

## THE ALTERNATIVE SOLUTION FOR TRAFFIC PROBLEM IN JAKARTA – INDONESIA

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In line with the economic growth that occurred in Jakarta, as a consequence of its role as a center of government and center of trade in goods and services, population growth has also increased mainly contributed by urbanization. Limited land settlement makes people reside outside Jakarta, even though they work in Jakarta. The number of commuters increases the density of traffic in Jakarta. Meanwhile, the variety of transportation modes mixed together in a single lane of traffic in Jakarta, causing traffic jams in almost every street. The question that arises is how to cope with the traffic density? The purpose of this paper is to figure out what causes the density of traffic that occurs, what its impact is on community activities and how to fix this or what are the alternative solutions to this problem. The fact points out that the application of alternative solutions which is primarily transportation management, have some constraints. In closing it may be said that the most important solution is the political will to encourage the implementation of several alternative solutions.

**Keywords:** Traffic, Transportation, Management.

### Introduction

Jakarta, capital of Indonesia is located on the island of Java, one group of islands that make up the state unity of the republic of Indonesia. Indonesia itself, as a country with a population the fourth biggest in the world, located in southeast asia, flanked by the continent of Asia in the north and the continent of Australia to the south. Figure 1 below shows the location of Jakarta.

In line with the economic growth that occurred in Jakarta, as a consequence of its role as a center of government and center of trade in goods and services, population growth has also increased. Urbanization is inevitable, because the settlers wanted a better life, given Jakarta provide employment opportunities, educational facilities and better health and a complete entertainment arena is available in various places in Jakarta.

Jakarta's population density of 2.428 people per square meters with the 16<sup>th</sup> sequence numbers populous city in the world after among others are Mumbai, Calcutta (India), Lagos (Nigeria), Schengen (China) and any other cities, certainly has an impact on the convenience of the residents. Carrying capacity of the city as the location of residence was inadequate. The most prominent is the density of traffic on almost every street in Jakarta, as illustrated in Figure 2. The question that arises is how to cope with the traffic density? The purpose of this paper is to figure out what causes the density of traffic that occurs, what its impact on community activities and how to fix this or what are the alternative solutions to this problem.



Figure 1. Location of Jakarta.



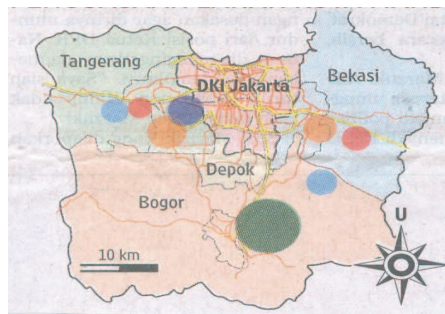
Figure 2. Traffic density in Jakarta.

## Method

This paper has been formulated through research conducted by collecting primary data and secondary data. Secondary data includes an analysis of all rules and regulations in force, either set by the central or regional government established in Jakarta. The analysis is also performed on data relating to the circumstances surrounding the cities of Jakarta, such as the city Bekasi, Tangerang and Bogor. The data include population data, economic conditions, urban development, transportation systems, urban and regional planning as well as data-moving commuter shuttle from Jakarta to the city around it. Data analysis is used to describe the cause of the traffic density in Jakarta, the consequences for users of vehicles specifically and society in general, as well as alternative solutions that may be applicable. Further step is to identify the constraints faced by implementation of alternative solutions proposed, then look for final alternative solutions that may be implemented.

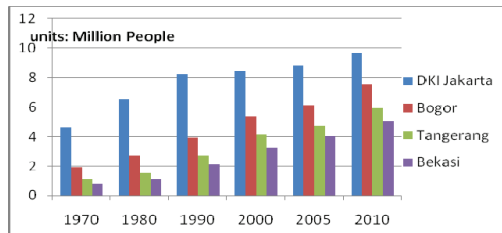
**Result and Discussion**

Jakarta as a center of government and center of commercial activity in Indonesia attracting many newcomers to make a living and their lives in Jakarta. But the availability of land for housing in Jakarta is very limited. High prices of houses in Jakarta prompted some urban to reside outside of Jakarta, namely in cities around Jakarta, but they still perform daily activities in Jakarta. This stimulates the growth of the construction of new settlements in the area around Jakarta, such as in Tangerang (west of Jakarta) area of 700 ha by the Lippo Group Company, 3360 ha by Ciputra Group Company. In the city of Depok and Bogor (south of Jakarta) developed a new residential area covering 36 000 ha by Bakrieland and 6000 ha by Sinarmas Land Company. While in the city of Bekasi (east of Jakarta) has developed 3,000 ha by the Lippo Group Company, 4850 ha by Sinarmas Land Company. Figure 3 shows the configuration of the development of new settlements in the area around Jakarta.



**Figure 3.** New Residential Development around Jakarta.

People who is moving to reside in surrounding Jakarta also causes an increase in the number of residents in the Tangerang, Bekasi and Bogor area. The population of Jakarta increased to 9.6 million in 2010, an increase of 15% since 2000. The population in Bogor increased 42%, Tangerang City increased 34% and Bekasi increased 56% in the past decade as illustrated in the following chart (figure 4). Most of resident who settled around Jakarta, basically still doing their daily activities in Jakarta. Therefore, this situation led to a growing number of commuters who travel roundtrip to and from Jakarta. Commuter travel patterns between Jakarta and its surrounding areas may be seen in the Figure 5. The number of commuters has increased since 2002. Data in 2010 showed an increase of 40% of the commuter from Tangerang (West of Jakarta), 60% of the commuter from Bekasi (east of Jakarta) and 40% of the commuter from Depok and Bogor (south Jakarta).



**Figure 4.** Number of Population.



**Figure 5.** Commuter Travel Pattern.

Enhancement human mobility with his vehicle without supported by the adequate capacity of roads, causes the traffic density in Jakarta. The length of roads in Jakarta only 163.780 meters or an area of

2,811,474 m<sup>2</sup>, as the number of vehicles is 817 and motorcycles or 1.412 unit/km<sup>2</sup>. Unfortunately circumstances of public transport facilities very much not comfortable like can be seen on the figure 6.



Figure 6. Public Transport in Jakarta.

Inconvenience in this public transport facilities causes people choose to use private cars. On the other hand, some people turn to the use of motorcycles. Therefore, an increasing number of private vehicle ownership pumping cars and motorcycles (Figure 7). And there were also changes in the pattern of public transport vehicles or modes of transportation from buses to cars and motorcycles. There is an increase in motorcycle transportation from 21.2% in 2002 to 48.79% in 2010, an increase also occurred in a passenger car, but a decline in bus transportation from 38.3% in 2002 to 12.9 % in 2010.

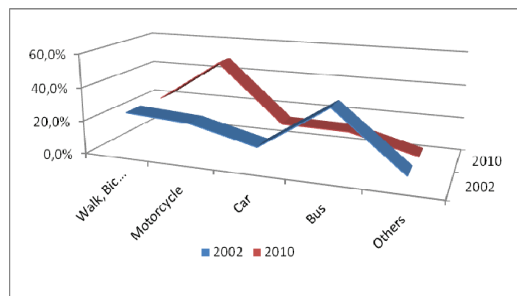


Figure 7. Mode of Transportation in Jakarta.

Changing in transportation mode increases the traffic density, which resulted in congestion and even traffic accidents. Trend victims of traffic accidents in the last 2 years in year 2009 and year 2010 showed no decline, either for the death, serious injuries and minor injuries. It can be seen in the Figure 8. Time of the accident are also seen almost uniformly at all times. Figure 9 shows the time and the percentage amount of traffic accidents in a day or 24 hours.

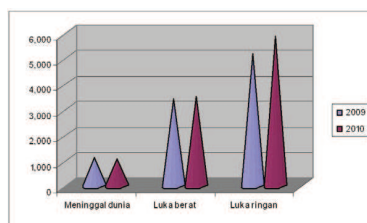


Figure 8. Traffic Accident.

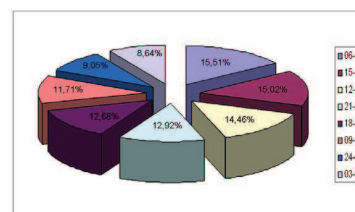


Figure 9. Time of accident.

Thus, the traffic problems in Jakarta can be described in the scheme as shown in the figure 10 below.

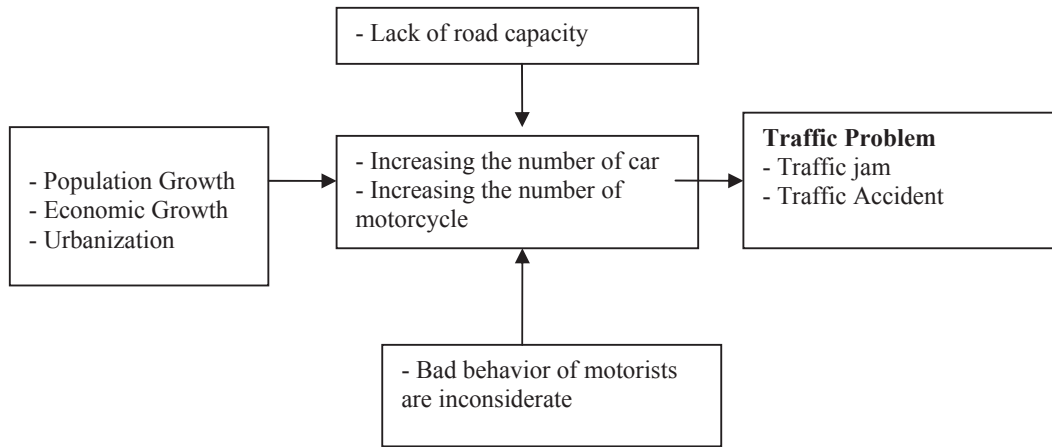


Figure 10. Traffic problem in Jakarta.

To overcome these problems then some alternative solution can be proposed, such as restrictions on the use of private vehicles and motorcycles through the implementation of ERP (electronic road pricing), the construction of mass rapid transport (MRT), the operation of the Bus Rapid Transport (BRT), the activation of the Integrated Border Bus Transportation and the establishment of Megapolitan Transportation Authority (Figure 11). In fact, the application of these alternative solutions to face obstacles such as inconsistency in the implementation of BRT such as lack of support for gas fueling stations for buses, bus lanes are not sterile, so the bus journey is hampered smoothness, or poor implementation of these alternative solutions. Among all of the alternative solutions that is, only Bus Rapid Transport which has been implemented. On the other hand, the funds constraint for the construction of MRT is also a fairly difficult problem to solve. Meanwhile, Megapolitan Authority and ERP implementation is constrained by the absence of statutory regulations that govern them.

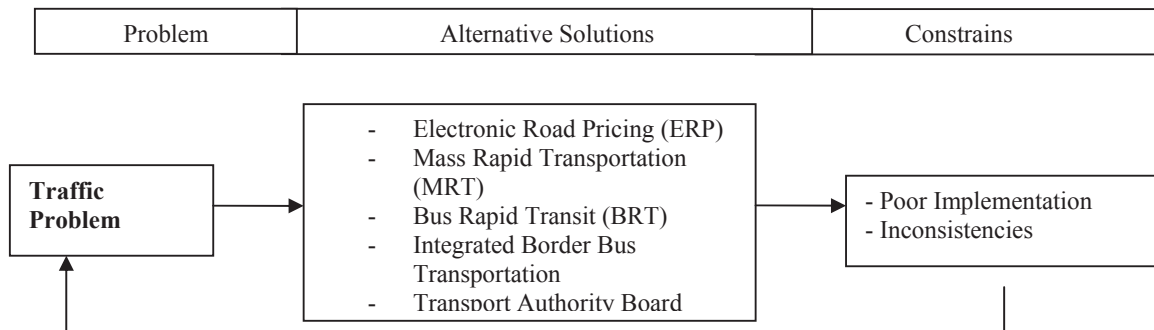


Figure 11. The Alternative Solutions and Conatraits.

Given these constraints, then the best and the most important alternative solution of all the proposed solutions is the political will of governments and parliaments who give a political decision in the form of laws or regulations that are paying the legal and binding to be implemented by the government. Therefore, alternative solutions to the state of the traffic in Jakarta can be drawn as this chart (Figure 12).

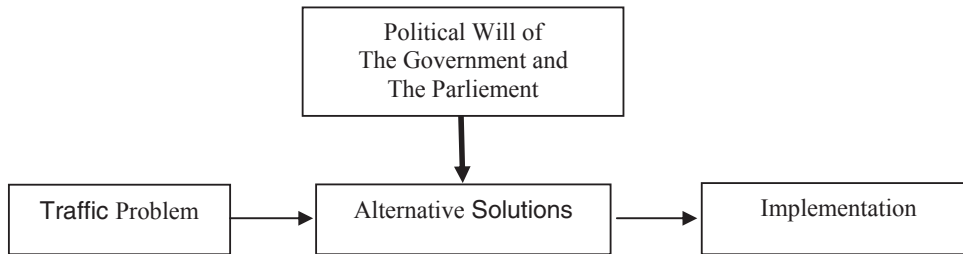


Figure 12. The Scheme of best alternative solution.

### Conclusion

Issue of availability of funds is a major obstacle in the completion of road congestion problems in Jakarta. But more important is the need for political will of the executive in this case the government and legislature, which is the house of representatives that establishes the law as a legal umbrella for the implementation of all possible alternative solutions to be implemented. If the government is serious to address traffic congestion, then this step can be a good precedent that can be emulated by other major cities in overcoming the existing traffic jam.

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