

## Systematic Literature Review: Determination Of Trans Sumatera Toll Road Development

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**Abstract:** This study aims to uncover and analyze the determinant factors that can affect the construction of the Trans Sumatra toll road (TSTR). Based on the results of an analysis using a Systematic Literature Review and using the statistical application of VOSviewer, it is known that from several sources, links to international journals can be mapped. The determinant factors are logistics cost efficiency, land use change, land development, increasing economic potential, toll road procurement costs and inter-city transportation.

**Keywords:** *Logistics costs, regional development, increasing economic, toll road, intercity transportation.*

### I. INTRODUCTION

The Indonesian government is focusing on fixing the basic infrastructure sector, one of the national priorities is road infrastructure development. A number of toll roads spanning thousands of kilometers are under construction and operating. One of them is the Trans Sumatra Toll Road (TSTR) which crosses the province of Lampung to Aceh with a main corridor of 2,069 km and a supporting corridor of 919 km.

The construction of TSTR can significantly affect the efficiency of logistics costs because inventory turnover is faster due to faster delivery times and also because insurance and administrative costs tend to be fixed. Logistics cost efficiency occurs when delivery times become faster, vehicle maintenance costs become more efficient up to 10% and surcharge costs disappear, (baketrans.dephub.go.id, 2022).

Land use that does not take-into account the ecological balance can be seen from the land which was originally a swamp or rainwater catchment converted into a TSTR area without considering the land capability (Ritohardoyo, 2002).

Macroeconomic development, especially in toll road infrastructure development policies, should have a positive impact on economic growth, because it will have a number of multiple multiplier effects on all sectors and components of the economy (IMF, 2015; Srinivasu & Rao, 2013).

## **II. LITERATURE AND METHOD**

### **A. Construction of the Trans Sumatra Toll Road**

The construction of toll roads is carried out to facilitate traffic in developed areas, increase the usability and efficiency of goods and services distribution services to support increased economic growth, ease the burden on the government and increase the distribution of development results and justice, (Law No.38/ 2004 on the Road).

### **B. Logistics Cost Efficiency**

Logistics cost efficiency is the best comparison between inputs and outputs with the sources used as well as optimal results achieved with the use of limited resources, (Hasibuan, 2010).

### **C. Area Development**

Regional development aims to increase economic growth, improve community welfare, alleviate poverty, increase competitiveness and reduce regional inequality (Rustiadi et al, 2018; Kumari & Devadas, 2017).

### **D. Land Use Change**

Changes in land use can be interpreted as changes in the use or activity of a land that is different from previous activities, both for commercial and industrial purposes. Various phenomena of land use change have occurred from time to time (Munibah, 2008).

### **E. Increased Macro-Economic Potential**

The increase in macroeconomic potential is the economic capacity that exists in a country that is possible and worthy of development, so that it will continue to develop into a source of livelihood for the people in general, and can even encourage the national economy as a whole to develop by itself and sustainably (Sumihardjo, 2008; Muktianto, 2008). 2015).

### **F. Toll Road Procurement Fee**

Toll road procurement costs are costs used to finance toll road construction which include the basic components of material prices, labor wages and equipment operating costs and include the costs of earthworks, pavement works, road drainage costs and other complementary works, (Directorate General of Development Cost Analysis Standardization Regulations). clan, Ministry of Public Works Number 02/ST/BM37).

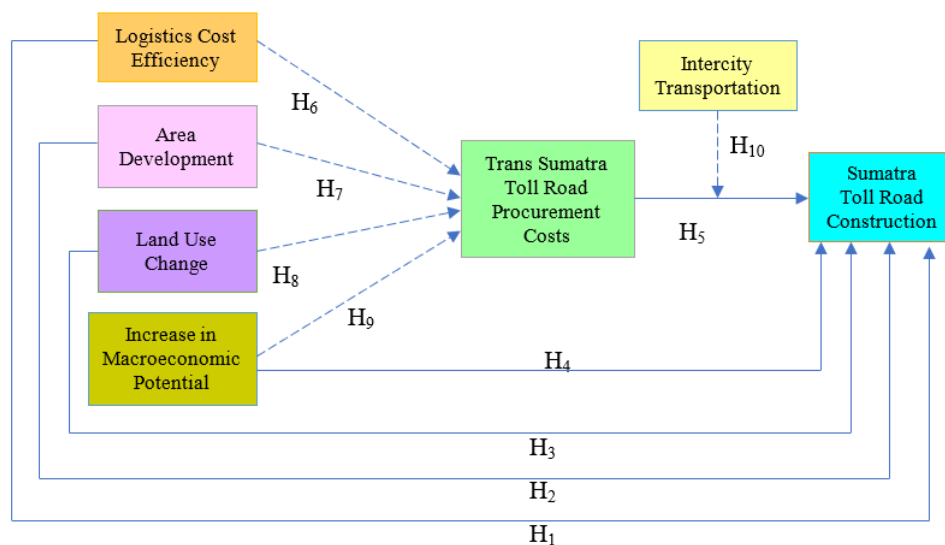
## G. Intercity Transportation

Intercity transportation is the transportation of passengers and/or goods using more than one mode of transportation in one continuous journey (Sistranas, 2005). Inter-city transportation places more emphasis on efforts to integrate service and infrastructure networks (Justification, Director General of Intermodal Transportation, Ministry of Transportation, 2011).

## H. Research Design

This study uses quantitative methods with an explanatory research approach. Meanwhile, at the explanation level, this study uses associative research, namely knowing and analyzing the effect of causality between variables.

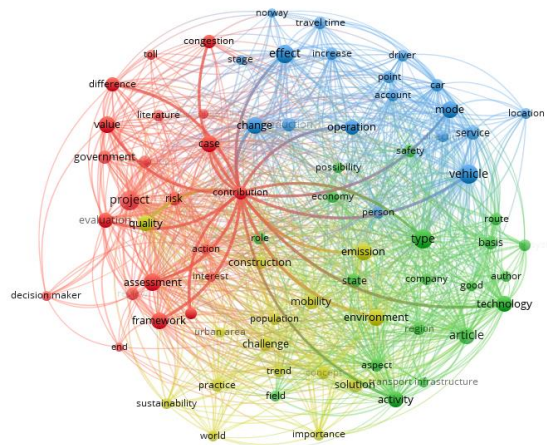
However, at this stage, the researcher uses a Systematic Literature Review analysis to capture the novelty that can be raised from the final results of the study. So, it is hoped that it can provide information to related researchers whether or not there are previous studies that examine this topic. In addition, the SLR approach is very helpful for researchers to obtain information on what determinants are relevant and can affect the variables of the construction of the Trans Sumatra toll road.



**Image 1**  
**Research Design**

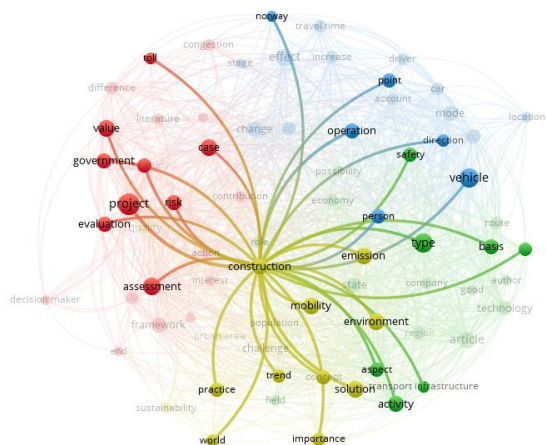
### III. RESULT AND DISCUSSION

The following presents the results of a Systematic Literature Review from several international journal sources such as the Scopus journal link using as many as 300 research journal titles that are relevant to research issues regarding the determinant factors that affect the construction of the Trans Sumatra toll road. Based on a literature search with the help of the VOSviewer statistical application and using several keywords, the results are as presented below.



**Figure 2a**  
**SLR Mapping on Link Scopus**

Figure 2a above shows the results of processing literature data with VOSviewer as many as 300 journals obtained from the Scopus journal link. The issue of toll road development can be influenced by variables related to the environment such as regional development variables and land use changes, as presented below.



**Figure 2b**







Toll road construction and land use change	Sonu, Sravya, Srinivas (2021)	Changes in land use can affect toll road construction
Construction of toll roads, increasing potential for macroeconomic, social, cultural, organizational, environmental, risk, government involvement, road structure and law	Kandiyoh, Rusdi, Asad (2021)	The construction of toll roads can affect the increase in macroeconomic potential
Toll road construction, regional development, logistics cost efficiency and increasing macroeconomic potential	Anas, Ofyar, Sony (2015)	Regional development, logistics cost efficiency and macroeconomic improvement can affect toll road construction
Toll road construction and increasing macroeconomic potential	Marpaung, Ety, Yozi, (2021)	The construction of toll roads can affect the increase in macroeconomic potential
Toll road construction and increasing macroeconomic potential	Omid (2015)	The construction of toll roads can affect the increase in macroeconomic potential
Toll road construction and toll road procurement costs	Dianasari, Adi, Day (2021)	Toll road procurement costs can affect toll road construction
Toll road construction and toll road procurement costs	Suliantoro, Nurul, Good (2018)	Toll road procurement costs can affect toll road construction
Toll road construction and toll road procurement costs	Gross, Michael (2011)	Toll road procurement costs can affect toll road construction
Construction of toll roads and inter-city transportation	Sembiring, Anas (2019)	Intercity transportation can affect toll road construction
Construction of toll roads and inter-city transportation	Ayuningtyas, Russ, Sony (2019)	Intercity transportation can affect toll road construction
Construction of toll roads and inter-city transportation	Rizki, Tri, Prawira (2019)	Intercity transportation can affect toll road construction
Toll road procurement costs and logistics cost efficiency	Saussier & Tirole, (2015)	Logistics cost efficiency can affect toll road procurement costs
Toll road procurement costs and logistics cost efficiency	Kumara & Mandiyo (2019)	Logistics cost efficiency can affect toll road procurement costs
Toll road procurement costs and logistics cost efficiency	Yulius & Yuliarmi (2021)	Logistics cost efficiency can affect toll road procurement costs
Cost of toll road procurement and regional development	Wiryani & Najih (2021)	Regional development can affect toll road procurement costs
Cost of toll road procurement and regional development	Sungkono & Fredy (2019)	Regional development can affect toll road procurement costs
Cost of toll road procurement and regional development	Lupu (2019)	Regional development can affect toll road procurement costs
Cost of toll road procurement and land use change	Saffarzadeh, Hamid, Amiri (2020)	Changes in land use can affect toll road procurement costs



Cost of toll road procurement and land use change	Sihombing & Yusuf (2010)	Changes in land use can affect toll road procurement costs
Cost of toll road procurement and land use change	Wahyudi, Yan, Jonathan (2021)	Changes in land use can affect toll road procurement costs
Toll road procurement costs and increased macroeconomic potential	Albalate, Germa, Xavier (2007)	Increased macroeconomic potential can affect toll road procurement costs
Toll road procurement costs and increased macroeconomic potential	Nath & Gusti (2020)	Increased macroeconomic potential can affect toll road procurement costs

Based on the results of an analysis with a Systematic Literature Review using several links to international journals, it can be seen that there are several determinant factors that can affect the variables of the construction of the Trans Sumatra toll road including the logistics cost efficiency variable, (Dwitasari, Yandra, Yessi, 2020; Karpushko, Bartolomei, Zhidelev, 2021).

Another variable that can also influence is the variable of land use change, (Andani, Lissy, Karst, 2019; Salim & Uly, 2022; Sonu, Sravya, Srinivas, 2011). Then, there are also regional development variables, (Marlon & Saksith, 2011; Anas, Ofyar, Sony, 2015; Risper, Emmanuel, Javier, Karin, 2021).

The variable of increasing macroeconomic potential can also affect toll road development (Omid, 2015; Marpaung, Ety, Yozi, 2021; Kandiyoh, Rusdi, Asad, 2021; Anas, Ofyar, Sony, 2015). In addition, there are also toll road procurement variables which are also a determining factor, (Dianasari, Adi, Hari, 2021; Suliantoro, Nurul, Hari, 2021; Gross, Michael, 2011). Lastly, inter-city transportation variables can also affect toll road construction (Sembiring & Anas, 2019; Ayuningtyas, Russ, Sony, 2019; Rizki, Tri, Prawira, 2019).

#### IV. CONCLUSION

Based on the results of the analysis using a Systematic Literature Review, it can be seen that there are several determinant factors that can explain the variation in their influence on variations in the construction of the Trans Sumatra toll road including the variables of logistics cost efficiency, regional development, land use changes, increasing economic potential, toll road procurement costs and transportation. intercity.

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