make it easier for people to access various services that were previously difficult to reach.

Third, it is necessary to develop functional linkages between production areas, distribution centers, and existing ports. By improving transportation integration, the flow of goods distribution will be smoother, support economic equality between regions, and create an effective and efficient transportation system.

Finally, the development of priority infrastructure in residential centers in Lahomi District must be carried out in a more structured manner. To ensure the availability of adequate infrastructure, increased investment from both the government and the private sector is needed. With this strategy, Lahomi District is expected to have more integrated transportation access, which supports sustainable economic growth and strengthens inter-regional connectivity in West Nias as a whole.

In an effort to improve accessibility and strengthen connectivity in Lahomi District, West Nias, a transportation network development strategy is very important to improve the limitations of existing access and infrastructure. Geographical conditions and low accessibility cause Lahomi District and its surroundings to often lag behind in terms of access to economic and government centers. One relevant strategic approach is to open access to isolated areas, especially villages that are difficult to reach. With adequate access, the local economy can be built optimally, thereby increasing local production and reducing economic disparities between regions in West Nias. This step can also encourage local communities to play a more active role in developing their regional economy.

In addition, the connection between Lahomi District and the center of trade and government services needs to be strengthened. This will allow the people of Lahomi to gain faster and easier access to various public services, health facilities, and education that may have been difficult to access before. Thus, the development of the transportation network will not only support economic growth but also make it easier for local residents to obtain quality essential services.

Furthermore, functional linkages between production areas, distribution centers, and ports in West Nias are very important to develop. By building an integrated transportation network, the distribution of goods and services will be smoother, thus supporting more equitable economic growth. This step will strengthen the relationship between inland areas and more developed areas, thus supporting economic equality between regions and creating an effective and efficient transportation system.

In addition, infrastructure development that focuses on priority settlement centers in Lahomi District needs to be carried out in a more structured manner. The development of transportation infrastructure in this area requires increased investment from both the government and the private sector to ensure the availability of adequate transportation infrastructure and facilities. With this strategy, Lahomi District is expected to have more integrated and sustainable transportation access, thus supporting economic growth and strengthening inter-regional connectivity in West Nias as a whole.

V. CONCLUSION

The development of transportation infrastructure is a crucial step to improve accessibility for people in the region. The integration of transportation modes between land, sea, and crossings needs to be optimized to accelerate the flow of goods and passengers. The limitations of existing infrastructure have resulted in high transportation costs and hampered community mobility, so it is important to formulate a comprehensive strategy.

From the analysis results, several major challenges were found in the development of transportation infrastructure in Lahomi District, including the lack of adequate infrastructure and integration systems between modes of transportation. Therefore, the strategy for developing the transportation network must focus on opening access to isolated areas, connecting with service and trade centers, and functional linkages between production areas and distribution centers. In addition, the development of priority infrastructure in residential centers needs to be encouraged through increased investment from both the government and the private sector.

With the implementation of the right strategy, it is expected that Lahomi District can achieve better accessibility, support sustainable economic growth, and improve the quality of life of the community. This study provides recommendations for concrete steps that need to be taken by policy makers and related stakeholders in realizing efficient and effective transportation infrastructure in remote areas, so that it can open up new opportunities for the economic and social development of the local community.

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