

IMPACT OF ROAD DEVELOPMENT ON ECONOMIC GROWTH AND ACCESSIBILITY IMPROVEMENT IN LAHOMI DISTRICT, WEST NIAS

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Abstract

This study aims to analyze the impact of road construction on accessibility, mobility, and changes in socio-economic characteristics of the community in Lahomi District, West Nias. Road construction in this area, which involves improving 67.45 km of district road infrastructure, focuses on improving access to economic centers, education, and health services. The results of the study indicate that improving road infrastructure significantly increases community accessibility to markets, public facilities, and economic resources. In addition, changes in social mobility occur with the increasing ability of people to move between villages and to economic centers, as well as supporting greater economic diversification, with a shift from the agricultural sector to the trade, services, and small industry sectors. Although positive impacts have been achieved, Lahomi District still lags behind other areas in North Sumatra in terms of infrastructure quality and accessibility. This study suggests the need for more attention to infrastructure maintenance, inclusive development management, and sustainable development planning to ensure equitable benefits and avoid negative impacts that may arise from rapid socio-economic change.

Keywords: *Road construction, Accessibility, Mobility, Socio-economic, Lahomi District, West Nias.*

INTRODUCTION

Infrastructure development, especially roads, plays an important role in supporting economic growth and increasing accessibility of a region. Adequate road infrastructure not only facilitates the flow of goods and services, but also has an impact on socio-economic changes in the surrounding community. Research related to the impact of road development on the socio-economic conditions of the community has been widely conducted, and the results show that the impacts can vary depending on the characteristics of the region. Lahomi District in West Nias Regency is one of the areas that has begun to feel the impact of road infrastructure development. As explained by Aulia, S., et al. (2024), road construction will increase the accessibility of an area, which ultimately drives land values and triggers changes in economic and social activities. Lahomi District, most of which is dominated by the agricultural sector, has the potential to experience changes due to increased accessibility caused by road construction. This increased access can open up new opportunities for economic growth, expand access to the labor market, and facilitate access to previously inaccessible land.

However, road construction can also have consequences such as changes in land use, where agricultural areas have the potential to be converted into trade or service areas. This can change the local economic structure and social characteristics of the community. A similar case was seen in the construction of the Southern Ring Road in Salatiga City, where changes from agricultural activities to non-agricultural activities began to be seen after the construction of the infrastructure. This phenomenon emphasizes the importance of an in-depth study of the impact of road construction on socio-economic dynamics. 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 postal code 22864, and is registered with the Ministry of Home Affairs code 12.25.01 and BPS code 1225020. This sub-district has several unique characteristics that make it important for studies of economic growth and accessibility improvement. 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 other local products. This research is based on the important role of road infrastructure in driving economic growth and increasing accessibility in a region, especially in developing areas such as Lahomi District, West Nias. Road construction is a key factor in facilitating the flow of goods and services, increasing community mobility, and opening up new economic opportunities. However, the impact is not always evenly distributed and can cause significant socio-economic changes. Lahomi District, as one of the administrative areas in West Nias, has great potential in the agricultural sector, but limited accessibility is a major obstacle in optimizing agricultural output and developing other economic sectors. With better road construction, it is hoped that this region can improve inter-village connectivity, accelerate the distribution of agricultural products, and attract investment in the trade and service sectors. However, road infrastructure development also has the potential to cause land conversion, changes in livelihoods, and socio-cultural shifts that need to be analyzed in depth. In addition, compared to other areas in North Sumatra, road infrastructure in West Nias is still lagging behind, so its impact on economic growth is not optimal. This study is needed to evaluate the extent to which road construction in Lahomi District is able to provide economic benefits to the local community, improve accessibility, and identify challenges that arise due to changes that occur.

The existence of adequate roads in Lahomi District can have various impacts, such as increasing land values and encouraging the development of new economic activities that were previously difficult to develop due to limited access. Good road infrastructure can also attract more immigrants or investors who see the potential of land that has not been optimally utilized. Over time, this can create new, more integrated centers of economic activity and bring socio-economic change to the local community (Damanik, D., et al., 2024). With the increase in accessibility and economic activity that may occur, the potential for a shift from rural characteristics dominated by the agricultural sector to trade and service activities also needs to be considered. This change can have implications for the availability of productive land and shift the livelihoods of people who depend on agriculture. Thus, development planning in Lahomi District must pay attention to the potential for balanced changes between the agricultural and non-agricultural sectors to maintain the welfare and original characteristics of the local community.

The problems that arise are also related to the extent to which the construction of this road is truly able to improve the welfare of local communities and not only create temporary economic impacts that are only felt by a small number of people. Given the diverse characteristics of the community in Lahomi District, ranging from education level, age, to land ownership, the impact of the construction of this road can vary and requires a comprehensive approach to identify its impacts as a whole (Ilham Mirzaya, P, 2023). Roads in Lahomi District, West Nias, are district roads that connect villages and sub-districts within the West Nias Regency. These roads play an important role in supporting community mobility, distribution of goods, and access to public facilities such as schools, health centers, and markets. However, the condition of district roads in Lahomi District still needs repair, or is poorly maintained, thus hampering economic activities and community connectivity. This study will use official data from the West Nias Regency Public Works Office or regional planning documents to ensure that the analysis of the impact of road construction is carried out accurately and relevantly. When compared to other regencies in North Sumatra whose road infrastructure is still lagging behind Deli Serdang Regency, Batu Bara Regency, Binjai, or South Tapanuli Regency, the impact of road construction in West Nias is still less than optimal. Other regions have shown that adequate roads can improve connectivity between regions and encourage faster flow of goods and people, which contributes to accelerated economic growth. Therefore, the acceleration of road construction in Lahomi District needs to be a priority so that its impact on the economy and accessibility can be felt optimally, as has happened in other regencies in North Sumatra.

The growth of road construction can accelerate the flow of migration to the Lahomi District area, thus allowing the presence of various levels of society with different backgrounds (Apriliana, R., 2021). This has the potential to affect the social characteristics of indigenous communities, such as interaction patterns, cultural values, and local economic stability. Experience in other areas shows that infrastructure development is often followed by significant socio-economic changes. However, these changes do not always bring equal benefits to all levels of society, especially for indigenous people who may experience increased economic competition or changes in lifestyle (Giu & Prasetyanto, 2023). Previous research from Sari (2021) entitled: *The Influence of Port Infrastructure Development, Road Infrastructure and Bridge Infrastructure on Economic Growth in North Maluku*. The results of this study confirm that port, road and bridge infrastructure have a significant influence on economic growth in North Maluku Province. Port infrastructure contributes positively to the economy by increasing trade connectivity and distribution of goods. Road infrastructure plays an important role in facilitating community mobility and logistics

distribution, while bridge infrastructure increases accessibility between previously isolated regions. With a significance value of less than 0.05, this study shows that investment in these three types of infrastructure can encourage better economic growth in North Maluku. Through this study, it will be studied how road construction in Lahomi District affects economic growth and increased accessibility, as well as socio-economic changes experienced by the local community. This study is expected to provide a comprehensive picture of the impact of road construction on the community in the area, as well as provide recommendations for more sustainable regional development. The formulation of the problem in this study involves several main questions that focus on the impact of road construction on economic growth in Lahomi District, to what extent road construction in Lahomi District increases accessibility and mobility of the community, and how changes in the socio-economic characteristics of the community are due to road construction in Lahomi District. The purpose of this research is to identify the impact of road construction on economic growth in Lahomi District, West Nias.

LITERATURE REVIEW

1. Road Development and Economic Growth

In the context of Lahomi District in West Nias, road construction is expected to accelerate economic growth and improve community welfare, relevant literature related to the impact of road construction on economic growth and accessibility. Many studies show that road construction can make a significant contribution to regional economic growth. According to research by Fan et al. (2000 in Sinar et al., 2023), road infrastructure investment has a significant impact on productivity and economic growth, especially in rural areas. Good road infrastructure can reduce transportation costs, expand access to markets, and enable investment. A study by Straub (2008 in Aris et al., 2024) also revealed that road infrastructure development has a positive correlation with increasing regional Gross Domestic Product (GDP). In the rural context, road construction is often key to local economic development. The World Bank (2009) notes that areas with better road access tend to experience increased local economic activity, such as increased small and medium enterprises (SMEs) and wider access to economic resources. In addition, Hine and Riverson (1982 in Situmorang et al., 2025) also show that road construction can increase agricultural production by improving access to markets and reducing losses during transportation.

2. Road Construction and Accessibility Improvement

Accessibility refers to the ease with which people can reach services, facilities, and markets. Adequate road construction is one of the main means of improving accessibility in rural or remote areas. A study conducted by Gado et al (2021 in). shows that good accessibility is closely related to improving living standards, especially in terms of access to education, health, and economic opportunities. Another study by Banerjee, Duflo, and Qian (2012 in Putra and Nuraini, 2024) shows that good road infrastructure can improve social and economic mobility, by expanding job opportunities and access to education. In the Indonesian context, Ilham Mirzaya, P. (2023) shows that road construction in rural areas plays an important role in reducing access gaps between regions and increasing economic integration in remote areas.

3. Impact of Road Construction in Remote Areas

Remote areas such as Lahomi District, West Nias, often face the challenge of poor infrastructure, which hinders economic growth and accessibility. According to Guimaraes, Freitas, and Kaneko (2004), remote areas with limited access to transportation often experience economic isolation. Road construction can be a solution to overcome this problem by opening wider access to services and markets, thereby improving the economic welfare of the population. A study by Hettige (2006 in Supriadi et al., 2025) emphasized the importance of road construction in remote areas to support access to health services, education, and employment opportunities. Better access to these facilities can directly improve the quality of life of local communities (Noviyanti & Putra, 2023).

RESEARCH METHODS

This study uses a descriptive qualitative approach to describe the impact of road construction on economic growth and increased accessibility in Lahomi District, West Nias. This approach was chosen to gain a deeper understanding of the phenomena that occur through interpretation of data from various sources. The research location was centered in Lahomi District, especially in villages that were significantly affected by road construction. The research subjects included local communities, local government officials, and business actors involved in economic activities in the area. Informants were selected purposively to ensure that the data obtained was relevant to the research objectives (Moleong, 2000 in Nuraini, 2009; Nuraini, 2016; Nuraini, 2023). Data collection techniques

include several methods. First, in-depth interviews were conducted with key informants, including village officials, community leaders, and business actors, to obtain information on economic and social changes experienced by the community. Second, participatory observation was conducted to directly observe economic activities and increased accessibility in the field. Third, documentation studies include the collection of secondary data such as government documents, development reports, and statistical data to support the analysis. Data analysis was conducted descriptively with a thematic approach that includes data reduction, data presentation, and drawing conclusions (Yin, 2000 in Nuraini, 2019; Moleong 2000 in Nuraini et al., 2024a). This process begins by summarizing and grouping data based on main themes such as economic impact, accessibility, and social change (Creswell, 1999 in Nuraini, 2024a; Nuraini, 2024b). The data is then presented in the form of descriptive narratives, tables, or maps to facilitate interpretation (Yin, 2000 in Nuraini et al., 2024b).

RESULTS AND DISCUSSION

1) The impact of road construction on economic growth in Lahomi District, West Nias.

Road construction in Lahomi District, West Nias, has had a significant impact in improving accessibility and mobility of the community, which in turn contributes to local economic growth. With a district road length of 67.45 km, consisting of 10 km paved and 57.45 km gravel, this road infrastructure facilitates the movement of people and goods between villages and connects the community to economic centers and public services. especially in Lahomi District. Here is a map:



Figure 1: Lahomi District, West Nias

Source: indonesia map

Previously, poor road conditions and long distances prevented residents from accessing markets, health facilities, and education. However, with the improvement of the road, people can now reach these places more easily and quickly, which has a direct impact on time and cost efficiency and improves their quality of life. The development of road infrastructure in Lahomi District, West Nias, can have a positive impact on the economic growth of the region. Based on economic data from West Nias Regency in 2023, economic growth increased by 3.72 percent, higher than 3.01 percent in 2022. This shows that economic sectors are starting to develop, and one of the important factors in this acceleration is infrastructure development, including roads. The sectors that experienced the highest growth in West Nias Regency included the Manufacturing Industry, which grew by 8.47 percent, and the Construction sector, which grew by 6.43 percent. Better road development can accelerate the distribution of goods, smooth the flow of logistics, and support the industrial sector by reducing transportation costs. In addition, better access to various locations also boosts the Mining and Quarrying and Accommodation and Food and Beverage sectors, which will grow by 7.65 percent and 6.77 percent respectively in 2023. Better road infrastructure facilitates economic activities in these sectors, for example, in accessing raw materials for industry or attracting more tourists. In terms of expenditure, Household Consumption Expenditure (PKRT) which grew by 3.86 percent and Gross Fixed Capital Formation (PMTB) which grew by 3.78 percent indicate an increase in purchasing power and investment in sectors directly connected to infrastructure development. Increased mobility resulting from road construction facilitates the

distribution of goods and services, which has an impact on increasing public consumption and investment in various sectors.

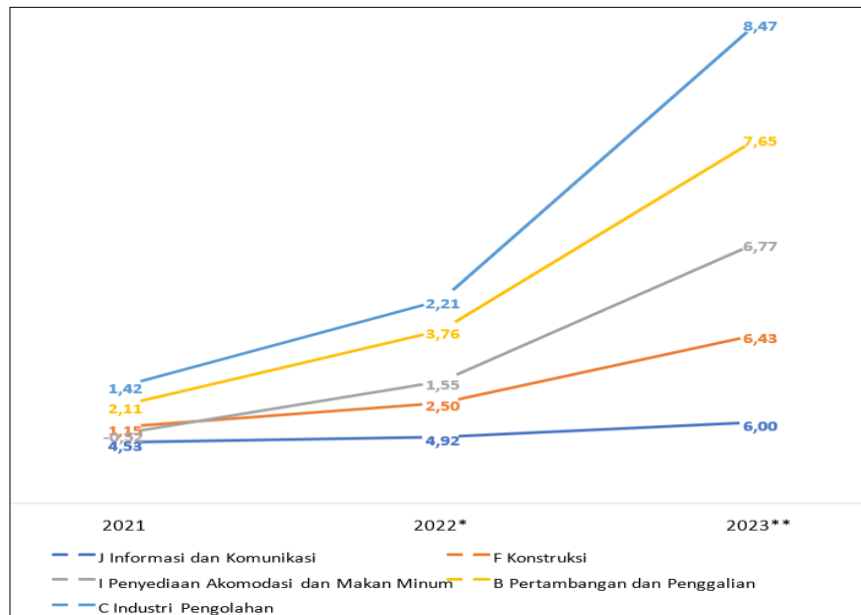


Figure 2: GRDP Growth in Several Business Fields (percent)

With the largest contribution to GRDP coming from the Agriculture, Forestry, and Fisheries sector (53.65 percent), road construction can also improve farmers' and fishermen's access to markets, thereby improving their income. The Trade sector, which contributes 13.44 percent to GRDP, also benefits directly, as better road infrastructure allows for more efficient distribution of goods, expands markets, and reduces distribution costs. Overall, road construction in Lahomi District has the potential to support sustainable economic growth by strengthening connectivity between regions, increasing the efficiency of the production sector, and expanding investment and market opportunities.

2) Increased accessibility for the people of Lahomi District due to road construction.

Road construction in Lahomi District, West Nias, has had a very significant impact in improving accessibility and mobility of the community. With the length of district roads reaching 67.45 km, consisting of 10 km paved and 57.45 km gravel, the community can now more easily access various important facilities such as markets, health services, and education. Previously, poor road conditions hampered the movement of residents, making it difficult for them to reach these places, and increasing travel costs and times. However, after the construction of the road, the community can travel faster and more efficiently, which contributes to improving their quality of life.



Figure 3: Percentage Structure of GRDP by Business Sector (percent)

Road construction in Lahomi District, West Nias, has the potential to increase community accessibility, which will have an impact on economic growth. Based on 2023 GRDP data, key sectors such as Agriculture, Forestry, and Fisheries, which contribute 53.65% to GRDP, will experience significant benefits. Better access to markets will facilitate the distribution of agricultural and fishery products, reduce transportation costs, and open up wider market opportunities. The Wholesale and Retail Trade Sector (13.44%) also benefits, because road infrastructure facilitates the distribution of goods and expands market reach.

The Transportation and Warehousing Sector (1.75%) benefits from reduced logistics costs and more efficient travel times, increasing the mobility of goods and people. In addition, the Construction sector (9.65%) will also grow, because road construction opens up opportunities for other construction projects, such as housing and public facility construction. With increased accessibility, economic opportunities will be more open to the community, driving economic growth in Lahomi District and West Nias Regency as a whole. This increase in accessibility also encourages social and economic mobility of the community. With better roads, residents can more easily move between villages and cities, opening up opportunities to find jobs, expand social networks, and access various economic opportunities. In addition, the agricultural sector, which is the main livelihood for the people of Lahomi District, also benefits. Better roads allow farmers to send their agricultural products to the market with lower transportation costs, reduce waste, and increase the competitiveness of local products. Thus, the agricultural sector can grow more rapidly, bringing positive impacts on farmers' incomes and the local economy.

Table 2. The impact of road construction in Lahomi District on increasing community accessibility and mobility:

Aspect	Impact Description	Impact
Accessibility Improvements	Road construction improves people's access to various public facilities such as markets, schools, and health services. This increases travel efficiency and facilitates access.	People can access markets, health facilities and education more quickly with more efficient travel, reducing transportation time and costs.
Increasing Social Mobility	With better road infrastructure, people's social mobility increases, allowing them to move between villages or to economic centers more easily.	Residents can move more easily to find work, carry out social activities, or access other economic opportunities.
Local Economic Development	Better access to economic centers supports the distribution of agricultural products and merchandise, which increases the incomes of local farmers and businesses.	Farmers and businesses can deliver agricultural products and goods to markets at lower transportation costs, increasing competitiveness and income.

Impact on the Agricultural Sector	Better roads make it easier to distribute agricultural products, increase efficiency, and speed up the delivery of products to markets, which in turn boosts local economies.	Agricultural products can be delivered to markets faster at lower costs, which increases farmers' profits and the competitiveness of local products.
Road Maintenance Challenges	Several road sections were damaged in a short time, which reduced the long-term benefits of road construction and hampered the smooth mobility of the community.	The Bawadasi-Bawozamaiwo road section is experiencing rapid damage, which causes disruption to public mobility and accessibility.
Increasing Urbanization	Road construction drives urbanization by improving access to cities and economic centers, which increases demand for housing and public facilities in those areas.	The increase in population in urban areas has an impact on increasing demand for infrastructure and public facilities.

Source: Lahomi District 2024

The impact of road construction on increasing accessibility and mobility of the community in Lahomi District. Road construction not only facilitates access to public facilities, but also increases social and economic mobility, and encourages the growth of the agricultural sector and the local economy. However, challenges related to road maintenance and quality remain important factors that need to be considered to maintain the sustainability of these benefits. Challenges related to the quality of road construction and maintenance still need serious attention. Several previous road construction projects, such as the Bawadasi-Bawozamaiwo section, experienced damage in a relatively short time. This damage indicates problems with the quality of construction and lack of supervision in road maintenance. This road damage certainly hampers the long-term benefits of road construction and can reduce the comfort and safety of people's travel. Therefore, it is important for local governments to ensure that the quality of road construction meets the established standards and that maintenance is carried out regularly so that road infrastructure can continue to support increased accessibility and mobility for the community. Although this positive impact has been quite significant, Lahomi District still faces challenges in ensuring the sustainability of the benefits of road construction. The quality of road construction and maintenance is an issue that needs more attention. Several road sections, such as Bawadasi-Bawozamaiwo, experienced relatively rapid damage, which can reduce the effectiveness of the road in the long term. Therefore, to ensure that the benefits of road construction remain optimal, it is important for local governments to implement good maintenance strategies and improve supervision of construction quality.

3). Proposed Strategy to the West Nias District Government

To support the improvement of the quality of road infrastructure in West Nias Regency, several strategies can be implemented. First, Road Priority Mapping is an important initial step to determine strategic road sections that need to be repaired or improved immediately. This refers to data showing that the Agriculture, Forestry, and Fisheries sector, which contributes 53.65% to GRDP, is highly dependent on the quality of roads for the distribution of agricultural and fishery products. Therefore, the main priority is to improve roads connecting areas producing these commodities with markets. Alternative Funding Schemes also need to be considered to accelerate road construction. One of them is collaboration with the private sector (Public-Private Partnership), which allows investment from the private sector in more efficient and affordable road construction. In addition, local governments can also apply for funds from the central government through the Special Allocation Fund (DAK) scheme to fund road infrastructure projects that have a direct impact on the local economy, especially the Wholesale and Retail Trade sector, which contributes 13.44% to GRDP.

It is also important to utilize technology in the management and planning of road infrastructure. The use of a GIS (Geographic Information System)-based monitoring system can help in more accurate road mapping and planning, so that decisions taken are more targeted. This system can ensure that road construction is carried out by considering technical and geographical aspects that are in accordance with the needs of the region. In addition, the involvement of local communities in maintaining roads that have been built is a crucial strategy. Local communities must be empowered to participate in road maintenance, which can increase a sense of ownership and responsibility. This also supports the Improvement of Local Human Resource Capacity, by providing training to local workers to support road maintenance and care. Thus, not only is the infrastructure improved, but also the quality of human resources in the region that can support sustainable development. Through the implementation of these strategies, the development of road infrastructure in Lahomi District and West Nias Regency can have a wider positive impact on economic growth, especially the main sectors that have shown great potential in GRDP.

CONCLUSION

Road construction in Lahomi District has had a significant positive impact on increasing accessibility and mobility of the community, which in turn drives economic growth and improves the quality of life. Based on the data, the GRDP of West Nias Regency showed positive growth, reaching 3.72 percent in 2023, higher than the previous year which was only 3.01 percent. With the improvement of road infrastructure, people now have easier access to markets, health facilities, education, and wider economic opportunities. The income of the community, especially farmers, has increased due to lower transportation costs, which speeds up the distribution of goods and reduces waste, especially in the Agriculture, Forestry, and Fisheries sectors, which contribute 53.65% to GRDP. In addition, increasing social mobility also drives changes in the economic and social structure of society. Many residents who previously depended on the agricultural sector have shifted to other sectors such as trade, services, and small industries. This creates greater economic diversification, supports urbanization, and improves social relations between villages. The Wholesale and Retail Trade Sector, which contributes 13.44% to the GRDP of West Nias Regency, shows great potential in the development of a more diverse local economy.

Despite progress, Lahomi District still lags behind other areas in North Sumatra in terms of infrastructure and accessibility. Data shows that sectors such as Manufacturing and Transportation and Warehousing, although growing, still have a relatively small contribution to GRDP, at 0.23% and 1.75% respectively. Challenges related to urbanization, pressure on public facilities, and socio-economic inequality need to be considered so that the development that occurs can be felt by all levels of society. To ensure that the benefits of this road construction can be felt in the long term, more attention is needed to road maintenance and inclusive development management. The local government must plan sustainable development and ensure equitable distribution of benefits, in order to avoid negative impacts that can arise from rapid socio-economic changes. Quality and equitable infrastructure development will be very important to catch up and realize better community welfare in Lahomi District, as well as optimize the contribution of key economic sectors to GRDP.

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