



Assessment of potential socio-economic impacts of the West Sumatra - Riau toll road: a comprehensive study for the city of Payakumbuh, Indonesia

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Abstract

The West Sumatra - Riau toll road is expected to generate a favorable influence on the local economy, thereby enhancing the overall wellbeing of society. However, this progress does not eliminate some of the potential negative impacts, because the construction of toll roads will divert some of the public's transportation movements, thereby posing a threat to business activities along the diverted transportation routes. To anticipate these potential impacts, it is important to conduct a study that focuses on anticipating the potential socio-economic impacts of the construction of the West Sumatra – Riau toll road. Focus Group Discussion was conducted with delegates from several Payakumbuh Municipal Government. A total of 40 participants participated in the focus group discussion. The discussion remarks were methodically categorized and analyzed. The study findings elucidate many potential ramifications of the construction of the West Sumatra - Riau toll road on Payakumbuh City, as well as proposed measures that might be implemented to mitigate these ramifications. The research findings can serve as a foundation for developing a regional development strategy for Payakumbuh Municipal Government. The objective is to optimize the effects of toll road construction on the social and economic well-being of the community, ensuring equitable and balanced outcomes.

Abstrak

Jalan tol Sumatera Barat - Riau diharapkan akan dapat memberikan pengaruh yang baik terhadap perekonomian Masyarakat dan meningkatkan kesejahteraan masyarakat secara keseluruhan. Namun kemajuan tersebut tidak menghilangkan beberapa potensi dampak negatif, karena pembangunan jalan tol akan mengalihkan sebagian pergerakan transportasi masyarakat sehingga mengancam aktivitas usaha di sepanjang jalur transportasi yang dialihkan. Untuk mengantisipasi potensi dampak tersebut, penting dilakukan kajian yang fokus padaantisipasi potensi dampak sosial ekonomi dari pembangunan jalan tol Sumatera Barat – Riau. Focus Group Discussion (FGD) dilakukan dengan delegasi dari Pemerintah Kota Payakumbuh. Sebanyak 40 peserta, berpartisipasi dalam FGD. Transkrip diskusi dikategorikan dan dianalisis secara sistematis. Temuan studi menjelaskan berbagai potensi dampak dari pembangunan jalan tol Sumatera Barat - Riau terhadap Kota Payakumbuh, serta rekomendasi yang dapat diterapkan untuk memitigasi dampak tersebut. Temuan penelitian dapat menjadi landasan dalam menyusun strategi pembangunan daerah Kota Payakumbuh. Tujuannya adalah untuk mengoptimalkan dampak pembangunan jalan tol terhadap kesejahteraan sosial dan ekonomi masyarakat secara adil dan merata.

Keywords: Toll Road, Focus Group Discussion, Socio-Economic, Trans Sumatera, Payakumbuh

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Introduction

The contemporary economy is distinguished by the expansion of interconnectedness within the economic sphere. The traffic volume is steadily increasing. Hence, a pressing objective is to enhance the efficacy of utilizing transportation resources at the regional and urban levels. The effective resolution of this challenge is particularly crucial for Indonesia. The condition of the transportation infrastructure greatly affects the economic security and sustainable growth in various areas and cities across the country. The development of transportation systems contributes to various factors such as increased production and consumption levels, lower market prices, reduced economic and cultural disparities between regions, rapid dissemination and adoption of new technologies, and increased labor mobility, including the influx of workers into economically developed areas (Plotnikov et al., 2019). The advancement of transportation has a compounding impact on economic systems, leading to a rise in public well-being and thus enhancing economic stability.

One of the popular infrastructure constructions in many countries is toll road. In recent years, many countries have made significant investments in toll roads (Solak, 2022), including Indonesia. By the end of 2022, the length of toll roads operating in Indonesia will reach 2,599.12 km, an increase of 142.11 km. Meanwhile, the toll road investment value reached Rp. 794.85 trillion (BPJT, 2022). Toll roads are believed to have a high ability to attract private investment since they are able to recover directly the costs of their operation and construction through toll charges (Truong et al., 2019). The availability of this toll road can increase people's access to resources so that it can increase efficiency and productivity which leads to the economic development of a region. The development of toll road infrastructure in Indonesia is urgently needed because it can reduce inefficiencies due to congestion on main roads, as well as to improve the distribution process of goods and services, especially in areas with a high level of development, and can develop these areas into economic centres. For instance, better road infrastructure provides with access to basic services, where they can access quality education, health, and other facilities (Kanwal, Rasheed, Pitafi, Pitafi, & Ren, 2020).

Some of the benefits of toll road construction in Indonesia include shortening travel time by up to 35% and increasing cargo volume (Ardiyono et al., 2018). Apart from that, in the manufacturing industry, the existence of toll roads can increase value added, increase Gross Regional Domestic Product (GRDP) by 2.51% and increase employment opportunities (Anas et al., 2017). Furthermore, Sembiring and Anas (2019) found that there was an increase in efficiency in manufacturing industries connected to toll roads.

Even though there are several benefits from toll roads, negative impacts also occur in several areas located on toll roads. Ardiyono et al. (2018) found that there was a decline in income in the hotel sector in Brebes, Subang and Indramayu Regencies. In the agricultural sector, the existence of toll roads has an impact on reducing agricultural land (Rustiandi et al., 2021) as well as reducing the welfare of farmers due to the reduction in productive arable land. This negative impact can certainly affect people's



income levels and the occurrence of unemployment. Meanwhile, for regional governments, a decline in the level of community welfare, which is the basis of regional taxes and levies, could potentially lead to a decline in Original Regional Income.

Research on the impact of toll roads on the national and regional economy as well as the impact on fiscal affairs has been carried out by several previous researchers. Chen and He (2015) used the dynamic panel method to examine the impact of China's toll roads on economic growth and provincial-level per capita income. Another study was conducted by Piskin et al., (2020) who observed the impact of the Turkish Toll Road using Computable General Equilibrium (CGE). There is a difference between the perceived impact of the toll road between rich and poor areas. Furthermore, Chi and Waugaman (2010) examined the impact of Virginia toll roads on the states through which the toll routes pass using a REMI model approach based on toll traffic data where toll roads influence the development of cities along toll routes. Research on the impact of toll roads on regional fiscal was conducted by Yoshino and Pontines (2015) on the "Star Highway" toll road in the Philippines. The results show that the toll road has a positive impact on government revenue, especially from property and business taxes and regulatory fees. However, research that tries to explore how to anticipate the impact of toll road construction both during the construction period and after operation is still rarely carried out. Most research focuses on examining the impact of toll road construction but fails to identify how to anticipate toll road construction both during construction and after operation. So, this research focuses on studying how to anticipate what can be done in an area where a toll road will pass so that the impact of the toll road construction can provide maximum benefits for the community's economy.

Payakumbuh is one of the cities that will be passed by the Trans Sumatra toll road which is currently still under construction. The location of Payakumbuh is very strategic because it is a land transportation traffic route between West Sumatra Province and Riau Province. The West Sumatra - Riau traffic route is a busy route for both people and goods transport. The hope is that the West Sumatra-Riau toll road can reduce traffic congestion on the route from Padang to Pekanbaru and vice versa. Apart from that, it can also reduce road loads, especially on the route between Padang and Payakumbuh which is prone to disasters. The construction of the 254.8 kilometer West Sumatra-Riau toll road is being built in stages with the aim of facilitating connectivity and will connect two sea ports in Padang and Dumai, and will streamline the mobility of people and goods.

Based on the recapitulation of the progress of the construction of the Trans Sumatra toll road in 2023, the construction of the Padang-Pekanbaru toll road is prioritized for three sections, namely the Pekanbaru-Bangkinang section, which is already operational and has carried out a functional feasibility test (ULF). Then, Section 5 Bangkinang-Pangkalan with progress of 83.96%, and Section Padang-Sicincin reached 38.32%. Meanwhile, the remaining toll roads, namely the Pangkalan-Payakumbuh Section (58 kilometers), the Payakumbuh-Bukittinggi Section (34 kilometers), and the Bukittinggi-Sicincin Section (38 kilometers) are still in the planning stage.



One of the positive impacts of toll roads is expected to be able to increase economic enthusiasm in West Sumatra and Riau which will ultimately encourage community welfare. However, this development also does not rule out the possibility of several negative impacts, such as reducing community business activities which have been dependent on transportation mobility. This impact arises because the construction of toll roads will divert the flow of community mobility, so that certain business sectors on existing transportation routes become threatened. To anticipate the possibility of this impact, it is necessary to carry out a study aimed at exploring the anticipated socio-economic impact of the construction of the West Sumatra – Riau toll road. It is hoped that the results of this study will provide recommendations for formulating regional development strategies to optimize the impact of toll road construction on the social economy of the community equally and fairly.

Literature Review

Infrastructure Provision and Economic Growth

The degree of advancement in transportation infrastructure significantly impacts economic growth, the quality of life, and the standard of living of the population, as well as economic security. The issues related to transportation development are particularly severe in cities and urban agglomerations, characterized by a dense population and intense economic activity. Transportation failures can detrimentally affect the well-being and long-term viability of development (Plotnikov et al., 2019). The increasing motorization of the population, establishment of new industrial businesses, and renovation of existing industries necessitate the enlargement and refurbishment of the transportation infrastructure in the majority of Indonesian cities.

Extensive literature has explored the correlation between infrastructure and economic growth. Infrastructure, encompassing energy, education, transportation, health, water, and more, exerts a favorable influence on economic growth, hence diminishing poverty levels (Tinambunan et al., 2019; Panjaitan et al., 2019; Maharani, 2015; Fatchurrohman, 2019). Road infrastructure plays a crucial role in facilitating transportation services and promoting mobility in economic, social, and cultural domains. The construction of road infrastructure was intended to enhance the efficiency of distribution services, hence facilitating economic growth and promoting equitable and balanced regional development. Enhancements in transportation lead to a reduction in transportation expenses and enhance the ability to reach markets and labor, so promoting economic integration, stimulating competition, generating agglomeration economies, and other broader economic advantages (Gibbons et al., 2019). Transport infrastructure serves as a vital link between individuals and essential resources such as employment, education, and healthcare. Additionally, it facilitates the global exchange of goods and services, enables effective communication, and fosters the development of knowledge and skills, all of which contribute to sustainable economic growth (Nurpeisova et al., 2022).



Impact of Toll Road Construction

The development of toll road infrastructure is one of the programs that is currently a priority for the Government of the Republic of Indonesia. The implementation of toll roads is intended to realize equitable development and its results as well as balance in regional development. The implementation of toll roads aims to increase the efficiency of distribution services in order to support increased economic growth, especially in areas with a high level of development (Badan Keahlian DPR RI, 2016). With the existence of a toll road, it is hoped that there will be a spillover effect on the economy of the regions through which the toll road passes, so that it can increase economic growth together.

Impact on decreasing environmental quality

Research developed by Rani and Azlan (2020), examines the impact of the construction of the Banda Aceh – Sigli Toll Road on the community in Data Makmur Village. In general, the toll road construction process has an impact on decreasing air quality due to toll road construction, causing air pollution for the environment, prone to landslides due to felling of trees, generating solid waste or material spillage, damage to protected forests, reduction in water absorption, disruption of water flow in drainage, the generation of Hazardous and Toxic Waste, a decrease in land flora in the environment, an increase in noise and vibration. Other research also supports a decline in environmental quality due to toll road construction (Suseno et al., 2017; Sumaryoto, 2010).

Sumaryoto (2010), revealed that the construction of toll roads reduces the area of agricultural land, cuts river channels, irrigation channels, and changes the distribution channels for agricultural needs and the marketing of agricultural products. This will clearly threaten national food security. To build a new toll road, there are many things that must be considered, starting from environmental damage, disrupting food self-sufficiency, and the process of massive impoverishment. The conversion of fertile land for toll roads will reduce the amount of rice production in the region and will give rise to new unemployment and poverty rates.

Therefore, it is necessary to carry out careful mapping to be able to determine the most likely road route. It is hoped that the development will not cut vital irrigation routes which will disrupt the agricultural irrigation system and can be synergized with all agribusiness systems along the route. Thus, the construction of the toll road will raise the potential of the agricultural sector along the new road.

Impact on social and economic society

Research conducted by Siswanto et al. (2019), found that the construction of toll roads had an impact on the decline in batik and hotel businesses in Pekalongan, while social and environmental factors had a positive impact on Pekalongan batik businesses. Data is also obtained through direct observation of the location of the object of observation through observation. However, on the other hand, the impact



on the social environment, such as relationships with suppliers to obtain batik materials, becomes easier, business accessibility becomes easier, security and order also increase. For batik consumers, hotel guests and toll road users in general, toll road construction has had a positive impact on them in terms of ease of access.

Other research from Nurhayati et al. (2020) focused on discussing the impact of road & toll exit construction in the Pekalongan city area. The toll exit can help facilitate access to the Setono Wholesale market, so that batik traders from outside the city who want to shop in Pekalongan can do it more quickly and easily. The existence of the Pekalongan City toll exit is considered to be able to revive enthusiasm for the Setono Wholesale Market. Before there was a toll exit, market conditions tended to be quiet and their turnover dropped drastically. However, since the road access from the Pantura toll road goes directly to the Wholesale Market, it has been able to increase up to 300 percent of batik sales in that market. The results of the research show that in general the public agrees on the benefits of toll roads and exits, toll roads are important for the community, make it easier to access transportation, increase the cost of living, access to health services, education is easier. This is also supported by the emergence of new traders around toll exits as part of the multiplier effect on road construction and toll exits in the Pekalongan City.

Another study from Sumaryoto (2010), discusses the impact of the existence of toll roads on the physical, social and economic conditions of the environment. Research shows that transportation access between regions is getting easier, opening job opportunities, and increasing community economic activity. Locations near toll road entrances and exits will develop quickly as business areas. The construction of several toll roads has triggered regional growth, especially the construction of new housing. On the other hand, Sumaryoto (2010) also found a negative impact on the economy, where the lives of residents along toll roads were threatened because they could not expect much from the sale of goods and services. For example, stall and restaurant managers and small traders in areas where the toll road passes have experienced a decline in their sales.

A study from Manulang and Samosir (2019) examined the impact of the construction of the Medan-Tebing Tinggi toll road. They found that there was an impact of reducing the turnover of MSME souvenir traders due to the decrease in the number of motorists stopping by the market, but this could be anticipated by increasing online trading by providing training and preparation carried out by the Regional Government. Mahaputra (2019) in his research analysed the impact of the construction of the Lampung section of the Sumatra Toll Road. Research findings show that the construction of toll roads provides benefits in terms of easy access for their business logistics.

Another research from Hadiyanti and Sulistinah (2019) examined the impact of the construction of the Surabaya-Mojokerto toll road on the socio-economic conditions of the people of Bebekan Village, Taman District, Sidoarjo Regency. The research results found that people's habits changed after the



construction of the Surabaya-Mojokerto toll road. Most residents said that it was easier to work together and do community service before land acquisition took place, because many people had to move from the village. The study findings also explain the compensation money obtained where the use of compensation money has a different trend between male heads of families and female heads of families. The most use of compensation money for male heads of families is to buy land and the least is used to trade in a car, buy jewellery or build a boarding house. Meanwhile, most of the compensation money for women is used for medical treatment and the least is used to buy jewellery and divided equally between their respective children.

The next study from Ahmad (2022), explains the impact of the construction of the Trans Java Toll Road on economic growth in Central Java. It is hoped that the existence of the Trans-Java Toll Road will increase transportation efficiency and facilitate the mobility of goods and residents on the island of Java (Sumaryoto, 2010). The research results show that there are 10 districts/cities with higher average economic growth after the toll road. In aggregate, the existence of toll roads increases economic growth in the districts/cities they cross. These results are also in line with several previous studies, including toll road construction improving the local economy in the form of government spending which encourages increased employment opportunities (Chi & Waugaman, 2010; Clower & Weinstein, 2006) as well as increased mobilization which has a positive impact on local economic performance (Marpaung et al., 2021).

Research conducted by Sembiring (2022), explored the Pekanbaru–Minas Toll Road Construction Case. The research aims to determine differences in people's income conditions along Sumatra roads from the Pekanbaru toll gate to the Minas toll gate before and after the construction and operation of the toll road. The research results show that the community experienced a decrease in income of around 26% from the operation of the toll road.

The next study from Mulyawan (2015), examined the Socio-Economic Impact of the Construction of the Cisumdawu Toll Road. The findings show that toll roads have an impact on the economy, social and culture. From a social aspect, the impacts arising from the construction of this toll road such as: community dissatisfaction with the land acquisition process, horizontal conflicts due to pros and cons attitudes in the community towards development plans, the potential for negative community perceptions, especially if project activities have a negative impact on economic, cultural, health and environmental aspects. Negative attitudes/perceptions that accumulate over a long period of time will cause unrest in society and have the potential to give rise to both vertical and horizontal conflicts. The construction of toll roads is expected to have an economic impact, especially for communities directly affected by the construction of these roads, such as small and medium businesses.

A study from Rizal (2021), examines the influence of toll road construction on the development of land prices in Tallo District, Makassar City, South Sulawesi Province. Land prices will increase manifold in



a relatively short time, if there is investment in the form of physical development programs in the area. Apart from that, land prices will increase due to planning that has been determined by the local government. The increase in land prices in urban development areas is largely not only the result of the efforts of the owners but also is caused by the large number of development investments made by the government, including the construction of road facilities and infrastructure.

Fitri (2019), explains the impact of toll road infrastructure development on the socio-economic conditions of the community. The research results revealed that people felt uncomfortable or disturbed by the toll road construction project, and people's incomes also experienced changes. The decreasing agricultural land means that the economic aspect of the community's agricultural sector is also decreasing.

The study conducted by Fuadi and Nasrudin (2022), discusses the impact of the construction of the Trans Sumatra toll road on the conversion of residential land and community rice fields from an Islamic economic perspective. The research results found that the conversion of community land into toll roads was generally perceived negatively by the community. Therefore, the government should build toll roads to make it easier for people to access traffic which should be able to provide general benefits for the people so that it is in accordance with the concept of basic values in Islamic economics such as: justice, responsibility, takaful. Furthermore, the government as leader provides facilities for its people without causing damage and maintaining environmental sustainability.

Prasetyo and Djunaedi (2019), explain changes in regional development before and after toll road construction. This research aims to describe regional development in economic aspects between conditions before and after toll road operation and identify factors that influence regional development. The results of the research show that toll road construction is more enjoyed by areas that are movement destinations, whereas areas that are not movement destinations tend to benefit less from the decline in economic activity after the operation of the toll road.

The results of previous research regarding the impact of toll roads on social, economic, and environmental aspects have been able to provide a comprehensive picture of an area. So, it can be used as a basis for assessing the potential impact of toll road construction in this research from many aspects. To explore a deeper understanding of the potential impact, this study was conducted qualitatively by collecting data through FGD. The FGD involved parties from the Payakumbuh Municipal Government. The main goal of the paper is to build upon the knowledge by providing deeper insight on:

- a. Potential impact of the West Sumatra – Riau toll road on the social and economic aspects for the Citizens of Payakumbuh City.
- b. Mitigation of the potential impact of the West Sumatra – Riau toll road on the social and economic aspects for the Citizens of Payakumbuh City.



Method

The FGD method was used because it allows for flexibility in gathering ideas and new themes during the discussion (Kitzinger, 2005; Morgan, 1996) and gives the opportunity to elicit views, understandings, and different perspectives from the discussion's participants (Stewart & Shamdasani, 2017; van Lierop et al., 2019). Our FGD's design refers to the methodological framework outlined in Morgan (1996), Onwuegbuzie et al. (2009), and Krueger & Casey (2000). Two stages made up this investigation: 1) conception and data gathering, and 2) data analysis. The FGD's initial phase involved designing the guidelines while taking the targeted groups and the subjects to be covered into account. The FGD was then conducted with the Payakumbuh Municipal Government. The data analysis was the primary objective of the second phase. The categorization and measurement of the many elements found in the participants' responses to the questions form the basis of this content analysis. An overview of the applicable analytical process is provided in Fig. 1.

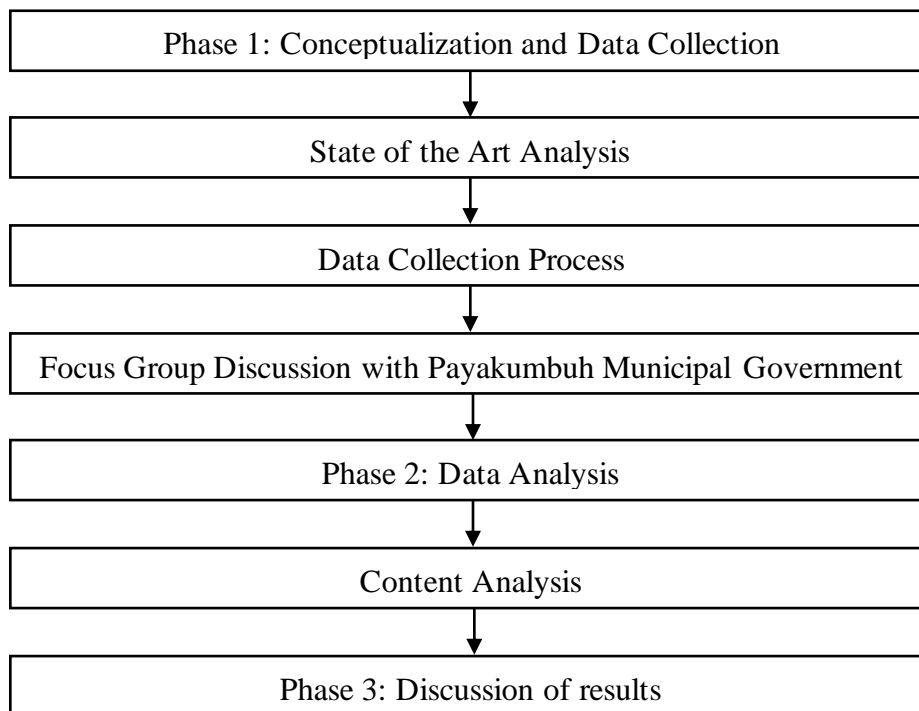


Figure 1 Analysis procedure

Study set up

The researcher facilitated three FGDs with the Payakumbuh Municipal Government between April and August 2023. Representatives from diverse disciplines at the regional level provide a wealth of perspectives on numerous facets of the Payakumbuh Municipal Government. Authors verified the prior and present professional expertise of participants in their respective fields. The participation of



individuals in the FGD was requested to be voluntary. Positive responses received during the investigation of potential availabilities were considered for discussion.

In order to gather comprehensive participant profiles and socio-demographic information, a brief questionnaire was administered to the participants prior to the FGD. The participants were presented with a privacy statement and admitted to the recording of audio and video. A concise discussion guideline and a brief introduction to the topic of the discussion were provided at the beginning of each FGD. Following the presentation of a general overview of the economic influence of toll roads, the participants engaged in a discussion. The recordings were transcribed verbatim by a professional transcriptionist and/or automated speech recognition tools following the conclusion of the FGD, with manual revisions made subsequently.

Researcher organized 3 FGDs with 40 participants in total. The participant in this research is the Payakumbuh Municipal Government. Participants were recruited through leaders of each division. The division heads then sent their representatives to be resource persons in this FGD. The average age was 38.1 years (29 to 51 years) with all of them living in Payakumbuh City.

Data analysis

The FGDs were precisely transcribed from audio recordings. All transcriptions were made anonymous by using fictional identities in place of participant names. The transcripts were analysed using a content analysis approach (Neuendorf, 2019). Deductive and inductive category development techniques were combined (Lune & Berg, 2017). A deductive method was taken in the first part of the study, wherein important topics from the literature research were identified and incorporated into the script utilised for the conversations. After then, groups of related code segments were assembled to form categories. These code segments were categorised based on commonalities in their content or context. New categories were inferred from the transcriptions in simultaneously. A quote was allocated to every category in which a passage of text was representative of more than one category. Ultimately, related categories were brought together through a more advanced categorization into themes.

Additionally, certain issues where participants were requested to express an opinion or list differing viewpoints on the same subject were given extra consideration. Because of this, when a participant was asked to provide a broad opinion in response to a question, only their opinion—and not the number of times they voiced was counted. However, the frequency of each expressed viewpoint was counted when the issue allowed for several responses from each participant. The final step involved compiling the data gathered from each partner into an extensive matrix table then comparing, aligning, and merging the many categories and themes. Lastly, relevant and informative parts from the transcriptions were kept for each issue discussed; the most significant quotes were chosen and included in this study.



Result and Discussion

Potential impact of the West Sumatra – Riau Toll Road during construction

Potential impact on the environment

The results of the literature study show that there is a decrease in air quality during the construction of toll roads. This is also confirmed from the results of the FGD and can also be observed directly on the roads around the toll road construction, where during construction activities the air quality was felt to decrease due to the activities of operational vehicles transporting soil and sand. The dust flying along the highway disturbs drivers and residents living around the construction area. So, the construction of toll roads has had the impact of causing air pollution for the environment. Apart from that, the level of noise and vibration caused by operational vehicles transporting material is also very disturbing to drivers and local residents. The results of the FGD revealed that the community felt uncomfortable and disturbed by the toll road construction project.

The construction of toll roads also has an impact on forest destruction and reduction of water catchment areas, as well as disruption of water flow in drainage. Although this potential impact will not be directly experienced by Payakumbuh, this needs to be anticipated considering that the toll road is planned not far from Payakumbuh. The planned toll exit in the Sarilamak, Limapuluh Kota Regency can be reached in around 15 minutes from Payakumbuh.

The use of land is very extensive and will directly impact the spatial layout of agricultural land. The construction of toll roads will also cut river channels, irrigation canals, and change the distribution channels for agricultural needs and the marketing of agricultural products. Then the construction of toll roads will also open new residential and industrial areas which will directly reduce the area of agricultural land. This will clearly threaten national food security. Therefore, it is necessary to carry out careful mapping to be able to determine the most likely road route. Apart from that, we hope that the road will not cut vital irrigation routes which will disrupt the agricultural irrigation system. It is also hoped that the construction of the toll road can be synergized with the entire agribusiness system along the road.

Potential impact on the economy

Impacts on the physical environment result in further impacts on the economic conditions of society. The change in land use from agricultural land to road construction has had a further impact on changes in the livelihoods of the population. The toll road construction project also has the potential to have an impact on opening up job opportunities and productive businesses for the community. At this stage



there are labor mobilization activities that need work. These job opportunities can be filled by residents who live around development activities. Apart from job opportunities, these activities can also grow community business activities, both formal and informal.

On the other hand, many people benefit from toll road construction, including the opportunity to get work during the toll road construction season, as well as those who can do business in rest areas. This is an opportunity for investors or the people of Payakumbuh to develop their business or start a new business in the West Sumatra - Riau toll road construction area. Opening new job opportunities so that it can improve the community's economy.

Potential impact on social society

The potential for conflict in society during the construction of toll roads arises from the dissatisfaction of the community with the land acquisition process, particularly concerning the compensation given to those whose land is used for the toll road development. Horizontal conflicts can also arise due to the presence of opposing attitudes in society towards development plans. The potential emergence of negative public perception may occur when project activities generate adverse impacts on economic, cultural, health, and environmental aspects. Accumulated long-term negative perceptions can cause turbulence in society and perhaps lead to both vertical and horizontal conflicts.

Potential Impacts After the Operation of the West Sumatra – Riau Toll Road

Impact on socio-cultural conditions

The habits of the community around the toll road could experience changes after the construction of the toll road. The social condition of the community, restricted by the toll road, hampers the mobility of the community to the opposite area. The community must go a considerable distance in order to cross. This will have an impact on the psychological condition of the community, as over time the area will become unfamiliar to residents due to the blockage of the toll road. When the toll road breaks these social ties, it might give rise to social issues.

Meanwhile, the social benefits include the convenience that society gains in organising their lives, working, and finding employment. Individuals will find it easy to schedule their departure and accurately estimate the time it takes to reach their destination. In addition, the community has easy access to logistical goods.

Payakumbuh is a destination and transit city for many people. Most of them are in Riau Province. Not only that, people from Riau and other provinces often travel to Payakumbuh for both business and tourism. Traffic jams on the roads have become more frequent lately. This is often due to high mobilization from Riau to Payakumbuh, especially during weekends and national holidays. If the West Sumatra - Riau Toll Road operates, this could increase the potential for people to visit Payakumbuh because the travel time will be shorter. This is certainly able to encourage people to increase their visits



to Payakumbuh. Migrants will probably return home more often, considering that the short travel time certainly won't disrupt their business that much. Food lovers will increase their interest in visiting Payakumbuh because it is famous as a culinary city. For migrants, it will increase their enthusiasm to return home and enjoy nostalgia with authentic Payakumbuh cuisine. Feelings of nostalgia may also encourage people to visit (Putra & Fariz, 2020).

Impact on the economy

Many people who previously had a livelihood in agriculture had to give up their land to be affected by toll road construction. Even though they receive sufficient compensation, changing professions to find new work is not easy considering that most farmers do not have other skills.

Reduced community business activities which have been dependent on transportation mobility. This impact arises because the construction of toll roads will divert the flow of community mobility, so that certain business sectors that are on the diverted transportation route will be threatened. There will be fewer vehicles passing through the Trans Sumatra Road and some will divert to toll roads, resulting in decreased economic activity on the diverted roads. Declining community business activity will also have an impact on the unemployment rate. Without strategic anticipation and preparation of adequate facilities from the government, unemployment, and poverty conditions in Payakumbuh have the potential to increase.

The presence of toll roads can facilitate the process of distributing goods and people. Smooth logistics shortens the company's operational cycle, both logistics for the entry of goods/services (inbound logistics) and logistics for the exit of goods/services (outbound logistics). The presence of the West Sumatra - Riau toll road which passes through Limapuluh Kota Regency will provide benefits to the economy of Payakumbuh in the smooth distribution of goods and people.

Toll roads are typically equipped with toll exits at regular intervals along their route. If properly managed, the toll exit area has the potential to transform into an active business and commercial centre. The government's proposal to create a series of toll roads has the potential to stimulate regional development, particularly in terms of new home building. Implementing toll access can enhance the market price of a property. Undoubtedly, this would also enhance the real estate industry in Payakumbuh. In addition, the land transfer has resulted in the conversion of unused land into residential areas, so establishing new towns and generating new busy locations.

Considering the strategic location of Payakumbuh, which is situated between two western and eastern ports, namely Teluk Bayur and Dumai Port. The smooth access between West Sumatera - Riau has the potential to encourage exporters to relocate their businesses to the Payakumbuh. Considering the efficiency that arises when they export through the Dumai port. Similarly, when there are imported goods, certain importers also have the potential to redirect the location of their cargo drop-off to Dumai port only when they perceive it to be more cost-efficient in terms of transportation expenses. As a result,



this condition has the potential to lead to an increase in the processing and warehousing industry, residential development, trade, and tourism in the city of Payakumbuh. The potential for the company's services to grow will also be favorable due to the increase in the industry. The growth in this economic sector will result in a decrease in unemployment and an increase in the welfare of the society. Payakumbuh will emerge as a new business hub in the future due to the operation of the West Sumatera – Riau toll road.

Mitigation of Potential Impacts of the West Sumatera – Riau Toll Road

To overcome social and economic impacts, especially those caused by decreased economic activity on routes diverted by toll roads, the Payakumbuh Municipal Government needs to prepare mitigation for the potential impact of the construction of the West Sumatera - Riau toll road on the economy of the people of Payakumbuh. Based on the results of the FGD with the Payakumbuh Municipal Government, several recommendations for anticipating the impact of toll roads that can be made include:

- The city government needs to provide suggestions and proposals to the provincial government to be submitted to the central government in considering the existence of toll exits and entries near Payakumbuh.
- Improve coordination and cooperation with the Limapuluh Kota Regency Government in planning and utilizing space and shared facilities that can encourage economic improvement and social welfare for the people in both regions to anticipate the impact and utilize the existence of toll roads in this region. Such as integrating access with the district by repairing roads and widening roads.
- To the government and toll road project holders can further reduce or prevent environmental impacts on the community so as not to endanger the environment around the toll road project. Toll road project holders carry out environmental management according to Minister of Environment Regulation number 16 of 2012 in accordance with what has been stipulated. For the impact on decreasing air quality, we must pay attention to handling air quality through PP No. 22 of 2021.
- During the toll road construction process, the road infrastructure will be damaged due to the mobility of project vehicles carrying toll road construction materials. It is recommended to include in the budget plan the repair of damaged roads during the toll road construction period.
- Careful mapping to be able to determine the most feasible route that will not cut vital irrigation that will disrupt the agricultural irrigation system. It is also hoped that the construction of the toll road can be synergized with the entire agribusiness system along the road.
- Toll road construction impacts on opening job opportunities and productive businesses for the community. These job opportunities can be filled by residents who live around development activities. The community involvement approach through a community-based approach has the potential to have an impact on strengthening social organizations in the community.



- SME businesses affected by toll road construction should be given priority to occupy toll road rest areas without burdensome compensation. This is solely to help those whose businesses have declined due to the impact of toll road.
- Relocating entrepreneurs to areas that will become new business areas, namely around rest areas and areas that will become toll road interchanges. This step can be taken with the approach of developing new trade areas or developing agglomeration of trade areas.
- Providing easily accessible information to Entrepreneurs. Regional governments can provide information to economic actors in their region or outside their region when, where, and what types of investment are appropriate for future development needs.
- Provide policy certainty and clarity. One of the obstacles to doing business is the changing pattern and direction of public policy, while investors need certainty regarding the direction and objectives of government policy such as certainty of regional development plans.
- Encourage the service sector and trade. The economic sectors that generally develop rapidly in cities are the small trade and services sectors. Small traders should have an easy place to do business in toll road rest areas or other trade centres, because this has helped local governments reduce unemployment. In time small entrepreneurs will pay taxes to local governments. By stimulating service and trade businesses in these small businesses, faster economic exchange can occur resulting in greater investment.
- Increase the competitiveness of regional entrepreneurs. Encouraging the development of market-oriented products, this means that local governments need to encourage entrepreneurs to always improve technical and economic efficiency, be active in monitoring market developments and market needs, both domestic and international.
- Create spaces that encourage economic activity. Creating special space for economic activities in areas that have the potential to become regional economic centres. Strategic areas can be areas that already show signs of agglomeration, such as tourist areas, agricultural production centres for food crops, horticulture, plantations, animal husbandry, fisheries, industrial clusters, and so on.
- Training for SMEs to be able to utilize digital marketing. This is one of the regional government's efforts to find larger market opportunities that can be reached by digitalization. hus, SMEs have a digital mindset so that they can recognize and exploit opportunities, as well as overcome the challenges of surviving in an increasingly dynamic environment (Putra et al., 2023).
- Preparing new tourist attractions or crowds, such as optimizing the creation of a tourism and business ecosystem. Creating new visiting destinations or improving the attractiveness of existing destinations needs to be done by the Payakumbuh Municipal Government, so that there remains a magnet for people passing through Payakumbuh.



- Utilize promotional media along toll roads by showcasing the beauty and superior products of Payakumbuh. The presence of toll roads usually also facilitates promotional media along toll roads, especially in the form of billboards. This media must be utilized by the Payakumbuh Municipal Government to promote tourist attractions in Payakumbuh with attractive designs.
- Improved physical facilities, thereby increasing the attraction of people to visit Payakumbuh. Peningkatan fasilitas ini akan mengembangkan emosi positif dari pengunjung, dan memicu niat untuk berkunjung kembali ke Payakumbuh (Johan et al., 2022). Examples of facilities that need to be improved include:
 - Increasing the class of lodging accommodation.
 - Improvement of meeting and convention facilities on a national scale.
 - Increased cleanliness and sanitation of food & beverage street vendors who have become icons of Payakumbuh.
 - Arranging parks and green open spaces, buildings, road infrastructure conditions.
 - Improved parking infrastructure.
 - Infrastructure development is accompanied by a change in the mindset of the community so that the community is mentally ready so that this infrastructure is well maintained.
- Improvement in Health services by expanding the scope of Hospital services. To attract people to stay in Payakumbuh and make it a place to live after retirement, hospital services need to be improved. Not only in improving the class of the hospital, but also in terms of professional and patient-oriented service.
- The culinary and food processing industry (largely run by SMEs) which supports 54% of the economy is one of the strengths of Payakumbuh. Arranging culinary tourism in the city to attract people, managing culinary branding and food processing through improving product quality and innovative advertising content. Prepare locations that have become culinary sales canters with better conditions.
- Education can be the main support for the economy. There is a need to strengthen education. Encouraging the education sector which is currently in good growth supported by the good development of Islamic boarding schools in Payakumbuh. The government needs to increase attention to this education sector, because through education, people will continue to live in Payakumbuh until they graduate. This really contributes greatly to the economy of Payakumbuh. This includes encouraging the development of the higher education, so that the Government can be proactive in collaborating with the higher education institution.
- The Payakumbuh Municipal Government also needs to consider developing Vocational College to create more human resources who are ready to work to optimize the demographic bonus and welcome a Golden Indonesia 2045.



- Organize tourist attraction events regularly. Providing information that is easy to obtain through digital media and other promotional media related to superior culinary products and tourist attractions. Payakumbuh can create a magnet for new visits such as religious tourism, culture, cultural attractions, exploration of historical stories and legends related to tourist destinations and cultural heritage.
- Payakumbuh is an Agro centre with a very strategic location for potential exports to the ports of Teluk Bayur and Dumai. It can be recommended that many smelters be arranged in the city of Payakumbuh as an Agro centre.
- Increasing the local brand of the city of Payakumbuh through various promotions and cultural events through innovation and developing a specific icon as a market positioning.
- Improve the warehousing and trade industry. Payakumbuh is close to several districts that are rich in agriculture such as Limapuluh Koya Regency, Agam, Tanah Datar and Sijunjung. Payakumbuh can become a centre for warehousing and transaction of agricultural products due to its strategic location and easy access. This can increase the growth of the warehousing and trade industry in Payakumbuh. The existence of the toll road will help the logistics process of goods to and from Payakumbuh. Inbound logistics in the form of smooth and efficient transportation of raw materials will increase the activities of the warehousing industry, of course with government support such as providing land and energy. Outbound logistics will also be able to expedite and save business expenses in the process of distributing industrial products to consumers, especially the West Sumatra-Riau Toll Road which connects two large ports in Sumatra, namely Teluk Bayur and Dumai, which are both export ports.
- Preparing clusters for warehouse areas. Payakumbuh will become a strategic location after the toll road is operational. It is predicted that some businesses will relocate their businesses from Padang City to areas closer to the Dumai port. Payakumbuh can be the best alternative when road access becomes smoother due to the operation of toll roads. If we look at the strategic position of Payakumbuh City, which is between 2 western and eastern ports, namely Teluk Bayur and the Port in Dumai. Smooth access from Padang to Pekanbaru has the potential to encourage exporters in Padang City to relocate their businesses to the Payakumbuh. Considering the efficiency created when they export via the Dumai port. Likewise, some importers also have the potential to shift the place of unloading their goods to Dumai port only when they see that it is more efficient in terms of transportation costs.
- Encourage the development of company services because it is predicted that there will be an increase in industrial activity in Payakumbuh. Sectors (such as: education, transportation, hospitality, consultants, hospital services) will drive the economic growth rate of Payakumbuh significantly in the future. Payakumbuh will become a new business centre in the future with a strategic location.



Conclusions

Several previous studies have examined the impact of toll road construction, both from economic, social and environmental aspects. The results of the FGD also provide insight into the potential impacts of toll road construction and recommendations for mitigation that can be carried out to anticipate these impacts. The issue of toll road construction generally invites pros and cons, regarding the positive and negative impacts that arise. The presence of the toll road will of course affect the economic activities of Payakumbuh, which is a city with a strategic position between Padang City and Pekanbaru City.

Mitigation of the potential impacts of toll road construction needs to be prepared early, so that toll road construction that has an impact on the environment, economy and social community can minimize negative impacts and maximize positive impacts. Even though the results of previous research show that there are many positive impacts felt, attention to the communities directly affected cannot be ignored in order to realize social justice equally. Mitigation efforts need to be planned well by involving the role of local governments as decision makers. So that the resistance of the affected communities can be controlled well, and the toll road construction and operation process can run smoothly.

In the economic aspect, toll road construction improves the local economy in the form of government spending which encourages increased employment opportunities and local taxes. Focusing on the economic benefits of toll roads alone is not enough because of the ecological and environmental effects they cause. For example, it is necessary to preserve the environment affected by toll roads because if ignored it can reduce environmental quality in the long term. Therefore, the government's efforts in developing infrastructure, especially toll roads, must be focused, systematic, measurable (in terms of benefits and costs), and consider various aspects.

Limitations and future research

This research is a future projection, of course there are weaknesses in the assumptions used. However, the use of these assumptions is based on in-depth thinking and the results of tough discussions both from the research team and Payakumbuh Municipal Government. Apart from that, this research is only limited to processing secondary data and collecting field data from FGDs, where to see real conditions in the field, its need more comprehensive field study to look deeper into an event and provide more real results. Future research needs to conduct a field survey involving samples of communities directly affected by the construction of the West



Sumatra - Riau toll road. Finally, it can also involve other community figures to get a more comprehensive view and accommodate all levels of society.

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