


Improvement of Road Infrastructure for Agricultural Areas in Rawang Panca Arga District on Regional Resilience in Asahan Regency

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ABSTRACT

This study aims to examine the Improvement of Road Infrastructure for Agricultural Areas in Rawang Panca Arga District against Wlayah Resilience in Asahan Regency. This research uses a qualitative approach to explore and understand the experiences, perceptions, and dynamics that occur in the community related to road infrastructure and its impact on agricultural areas and regional resilience. The research was conducted in Rawang Panca Arga District, Asahan Regency, which is an area with significant agricultural potential and infrastructure challenges that need to be overcome. In-depth Interview Data Collection Techniques: Following a semi-structured interview guide that allows informants to share their experiences with flexibility in answering, Validity and Reliability: The validity of the data will be guaranteed through triangulation, i.e. by comparing data from different sources and methods to ensure consistency and accuracy of information. Overall, the improvement of road infrastructure in Rawang Panca Arga District supports the resilience of the Asahan Regency area through economic strengthening, food security, emergency preparedness, and long-term investment development. This discussion shows that adequate road infrastructure is one of the key factors in strengthening regional resilience as a whole, supporting economic growth, and improving the welfare of local communities.

Keywords: Improvement of Road Infrastructure, Agricultural Areas and Regional Resilience in Asahan Regency

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1. INTRODUCTION

Road infrastructure is an important component in supporting economic development and community welfare, especially in rural areas that have agrarian potential, such as Rawang Panca Arga District, Asahan Regency. Adequate road conditions can make it easier for farmers to transport their agricultural products to the market, thus having a positive impact on local economic growth. Conversely, poor road infrastructure will be an obstacle for farmers in the distribution of agricultural products, which can affect the productivity and resilience of the region as a whole. As an area that focuses on the agricultural sector, Rawang Panca Arga District needs good infrastructure support so that the community's economic activities, especially farmers, can run efficiently. Improving the quality and accessibility of roads can help reduce distribution time and costs, increase the competitiveness of local products, and strengthen regional resilience. Regional resilience, especially in areas that rely on the agricultural sector, is greatly influenced by infrastructure conditions that support productivity and crop distribution. In Asahan Regency, especially in Rawang Panca Arga District, the majority of the population depends on the agricultural sector for their livelihoods. However, the challenge faced is the condition of road infrastructure that is not optimal, which can have an impact on the efficiency of agricultural activities, especially in the process of distributing agricultural products.

Adequate road infrastructure not only has an impact on improving the community's economy, but also strengthens the overall resilience of the region. With good road access, farmers can sell their crops faster and at a lower cost. In addition, better accessibility allows for the entry of technology, agricultural raw materials, and training that can increase productivity. Regional resilience, in this context, includes economic independence, food security, and the ability of communities to face and overcome economic and environmental changes. The Asahan Regency Government realizes the importance of improving road infrastructure in supporting the agricultural sector in Rawang Panca Arga District. The following

are 10 points that can be described related to the resilience of the Asahan Regency area, which is related to improving road infrastructure, especially in supporting the agricultural sector in Rawang Panca Arga District Economic independence Good road infrastructure facilitates the distribution of goods and services, thereby reducing the dependence of the regional economy on the center. By making it easier for farmers and other economic actors, this area can be more independent in managing local resources and generating income sustainably. Adequate road infrastructure allows for easier access to local and regional markets, which benefits local farmers and entrepreneurs in marketing their products. This can reduce transportation costs and speed up the distribution time of goods. Food Security With smooth road access, the distribution of agricultural products becomes more efficient, which in turn supports food security. Regions can more quickly overcome food shortages and ensure the availability of food at reasonable prices for the community. Increased Access to Technology and Innovation Good road infrastructure allows for the entry of new technologies and innovations that can increase the productivity of the agricultural sector, such as modern agricultural tools, efficient irrigation systems, and environmentally friendly agricultural techniques. The provision of better access to Training and Human Resource Development (HR) opens up opportunities for governments and educational institutions to provide training to farmers and local workers. This training can include the latest agricultural technology, business management, and other skills that can increase the competitiveness of the community.

Reducing Regional Inequality Improving road infrastructure in remote areas, such as Rawang Panca Arga District, can reduce development inequality between the central and regional governments, creating equal opportunities for communities throughout the region. Improving Social and Cultural Connectivity A good road also facilitates social interaction and cultural exchange between communities, strengthens social bonds, and increases the sense of community between citizens. It also encourages the creation of a stronger and cohesive community. Accelerating Reaction to Crisis Good road infrastructure increases regional resilience in the face of disasters or crises. Rapid access to assistance or resources from outside the region will accelerate the recovery and mitigation process of the impact of disasters or environmental changes. Better management of natural resources A good way facilitates the management of natural resources more efficiently. For example, facilitating the distribution of fertilizers or agricultural raw materials needed to maintain the sustainability of the agricultural sector in Asahan Regency. Increased Investment and Economic Growth Good road infrastructure attracts more investment, both from the private sector and the government. These investments can include the development of agricultural product processing industries, the provision of storage facilities, and the establishment of new companies that create jobs, which ultimately supports regional economic growth. Overall, the improvement of road infrastructure in Asahan Regency not only supports the agricultural sector but also strengthens the overall resilience of the region, creates competitiveness, and improves the quality of life of the community.

The improvement of roads is expected to increase the competitiveness of local agricultural products and encourage the sustainability of the agricultural sector in this area. Therefore, a comprehensive study is needed on the influence of road infrastructure on agricultural areas in this sub-district and its impact on the overall resilience of the region. Improving road infrastructure in agricultural areas is considered important to support productivity and distribution of agricultural products. With better road access, farmers can transport their crops faster and more efficiently, reducing the risk of damage and transportation costs. This condition not only increases farmers' income but also strengthens the economic resilience of the region, because a strong agricultural sector will be a support for regional economic stability. Adequate road infrastructure support can also open up opportunities for economic diversification and access to various resources, such as modern agricultural technology, market information, and training opportunities. Rawang Panca Arga District in Asahan Regency has an important role in supporting the resilience of this district, especially because of its economic base which is dominated by the agricultural sector. In the context of regional resilience, the productive agricultural potential in Rawang Panca Arga contributes directly to food security and

the economy in Asahan Regency. The following are the conditions of road infrastructure in Rawang Panca Arga, Asahan Regency as follows:



Figure 1.1 Road infrastructure in Rawang Panca Arga, Asahan Regency

Within agricultural areas, good road infrastructure plays a major role in the distribution of agricultural products, access to agricultural technology, and transportation cost efficiency. This discussion explores the influence and benefits of improving road infrastructure on the agricultural sector in Rawang Panca Arga District: Good road conditions make it easier for farmers to transport agricultural products to markets or distribution centers. In Rawang Panca Arga, the distribution of agricultural products is often hampered by damaged or inadequate road conditions. With the improvement of road infrastructure, the distribution process becomes faster, transportation costs are reduced, and agricultural products can arrive at the market in fresh conditions and at more competitive prices. This increase in accessibility is important, especially for agricultural products that are vulnerable to damage or have a short shelf life, such as vegetables, fruits, and other fresh agricultural products. Adequate roads allow farmers to save time and transportation costs. Good road conditions reduce the risk of damage to transportation equipment and reduce vehicle maintenance costs. In addition, faster travel reduces operational costs, which has a direct impact on farmers' profits. With these cost savings, farmers can allocate more resources for other purposes that support productivity, such as purchasing fertilizers or investing in agricultural technology.

Good road infrastructure not only supports distribution but also allows easier access to resources critical to agriculture, such as fertilizers, seeds, and modern technology. Farmers can quickly obtain the necessary agricultural materials or access training facilities and technical guidance from the government or related institutions. Thus, agricultural productivity in Rawang Panca Arga can increase along with the increase in quality and availability of resources. Farmers can reach a wider market, allowing them to set more competitive prices and reduce dependence on local markets only. In addition, stable income from increased productivity and transportation efficiency increases people's purchasing power, which has an impact on overall welfare. With good road infrastructure, Rawang Panca Arga District contributes more to the resilience of the Asahan Regency area. Regional resilience is related to a region's ability to maintain economic, social, and food stability in the face of external challenges. With adequate road support, the agricultural sector in Rawang Panca Arga can survive in the face of price fluctuations or climate change, thereby helping to strengthen the economic resilience of the district as a whole. Adequate road infrastructure in the agricultural area of Rawang Panca Arga District has a positive impact on the distribution of agricultural products, cost and time efficiency, productivity, community welfare, and overall regional resilience. Road repairs are not only beneficial for the agricultural sector, but also have the potential to expand other economic activities that can improve the welfare and economic stability of Asahan Regency. As such, improving road infrastructure is an important strategic step to ensure sustainable growth in the region.

Regional resilience is a concept that includes the stability and strength of a region's economic, social, and environmental strength in facing various challenges, such as economic changes, disasters, or

other crises. Adequate road infrastructure plays a crucial role in supporting regional resilience, especially in areas with agricultural-based economic potential, such as Asahan Regency. In this district, many regions, including Rawang Panca Arga District, depend on the agricultural sector for their economy. Good road conditions will facilitate the distribution of agricultural products and open access to various other important resources that support regional resilience. However, currently, many roads in the agricultural area of Asahan Regency are still in inadequate condition, thus hindering the mobility of farmers and the distribution process of agricultural products. The condition of damaged and difficult roads, especially during the rainy season, makes the cost of transporting agricultural products higher and results in losses for farmers due to the damage of agricultural products during the distribution process. As a result, farmers face challenges in reaching a wider market, so that the economic potential of the agricultural sector in Asahan Regency is not optimal. Through the improvement of integrated and quality road infrastructure, Asahan Regency is expected to be able to increase the resilience of its area. Good road infrastructure will strengthen connectivity between regions, accelerate distribution travel times, reduce transportation costs, and support the competitiveness of local agricultural products in a wider market. Regional resilience involves the ability of regions to maintain economic, social, and community welfare stability amid various challenges, including economic, climate, and environmental challenges. Thus, improving road infrastructure is a priority that not only impacts the agricultural sector but also contributes to the overall resilience of the region.

LITERATURE REVIEW

Agriculture

According to Arsyad (2020), good road infrastructure is one of the important factors in the development of agricultural areas, because it increases farmers' accessibility to markets, distribution centers, and other agricultural resources. With adequate infrastructure, distribution costs can be reduced so that farmers' profits can increase. Damayanti (2020) also stated that the improvement of road infrastructure will encourage local economic movements, especially in rural areas that depend on the agricultural sector. Good roads facilitate the distribution of agricultural products and access to production inputs, such as fertilizers and seeds.

Regional Resilience

Rachman et al. (2020) emphasized that a well-integrated road infrastructure can improve the overall resilience of the region, because it supports smooth transportation, food distribution, and economic resilience in the midst of environmental and economic changes. According to Susanto (2020), good road access supports regional resilience through easy access to public service facilities, education, health, and logistics. This is important to maintain regional stability and resilience, especially in the context of agriculture as a mainstay sector.

The Impact of Infrastructure on Food Security

Pratama and Purnomo (2020) explained that road connectivity in agricultural areas can help maintain food security, because it makes it easier to transport crops from farmers to consumers, so that it can reduce crop decay and maintain a stable food supply in the market. Arifin (2020) stated that adequate road infrastructure plays an important role in ensuring food security in remote areas, because it facilitates food distribution in emergencies or when there is a disruption in local supply.

Road Connectivity and Farmers' Welfare

According to [Setiawan \(2020\)](#), the development of road infrastructure in rural areas has a positive impact on the welfare of farmers, as it increases accessibility and allows farmers to obtain better prices for their produce by cutting the distribution chain. Fauzan (2020) added that good road connectivity supports the sustainability of the agricultural sector and improves the quality of life of farmers by opening access to technology, information, and a wider market.

Regency Road, Rawang Panca Arga District

Based on the Decree (SK) of the Regent of Asahan Number 40-PUPR-Year 2018 concerning the Determination of the Status of Road Sections as Asahan Regency Roads with a total of 407 Road Sections. The total length of the section is 1,398.13 Km. Especially Rawang Panca Arga District is 76.15 Km. The following is the data on the road section according to the Decree of the Regent of Asahan.

NOMOR		NAMA RUAS		KECAMATAN YANG DILALUI	PANIANG RUAS (KM)	LEBAR (M)
URUT	RUAS	NAMA PANGKAL RUAS	NAMA UJUNG RUAS			
1	2	3		4	5	6
2	000002	PASAR V (Jl.Provinsi) - RAWANG PASAR IV		KISARAN TIMUR / RAWANG PANCA ARGA	6,90	4,00
31	000031	SIMPANG PASAR II(SERDANG) - PASAR I RAWANG		MERANTI / RAWANG PANCA ARGA	2,50	3,50
39	000039	RAWANG PASAR IV - SIMPANG RAWANG PASAR II		RAWANG PANCA ARGA	5,20	3,50
49	000049	RAWANG PASAR IV - PANCA ARGA		RAWANG PANCA ARGA	6,80	3,50
50	000050	SEI BELURU - PANCA ARGA		MERANTI/RAWANG PANCA ARGA	9,30	4,50
100	000100	PANCA ARGA - WTS. KAB. BATU BARA		RAWANG PANCA ARGA	3,00	4,00
109	000109	SIMP. SIANTAR - BARISAN. I		RAWANG PANCA ARGA	5,30	4,40
111	000111	PANCA ARGA - BTS. KAB. BATU BARA		RAWANG PANCA ARGA	4,50	3,50
148	000148	(JLN PROVINSI SILAU LAUT)SIMP. BATU PIKIR - BARISAN. I		AIR JOMAN / RAWANG PANCA ARGA / SILAU LAUT	3,20	3,50
156	000156	(SIMP. AH)MERANTI - RENE MAS		MERANTI / RAWANG PANCA ARGA	4,65	4,00
158	000158	PASAR I RAWANG - SILO LAMA		RAWANG PANCA ARGA / SILAU LAUT	4,30	3,50
160	000160	PONDOK KUCINGAN - MERANTI (SIMPANG AHI)		KISARAN BARAT / RAWANG PANCA ARGA / PULAU BANDRING / MERANTI	8,70	3,50
180	000180	SIMP. BUNUT SEBERANG - PONDOK SUKA RAME		RAWANG PANCA ARGA / MERANTI	5,50	5,00
188	000188	KARANG ANYER - RENE MAS		KISARAN TIMUR / RAWANG PANCA ARGA	6,30	6,00

Figure 1.2 Data on Road Sections of Rawang Panca Arga District

Area of Rawang Panca Arga Agricultural Land

The Asahan Regency Government in the KTNA Gathering in Rawang Panca Arga District (2019). In his remarks, the Head of Rawang Panca Arga District, Mr. Ramadhan Nasution, S.Ap reported that the total area of agricultural areas in Rawang Panca Arga District amounted to 2,778.52 Ha. Meanwhile, according to the Central Statistics Agency of Asahan Regency (2016), the area of Rawang Panca Arga District is 6,275 Ha.

1. METHOD APPROACH

This research uses a qualitative approach to explore and understand the experiences, perceptions, and dynamics that occur in the community related to road infrastructure and its impact on agricultural areas and regional resilience. According to Creswell (2022), qualitative research focuses on in-depth depictions and understanding of complex social contexts, which in this case relate to the interaction between infrastructure and agricultural communities. This study is designed as a case study with a focus on Rawang Panca Arga District. Case studies allow researchers to investigate phenomena in real contexts and gather rich information (Yin, 2000 in Pohan et al, 2024; Sugiarto & Ramadania, 2023a; Sugiarto & Ramadania, 2023b; Sugiarto et al, 2023; Sugiarto & Ramadhan, 2021). Amplified by Stake (2022), the design of this study provides in-depth insights into the unique situations faced by communities, as well as the dynamics of the relationship between road infrastructure and the agricultural sector.

The research was conducted in Rawang Panca Arga District, Asahan Regency, which is an area with significant agricultural potential and infrastructure challenges that need to be overcome. The use of this specific location is in accordance with the principle of location selection in qualitative research that focuses on relevant social and cultural contexts (Merriam, 2022). Data was obtained through in-depth interviews with farmers, local entrepreneurs, and local government officials to explore their views on road infrastructure and its impact on agriculture and regional resilience. Using data from government reports, planning documents, and previous research related to road infrastructure and regional resilience.

In-Depth Interview Data Collection Techniques: Following a semi-structured interview guide that allows informants to share their experiences with flexibility in answering (Kvale, 2022). **Participatory Observation:** Researchers are directly involved in day-to-day activities in the field, allowing for a better

understanding of the existing social and cultural context. Analysis The collected data will be analyzed using thematic analysis, which includes data coding and identification of key themes emerging from interviews and observations (Wang, 2001 in Nuraini & Suprayitno, 2021; Nuraini, 2019; Nuraini, 2024; Nuraini et al, 2023; Nuraini et al, 2024). According to Braun & Clarke (2022), thematic analysis helps researchers understand existing patterns and formulate narratives related to the influence of road infrastructure on agricultural areas and regional resilience (Moloeng, 2000 in Aris et al, 2024; Aris & Nuraini, 2024; Hartini et al, 2023 and Harmoko et al, 2024a).

Validity and Reliability: The validity of the data will be guaranteed through triangulation, namely by comparing data from various sources and methods to ensure consistency and accuracy of information (Patton, 2022). Reliability will be maintained by documenting the research process in detail, including data collection and analysis techniques, as well as the researcher's reflection during the research process (Yin, 2000 in Harmoko et al, 2024b; Hidayat et al, 2023; Marwazi et al, 2023).

RESULTS AND DISCUSSION

What is the current condition of road infrastructure in Rawang Panca Arga District

The condition of road infrastructure in Rawang Panca Arga District, especially in the area that is an agricultural area, has suffered significant damage. The main roads in the region are often used by timber trucks, which is one of the main causes of damage. This damage causes inconvenience to residents, especially for those who travel to work or take their children to school. Some residents hope that the government will immediately make improvements and regulate the use of roads by heavy vehicles to reduce the impact on infrastructure. Efforts to repair and improve the quality of roads are a concern for the Asahan local government, which has reviewed several road development projects to support accessibility, including in agricultural areas around Rawang Panca Arga. However, the need for road improvements remains a priority, given its impact on local agricultural and transportation activities.

The condition of road infrastructure in Rawang Panca Arga District has a significant impact on the agricultural sector in the region. Damaged road access, especially on routes used by heavy vehicles such as timber trucks, deteriorates the quality of roads, making it difficult for farmers to transport their crops. This impact extends delivery times and increases transportation costs, which can reduce farmers' incomes and limit their access to markets. However, the local government has planned a gradual road repair program to support economic activities, including the agricultural sector. With targeted improvements to the main and connecting roads in this area, transportation conditions are expected to be better in support of local agriculture. An analysis of the condition of road infrastructure in Rawang Panca Arga District and its impact on agricultural areas can include the following points:

1. The condition of road infrastructure in Rawang Panca Arga District, although it has been planned for gradual repair by the local government, still faces serious challenges related to damage. The use of roads by heavy trucks, especially timber carriers, worsens road conditions. These damaged roads hinder access to agricultural product transportation, increase travel time, and often increase the cost of delivering agricultural products.
 2. Influence on Agricultural Productivity Accessibility is a key factor in the agricultural sector, especially in the distribution of crop yields. With inadequate road conditions, farmers often have difficulty transporting their crops to the market or to storage facilities. This obstacle reduces overall productivity, as crops can be damaged during transportation or even fail to reach the market on time.
 3. Efforts to Improve Infrastructure and Its Impact The local government of Asahan Regency has set road repair as one of the development priorities. The road improvement plan in Rawang Panca Arga includes the construction and maintenance of several main roads connecting the
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agricultural area with the economic center. If this improvement is implemented, it is expected to increase the accessibility of agricultural products, reduce logistics costs, and strengthen the competitiveness of local agricultural products

4. Synergy with Local Economic Development Better infrastructure not only supports the agricultural sector but also strengthens connections between regions, which can encourage economic growth throughout Rawang Panca Arga District. Good roads allow farmers to sell their crops to the market more quickly and efficiently, which in turn helps lift the income of farmers and the surrounding community

How much influence does the improvement of road infrastructure have on the agricultural sector in Rawang Panca Arga District

Adequate road infrastructure shortens travel time and improves the efficiency of agricultural product distribution. Good roads make it easier for farmers to transport their products to the market at lower costs and minimal crop damage. With better roads, transportation becomes more efficient and allows for faster access to nearby markets or economic centers, which can significantly increase farmers' incomes. Good road infrastructure helps reduce operational costs in the agricultural sector, especially in the logistics aspect. Fuel costs, vehicle breakdowns, and longer travel times can be reduced by road improvements. This directly increases agricultural productivity, as farmers can focus on increasing crop yields without being constrained by transportation challenges. Quality infrastructure creates better connectivity between agricultural areas in Rawang Panca Arga and economic centers in Asahan Regency. This plays an important role in the agricultural supply chain, ensuring that the distribution of goods from farmers to consumers can run smoothly without logistical obstacles caused by poor road conditions. In the end, improving infrastructure supports the smooth supply chain so that commodity prices become more stable and profitable for farmers.

With better road infrastructure, the region is more attractive to investors and businesses in the agricultural sector. Good road facilities incentivize companies or business partners to collaborate with local farmers, develop markets, and even support more advanced agricultural technologies. It can also facilitate the growth and expansion of more diverse agricultural businesses in Rawang Panca Arga, strengthen competitiveness and improve the welfare of the local community. Overall, the improvement of road infrastructure in Rawang Panca Arga District not only supports the transportation of agricultural products but also strengthens the economic foundation and competitiveness of the local agricultural sector.

The improvement of road infrastructure in Rawang Panca Arga District has a significant impact on the agricultural sector, with an impact that can be measured in several main aspects:

1. Distribution Efficiency and Logistics Cost Reduction Adequate road infrastructure accelerates and facilitates the distribution of agricultural products to markets or distribution centers. Good road conditions reduce transportation costs, both in terms of fuel and vehicle damage which usually increases on bad roads. Lower transportation costs mean farmers can sell their products at more competitive prices, while increasing profit margins. According to research, this reduction in transportation costs can reach up to 20-30% in the case of road repairs in rural areas
2. Support for Increasing Agricultural Productivity With easier access to resources such as fertilizers, seeds, and agricultural technology, farmers can increase their productivity. Good roads allow for the distribution of agricultural inputs to villages more efficiently, supporting agricultural productivity and ensuring the availability of needed production materials on time. Adequate infrastructure also reduces the risk of deterioration in crop quality due to too long delivery times.
3. Access to Wider Markets Adequate roads open access for farmers to reach farther and wider markets, including major cities, which typically provide better prices for agricultural produce. This supports the growth of the local economy and increases farmers' incomes. Wider market

access encourages the competitiveness of agricultural products, so that farmers in Rawang Panca Arga District can sell their products at higher prices and obtain a more stable income.

4. **Impact on Investment and Expansion of the Agricultural Sector** The improvement of road infrastructure also increases investment interest in the agricultural sector. Good infrastructure makes this area more attractive to potential companies or partnerships that can support the growth of the agricultural sector, both in terms of technology, capital, and market. When investors see good access to agricultural areas, they are more likely to set up businesses that support agriculture or build agricultural product storage and processing facilities closer to agricultural land.

How improving road infrastructure affects regional resilience in Asahan Regency

Good road infrastructure makes it easier for people to access health and education facilities that may be located in sub-district or city centers. This means that citizens can get timely medical care, especially in emergency situations, which improves the quality of life and public health. Good roads also make it easier for children to access schools and other educational institutions, improve access to education and in turn strengthen the quality of local human resources. With better road infrastructure, access to local and regional markets is increasing, so agricultural products and local commodities can be sold more easily and quickly. This reduces dependence on a single market and adds economic stability for farmers and traders in the region. Adequate infrastructure also opens up investment opportunities and encourages other sectors such as trade, small industry, and services, all of which strengthen the economic resilience of Asahan Regency. Good infrastructure also plays an important role in reducing risks and improving response in the event of a natural disaster or emergency situation. Good roads allow for faster evacuations and easier access to aid, both from within and outside the region. This is especially important for areas that may be vulnerable to disasters, such as floods or landslides, where rapid response times can reduce negative impacts on communities.

Better roads allow access to job opportunities and economic facilities, which support the well-being of the community. When citizens have better access to economic resources and markets, the average income increases, and this helps to lower poverty rates. With more stable economic conditions, people are better able to face economic and social challenges, thereby increasing social resilience in the region. Good road infrastructure allows for more efficient transportation of agricultural products, thus maintaining the stability of food supply in local and regional markets. A good path reduces distribution costs and the risk of delivery delays, which can affect food prices. This price stability is important to maintain food security and equitable access to staples for all people. Overall, the improvement of road infrastructure in Asahan Regency provides a strong foundation for regional resilience, both from social, economic, and environmental aspects, helping the community face daily challenges and extraordinary situations.

Regarding the improvement of road infrastructure and its impact on regional resilience in Asahan Regency, there are several main points that can be analyzed:

1. **Local Economic Resilience Through Better Accessibility** The improvement of road infrastructure in Asahan Regency has a major effect on local economic stability. A good road allows for faster and more efficient distribution of agricultural products and local products to various markets. This increases the competitiveness of local products, lowers transportation costs, and expands market access for farmers and traders. Thus, economic resilience increases because people no longer rely solely on local markets, but can reach markets outside the region for the sale of their products
 2. **Reducing Vulnerability to Disasters and Improving Emergency Response** Adequate road infrastructure is essential in emergency situations, such as natural disasters, when quick access to medical services and assistance is urgently needed. Good roads allow evacuation and
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relief teams to reach affected areas faster, reduce the impact of disasters, and help communities recover faster. This increases regional resilience by enabling communities to better manage disaster risks.

3. **Social Resilience through Improved Access to Public Services** Improved road infrastructure improves people's access to health services, education, and other basic needs. Easier access to hospitals and schools makes people more able to maintain their health and get a proper education. This contributes to an improvement in the quality of life, which in turn strengthens the social resilience of the region, as healthy and educated societies tend to be more adaptive to social and economic challenges.
4. **Support for Food Security** Good road infrastructure supports the distribution of food from agricultural areas to markets more efficiently, maintaining food supply and price stability at the local level. With stable prices and food supply, people are better protected from drastic price fluctuations and can meet their basic needs in a sustainable manner. This strengthens food security in Asahan Regency, ensuring that the community's basic needs are met without sacrificing their purchasing power
5. **Good Economic Development and Infrastructure Investment Opportunities** attract investors to invest in Asahan Regency, both in the agriculture, tourism, and other industry sectors. With investment, this area can experience more stable economic growth and diversification of employment, which is important to maintain long-term regional resilience. The development of road infrastructure opens up new opportunities for small and medium-sized enterprises that can develop along major transportation routes

Overall, the improvement of road infrastructure in Asahan Regency provides a strong foundation to increase regional resilience in terms of economic, social, and food security. This discussion can be supported by data on changes in market access, logistics costs, and improving the quality of life to provide a concrete picture of the positive influence of road infrastructure improvements on regional resilience.

CONCLUSION

The effect of improving road infrastructure on agricultural areas in Rawang Panca Arga District and its impact on regional resilience in Asahan Regency includes the following main points:

The improvement of road infrastructure in Rawang Panca Arga District has a direct impact on the productivity of the agricultural sector. With better road conditions, farmers can transport their crops faster and lower logistics costs. This increases farmers' income and strengthens the local economy, which is the basis of regional resilience in Asahan Regency. Good road infrastructure also opens wider market access for local agricultural products, increasing the competitiveness of agricultural products in regional markets.

Adequate infrastructure allows for efficient distribution of agricultural products, which helps to maintain food supply and price stability. Thus, people in Asahan Regency are protected from extreme food price fluctuations and still have stable access to basic materials. This food security is important in maintaining the welfare of local communities and strengthening regional resilience in various economic and social conditions.

A good path is not only important for the economic sector but also critical in emergency situations, such as natural disasters or urgent health situations. Proper road infrastructure allows for faster relief and evacuation, improving response to disasters and reducing their impact on communities. This is important in maintaining social stability and supporting post-disaster recovery, strengthening the social resilience of the region.

With adequate infrastructure, the region is attractive to investors in the agricultural sector and other supporting industries. Increased investment in this sector can create new jobs, increase regional income, and contribute to economic diversification. Good road infrastructure is the basis for sustainable long-term economic development, ensuring that Asahan Regency has strong economic resilience and is able to face economic changes or challenges in the future.

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