MRT as an Alternative Transportation Solution which is environmentally friendly and traffic jam free in Jakarta

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Abstract. The ease, the existence of vacancies, Development of area, reducing pollution, and investment in Indonesia are some the benefits of the presence of Jakarta MRT in Indonesia. What is the role of MRT operations as a solution to traffic jam and air pollution in Jakarta? How does the presence of the MRT affect for the Jakarta citizens? And Is the MRT operating arrangement same as the train? The things mentioned above are the problems in this writing. The purpose of this paper is to describe the role of MRT operations as a solution to traffic jam, air pollution and the influence of the existence of the MRT to the Jakarta citizens in using public transportation. The research used is Normative with secondary data supported by primary data and analyzed descriptively through a qualitative approach. The role of the operation of the Jakarta MRT is very supportive in reducing air pollution. Its speed, capacity to accommodate a large number of passengers and reduce pollution are the role of the MRT as a solution offered by the government to reduce problems in Jakarta, namely traffic jam and air pollution. MRT is the same as the Train, which is the mode of land transportation but has a different legal basis, passenger capacity and operation.

1. Introduction

Indonesia is one of the countries with the largest population in the world. Many things must be done by the government for the population prosperity, such as transportation, with the aim of developing a tool that supports the population productivity in transportation [1]. At present, the problem faced in land transportation is traffic jam as a result of citizens living in big cities are not comfortable in using available means of transportation, whereas as the population grows, demand for transportation facilities will automatically increase followed by a large population [9], [13]. This is what drives the government to make fast, safe and comfortable transportation for its dense population and precise urban planning is needed, because it is very impossible to add vehicles on the road, only adding to the narrowness and traffic jam. It is time for the government to realize a transportation that can be used in confined spaces, by presenting Mass Rapid Transit (MRT) in big cities with dense population and limited urban space [20]-[22].

Now, the government has been carrying out the construction of the MRT in Jakarta. For this reason, the author want to conduct research on MRT, among others, whether the MRT can answer the congestion problems that occur in Jakarta, and can MRT as an alternative transportation solution that is environmentally friendly and traffic jam free in Jakarta? These are the main points for the author, so
that this article is titled, “MRT as an Alternative Transportation Solution Which is environmentally friendly and traffic jam free in Jakarta [6, [13]-[14]."

2. Methodology

This research using normative legal research methods, using secondary data which is supported by primary data and analyzed descriptively through a qualitative approach regarding the role and influence of the existence of the MRT in Jakarta to overcome traffic jam.

This research was conducted in the Jakarta, where the MRT operations were carried out. The author made observations at the points of operation of the MRT, which has not too much territory. The data obtained in the field are primary data that are processed with support from secondary data through an analysis of the situation describing how the Jakarta citizens respond to the existence of the MRT as a means of transportation that has a goal free from traffic jam problems [20]-[22].

3. Discussion

The Mass Rapid Transit (MRT) project in Jakarta is an infrastructure project that aims to reduce the extraordinary traffic density in the capital city [13]-[14]. The main purpose of the MRT construction in Indonesia specifically in Jakarta is to provide freedom and opportunities for city residents to improve the quality and quantity of travel or mobility to be more reliable, reliable, safe, comfortable, affordable, effective, efficient and more economical [4]. MRT or mass rapid transit, which can be referred to as public transportation is a passenger transportation service, usually with the reach of local areas in urban areas, available to anyone by paying a predetermined fare. This transportation operates on a special fixed lane or a potential public lane of its own and is used exclusively, according to a schedule determined by a route or line that is designed with certain stops. MRT is designed to be able to accommodate large numbers of people at the same time. With the establishment of the MRT system is to provide opportunities for city residents to improve the quality and quantity of travel / mobility to be more reliable, trusted, safe, comfortable and affordable [10].

Indonesia is in 5th (fifth) rank of population in the world needs the presence of the MRT, so that the development of tools that support the productivity of its citizens is urgently needed, including transportation. The large territory of Indonesia requires adequate transportation technology, and currently there are available land, sea and air transportation technologies (M. Aprian: 2019). There are many things that make Indonesian citizens uncomfortable in sitting for long duration or using public transportation facilities, this is due to the many accidents that occur on highways, railroads, Indonesian waters and national airways, as well as congestion in everywhere is making people uncomfortable to linger on public transportation, preferring to buy private vehicles that actually increase traffic jam, and this proves that Indonesia is still far from perfect [13]-[14].

MRT development based on the establishment of a Limited Liability Company, the establishment of PT. Mass Rapid Transit Jakarta (PT. MRT Jakarta) in the form of a Limited Liability Company, is regulated in the Jakarta Capital City Regional Regulation Number 3 of 2008. Standing on June 17, 2008 and majority of its shares are owned by the DKI Jakarta Government. The scope of the company's activities is also regulated in the DKI Jakarta Provincial Regulation Number 3 of 2008 concerning Establishment of Regional Owned Enterprises (BUMD) Limited Liability Company (PT) Jakarta (as amended by Regional Regulation Number 7 of 2013 concerning Amendment to Regional Regulation Number 3 Year 2008 concerning Establishment of Regional Owned Enterprises (BUMD) Limited Liability Company (PT) MRT Jakarta), Article 2, which covers: the implementation of urban public railway infrastructure which includes infrastructure development, operation of infrastructure, pre-service maintenance and exploitation of MRT infrastructure; and the implementation of urban public railway facilities which include: construction of facilities, operation of facilities, maintenance of facilities and the operation of MRT facilities [15]-[25].

The operation of MRT has many positive impacts, being able to reduce the density of vehicles on the road, because the presence of the MRT is expected to reduce congestion by shifting people's desire to bring private vehicles due to safe, comfortable, fast, effective and efficient use of the MRT. So that from the use of private vehicles to switch to mass public transportation facilities, the MRT, the impact on road traffic, which had jammed became reduced [15]-[24]. So the direct benefit felt by the operation of the MRT is being able to reduce the density of vehicles on the road, because of the good influence of MRT mass transportation. In addition, the operation of the MRT is expected to have a
positive impact on Jakarta and its citizens, namely the creation of jobs; effective and efficient travel time; reduce environmental impacts or air pollution and build economic growth in the area of stations where the MRT transits, thus directly impacting the increasing number of Jakarta MRT passengers. MRT development can be used as an alternative to solve problems or solutions to handle transportation problems in Jakarta, because the MRT can transport large numbers of passengers directly, quickly and reliably in various situations. MRT can make road space more efficient because the use of private vehicles can be minimized [23]-[25].

MRT development is a public policy of an inland public transportation system that is developed effectively when the government and the citizens can have the ability and willingness to build a good and clear transportation system not only in its formulation, but also in its implementation [8]. So, the role of the citizens is very much needed in the construction of the MRT so that the impacts will be felt, both positive and negative, as stipulated in Article 172 of constitution Number 23, 2007 Regarding trains, where the citizens can provide input to the Government, Railroad Operators, and facility providers, get services and obtain information about trains [2]. Based on this, they can find out their role and rights as a citizens, so that responsibility will arise in the community both in taking care, maintaining and adhering to regulations. This is expected for the ongoing MRT construction.

Mass Rapid Transit or called MRT is able to help reduce carbon dioxide emissions, said the MRT Research Team, with the operation of the MRT in parts of Jakarta can reduce emissions to 85,680 tons of carbon dioxide (CO2) per year. This figure is derived from the calculation of CO2 emissions from people and vehicles passing the MRT line in the first phase, the details of which are as follows: 175 thousand people passing the MRT line equal to 64,260 tons annually from motorbikes and 107,100 tons per year coming from cars, so that the total is 171,360 tons [3], [25]. With the presence of MRT, many people use MRT more than trains because MRT is more environmentally friendly by using electricity. MRT is not only more environmentally friendly but also efficient compared to trains or other means of mass transportation because it does not cause pollution. [15]-[16].

There are fundamental differences between the MRT and the Train, beside the regulations that are the basis of their implementation, even though both are public transportation vehicles in the land transportation sector whose primary purpose is to reduce traffic jam in Jakarta. Another difference is that MRT is used in densely populated metropolitan cities, as the name suggests Mass Rapid Transit, because it is able to transport and accommodate large numbers of passengers in a short time, about 2 to 3 minutes for each station (Rail Electrical), while trains have a smaller carrying capacity than MRT, but it is the oldest mode of transportation among MRT or LRT[19]-[24].

4. Conclusion

The role of the MRT is very large to reduce traffic jam and air pollution in Jakarta because with the increasing number of people using the MRT as a mode of transportation, it will certainly further reduce the use of private vehicle fuel which has an impact on reducing vehicle pollution. The purpose of operating the MRT in Indonesia is to reduce traffic jam because of its speed and reduce pollution because of its capacity can accommodate many passengers, so MRT is a solution offered by the government and of course community support is needed to change behavior to choose using public transportation rather than private vehicles[15]-[16].

The response of the people of Jakarta to the existence of the MRT is strongly support the operation of the Jakarta MRT because with the MRT mass transportation the community has a lot of hope, among others, can improve the economy of the city of Jakarta. The people of Jakarta who are accustomed to using private cars will reduce the intensity of their use, and have an impact on spending on buying fuel or other costs such as toll roads. In addition, the people of Jakarta can enjoy the time that runs effectively and efficiently [15]-[18]

The existence of an MRT is the same as a Train as a means of transporting land modes, only the difference between the two is the capacity issue that the MRT has more carrying capacity than a Train, and the legal basis that applies is very different for these two land transportation modes15] [19]-[22].
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