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Accepted: 25 July 2024

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Analysis of the Carrying Capacity of Road Infrastructure Towards the Acceleration of Economic Development Performance of Fakfak Regency (Case Study of Community Readiness for the Development of Siboru Airport Road Access)

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Abstract

The existence of Siboru airport replacing Torea airport in Fakfak district is expected to expand and accelerate regional economic development. The carrying capacity of available road infrastructure is important to increase its use as an economic resource, especially for the surrounding community. The research aims to find out various things that need to be done by the government together with the community and business actors to improve aspects of the usefulness of the carrying capacity of access road infrastructure between Fakfak city and Siboru airport based on current conditions. Descriptive research uses an empirical survey approach through in-depth interview techniques. The survey results were analyzed using qualitative analysis tools combined with quantitative analysis tools in stages. The research results concluded that the government together with the community and business actors need to build synergy to build business efforts in order to increase the utilization of the carrying capacity of road infrastructure connecting the city of Fakfak with Siboru airport. Building a rest area accompanied by managing several stopping points that have panoramic views for Instagrammable photo spots can be a short-term option that needs to be worked on immediately.

Keywords: Siboru, acces road, air transportation, economic, Fakfak regency.
1. Introduction

Air transportation is no longer a luxury mode of transportation; especially for the Eastern region of Indonesia. Empirical facts show that there are still many areas that are not easy to reach by land transportation, or are at high risk if reached by sea transportation; it requires the presence of adequate air transportation. Thus, the existence of pioneer airports and existing commercial airports needs to increase their capacity to serve various air transportation needs. According to (Sumardi & Jumlud, 2022) the use of airplanes as a means of air transportation is no longer a luxury as the number of middle class people in Indonesia increases.

The national strategic project to build Siboru airport is one of the government's concrete efforts to develop the Eastern region of Indonesia; especially for Fakfak district which has many natural resources and exotic regional potential as a leading tourist destination. What is to be achieved by accelerating regional economic development through the tourism industry; is a form of breakthrough in regional development that is easy, cheap, fast, and produces an even economic growth effect that can be enjoyed by as many people as possible and micro, small to medium large scale business actors. According to (Wenda, 2018) the Government's great attention to Papua is marked by the many national strategic projects (PSN) and the Papua and West Papua development acceleration unit team (UP4B) to realize development based on the master plan for the acceleration and expansion of Indonesia's economic development (MP3EI), including prioritizing connectivity, adequate inter-city and inter-provincial highways. Furthermore (Wijaya, Permadi, & Safi'i, 2018) reminded the importance of dialogue and building understanding with local communities, indigenous communities and customary law communities as well as customary rights holders so that the development planning process can be implemented appropriately in accordance with the provisions of applicable laws and regulations. Therefore (Rahmadini, Purba, & Herianto, 2020) emphasizes the importance of in-depth study and careful planning by paying attention to as many factors as possible that have a direct or indirect influence on the performance of access roads to the airport.

The research aims to find out various things that need to be done by the government together with the community and business actors to improve aspects of the usefulness of the carrying capacity of access road infrastructure between Fakfak city and Siboru airport based on current conditions.

2. Material and Method

Descriptive research. Researchers describe empirical conditions regarding the need for adequate road access to connect the city of Fakfak with Siboru airport. Siboru airport is a national strategic project to build an airport to replace Torea airport which previously existed, but could no longer be developed due to limited existing land.

2.1 Design Study

Combination research design, where the researcher carries out in-depth analysis using a qualitative approach along with a quantitative one. Thus, there are several analytical tools in this research. Qualitative analysis uses gap analysis techniques which are interpreted using spider web diagrams. Meanwhile, quantitative analysis uses regression analysis techniques by
interpreting the regression equation model and the meaning of the R-square coefficient of determination value.

The implementation process begins with preliminary research, to prepare a questionnaire. Questionnaires are used as a structured and in-depth interview tool. The question grid in the questionnaire description refers to the information needs in accordance with each research variable.

The research sample was 127 people. The criteria for respondents deemed appropriate as a sample consisted of 3, namely: 1) people living along the highway access between Fakfak city and Siboru airport, 2) policy stakeholders, namely government elements and traditional community leaders, and 3) stakeholders, namely the element of business actors. All samples are well known to researchers, and have been confirmed to have a direct connection to the existence of access roads for various business and social purposes.

In-depth interviews were conducted several times with each respondent. The validity of the interview results was first tested using triangulation and role sharing techniques to determine the reliability of the data. Researchers developed a grouping scheme based on the characteristics of internally caused tracers on the influence of each research variable to determine external variables and internal variables.

The interview instrument relates to various technical matters and empirical phenomena that correspond to each research variable. Each variable consists of 5 question instruments with weights whose percentages have been determined by the researcher based on the results of preliminary research. Research variables include: 1) service, 2) rest area, 3) instagrammable spots, 4) security, 5) integrity, and 6) existing. Service is an assessment of the level of road services. A rest area is a location point that can be used as a stopping area to rest during a trip. Instagrammable spots related to exotic natural scenery along the road. Safety concerns the absence of factors that interfere with the smoothness of travel. Integrity relates to the social behavior of local communities; and existing relates to matters regarding the physical condition of roads located on rocky hills on the edge of forests and beaches.

The weighting technique is used as a step to quantify the information obtained from interviews into data. The weight of the answers is calculated based on the percentage value of each instrument for each research variable asked during the in-depth interview. Researchers do not necessarily give assessment weight values before confirming answers more than once, as well as carrying out triangulation and role sharing tests. This is very important to ensure that research answers are truly honest, objective, and suitable for use as research data in the qualitative and quantitative data analysis process.

2.2 Data Analysis

The gap analysis technique is carried out by calculating the average value of the weighted results of each research variable. To find the gap value; Researchers set the number 7,000 as the standard achievement number. The meaning of the achievement standard figure is the normal figure that must be obtained in order to achieve the good value and hope value for the expectations of all parties in the road access service between Fakfak city and Siboru airport.

The spider web representation technique is depicted using radar charts in Excel format. The displays represented are the average value, standard value, and gap value (positive or
The way to read the meaning of the graph is to observe the gap values that appear on the radar graph. The difference in gap values affects the appearance of the radar graph which appears at short or long ranges, like a spider web image. These dots that show the knots of spider webs can then be described as empirical facts found based on survey results. According to (Ghoniya, Yulianto, & Prabowo, 2016) the use of descriptions with spider webs can clarify various forms of relationship between the variables studied.

The regression equation interpretation technique is carried out after the analysis results of the gap value are known. The weight values reflected as weighted data are calculated using the SPSS statistics program version 2.3.

The coefficient of determination interpretation technique is carried out to confirm the description of the equation in the regression model obtained. Research in Eastern Indonesia; especially at the research location which observed the socio-economic conditions of road access between the city of Fakfak and Siboru airport, it is reasonable to suspect that it produces a coefficient of determination that is low, even very low. This has been realized since the beginning of the research. The basis for this awareness is that there are many other factors that can certainly be influential from the start; which cannot be directly analyzed together as variables due to limited observational abilities and the complexity of fundamental problems that can arise suddenly according to the social, economic and legal characteristics of society in Papua.

Compilation of various analytical techniques to formulate conclusions is the final stage of research data analysis. The technique of drawing conclusions can be done by combining several descriptive opinions that emerge from the various analytical tools used; or researchers with their prerogative can choose just one analytical tool to formulate conclusions. Sharp intuition, researcher experience, and involvement of the main researcher in the policy for developing road access between Fakfak city and Siboru airport; is the basis for ensuring that the conclusions of this research can be meaningful for those who read the research results.

3. Result

The research results show that there are different assessments for each variable. The road service variable apparently still does not meet the standard expectations of road users as expected, regarding the access road to the airport. Research (Rosanto & Chaintara, 2021) emphasizes the importance of airport access roads as a supporting variable in developing the regional economy, especially to improve tourism performance. Tourists as air transportation users generally come from the upper middle class and need a comfortable, safe and easy to enjoy atmosphere during their journey.

Characteristics of road users from urban areas to airports which generally require road sections that can be used to increase vehicle speed; It turns out that it will never be able to be fulfilled by the existing roads that exist today. Therefore; other alternatives are needed to improve travel time accuracy, ensure road safety, and ease of getting to the airport; perhaps by utilizing access to land and sea connectivity. Procurement of fast boats to connect the city of Fakfak with the village of Siboru should be a consideration in the procurement of modes as well as the process of transferring passengers and goods between modal partners. Research (Merdekawati, Tumurang, & Fenanlampir, 2021) warns of changes in land use that can be caused by the development of regional infrastructure, especially airport access, as occurred in

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the process of developing the Kulon Progo airport metropolis area. The development of this metropolis area involves changes in the social and economic behavior of the people in the affected areas.

The results of the analysis regarding the carrying capacity of Siboru airport access road infrastructure are presented in the following figure;

![The carrying capacity of road infrastructure](image.png)

**Figure 1. Analysis of the carrying capacity of road infrastructure**

Regression model: \( Y = 8.022 + 0.160X_1 + 0.257X_2 - 0.013X_3 - 0.115X_4 - 0.326X_5 - 0.068X_6 \). Where variable \( X_1 \) is service, variable \( X_2 \) is rest area, variable \( X_3 \) is security, variable The R Square value of 13.5 and Adjusted R Square 8.6 shows that there are many other variables that can influence the model.

The results of deepening the survey material show that; Many unexpected things can happen and have a direct impact on the existence of airport access roads. These unexpected things are very abstract and cannot be planned, such as: the problem of dissatisfaction among community members which results in carrying out 'bans' by unilaterally closing road access; etc.

**4. Discussion**

The regression model shows that the carrying capacity of road infrastructure along the Fakfak city access to Siboru airport is still low. This is a logical phenomenon, that the increase in road capacity is still not completely perfect because the Siboru airport itself is still relatively new in operation, replacing the existence of the Torea airport. According to (Nidda, 2023) the existence of airports influences local investment in improving infrastructure for short-term and long-term economic development in a region. Furthermore, (Susanto, 2020), (Valguna, Dewanti, & Suparma, 2020), (Hermanto, 2021) and (Magdalena, 2022) emphasize the existence of social impacts in the form of changes in the order of community life due to the ongoing economic development of the region which is certain to be increasingly busy with public activities.
Another thing that is in accordance with the initial expectations of all parties; shown by the coefficient of determination $R^2$ and Adjusted $R^2$. The low value is empirically supported by the finding that the local community and the government are not yet fully prepared to utilize and develop the carrying capacity of existing road infrastructure.

Developing rest areas, local community integrity and instagrammable spots as initial efforts to utilize the carrying capacity of road infrastructure are priorities to be considered by all stakeholders. This is due to existing roads which are considered very ‘tough’ by migrants, especially those who have landed in Fakfak district for the first time. The condition of the road that winds along the coast in a hilly area on the edge of a nutmeg plantation forest requires excellent physical condition for road users. Apart from that, thoughts about security aspects are still things that can hinder the development of the use of existing road infrastructure as access to economic growth for Fakfak district.

Thus, the existence of rest areas, community integrity along the edge of the highway, and efforts to manage Instagrammable spots can be the main options to reduce the risk of road user fatigue, as well as eliminate concerns about possible security disturbances.

Road services (level of services or LoS) are currently considered adequate; However, it still needs to be increased in the future as road occupancy increases and flight intensity at Siboru airport increases. According to (Sipahutar & Harahap, 2018), (Kiwang & Arif, 2020), and (Mandias, Sondakh, & Lefrandt, 2021) adequate transportation access plays a very important role in supporting regional economic development, especially in the tourism sector.

There are many other variables that are strongly suspected to influence the regression model; This must be a consideration for further analysis by the government together with many parties to provide information to the public and business actors regarding the potential for developing entrepreneurial businesses that can be built along the access road. The results of the analysis of the Instagrammable spot variable are contradictory between the results of the gap analysis and the regression model, meaning that there is still no effort to manage the exotic area into stopping points for road users so that it can be used as a valuable attraction for the tourism industry. This needs to be of concern to all parties; so that the exotic area can be utilized as well as possible as a source of economic growth for Fakfak district.

5. Conclusion, Implication, and Recommendation

The results of the analysis conclude that the government together with the community and business actors need to build synergy to build business efforts in order to increase the utilization of the carrying capacity of road infrastructure connecting the city of Fakfak with Siboru airport. Building a rest area accompanied by managing several stopping points that have panoramic views for Instagrammable photo spots can be a short-term option that needs to be worked on immediately. This must also be accompanied by strengthening the integrity of local community attitudes, so that social conditions along road access become safer and have a pleasant effect on road users.

6. Acknowledge (if any)

Thanks and appreciation are expressed to all the people selected as research respondents for their availability in providing information openly.
7. References


