

**POLICY EVALUATION ON TRANSPORT
(CASE STUDY: JAKARTA METROPOLITAN AREA)**

MASTER THESIS

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Author:

Aryawidia Pariantho
(S2648466)

Thesis Supervisor:

Tim Busscher



**ENVIROMENTAL AND INFRASTRUCTURE PLANNING
FACULTY OF SPATIAL SCIENCES
UNIVERSITY OF GRONINGEN
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ABSTRACT

Jakarta faces a global phenomenon of increasing private vehicle that leads to traffic congestion. Responding to this situation, Provincial Government of Jakarta are formulating motorcycle restriction policy. In December 2014, Transportation Agency of Jakarta Provincial Government introduced a trial of policy concerning motorcycle restriction in some main roads in Jakarta. As a pilot project, implementation of the motorcycle restriction policy calls for an evaluation. Transport policy evaluation on this thesis focuses on motorcycle restriction policy as its case study while at the same time it also observes public transport service development in Jakarta Metropolitan Area. As a way to evaluate motorcycle restriction policy, the thesis applies three kinds of measurements, there are performance measurement, conformance measurement, and likelihood to shift to public transport service. In addition, in order to strengthen thesis analysis, public transport service development is also evaluated through conformance measurement method.

According to the performance based measurement, more than half of respondents claim that they would not shift to use public transport service although they have already known concerning the motorcycle restriction policy. The conformance based measurement shows that the policy only moves traffic from main to alternative roads. In addition, based on respondents' perspective, there is not any sufficient public transport service as well as any willingness to shift to public transport service. Another perspective is also included on the thesis that describes provision of public transport services are still under process. Finally, recommendations are formulated to improve implementation of motorcycle restriction policy and to stimulate the use of public transport service.

Keywords: transport policy evaluation, motorcycle restriction policy, performance measurement, conformance measurement, likelihood to shift to public transport service

ACKNOWLEDGEMENT

This thesis is a requirement for master degree of Environmental and Infrastructure Planning in University of Groningen, the Netherlands. Focusing on policy evaluation within transport sector, the thesis takes motorcycle restriction policy in Jakarta as its case study. Policy evaluation becomes a critical action in order to analyze achievement of strategies and actions that have been decided in order to overcome problems. This also contributes to improvement of strategy and actions so that greater advantages will be generated by specific policies. Therefore, this thesis attempts to evaluate the motorcycle restriction policy by observing the policy itself and evaluating public transport service development. As a result, since the policy of motorcycle restriction has not effective to encourage people to reduce the use of private vehicles, recommendations are formulated in order to stimulate the use of public transport services.

Many people contributed to completion of this thesis. However, first of all, I would like dedicate my greatest gratitude to Allah SWT, the God Almighty. Next, I would also like to express my highest appreciation to my thesis supervisor, dr. Tim Busscher, for providing me guidance, supervision, suggestion, and feedback as well as supports in writing this thesis. Then, I would like to thank to all of my online survey respondents and interviewees that have significantly contributed to this thesis process. And, I would also like to express my grateful to Ministry of Public Works and Public Housing for giving a precious opportunity to pursue my master degree in the Netherlands, as well as Indonesia Endowment Fund (LPDP) for giving me a scholarship to continue my study. As my responsibility to those organizations, this thesis is dedicated as an alternative of solving a problem of traffic congestion in Indonesia.

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Aryawidia Pariantho
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CHAPTER 1 INTRODUCTION

MOTORIZED IMPACT TO TRAFIC CONGESTION

1.1 Jakarta Metropolitan Area

Jakarta as a capital city of Indonesia plays an important role in national economy development. In 2013, Jakarta Province achieved the highest amount of regional domestic product by producing IDR billion 1,255,925.78 or EUR million 85,240 or equal to 16.57% of total domestic products that are generated by all province in Indonesia (Statistical Bureau of Indonesia 2014). For the last five years, Jakarta Province have always been the highest province contributing to the national domestic product. As many other big cities in the world, Jakarta also faces various kinds of challenges, especially in regards to transport sector, such as traffic, accessibility, public transport service, high level of private vehicle ownership, etc. Those kinds of challenges should be well considered in order to maintain the development pace.

One major challenge within transport sector that should be considered is traffic. An indicator that could be used to monitor the traffic level is road ratio which measures amount of vehicle comparing to road length. This means that the smaller number of road ratio refers to higher level of traffic congestion that occurs (Ingram and Liu 1998; Planning Bureau of Jakarta Provincial Government 2012). In regards to the road ratio, comparing to other big cities in the world such as Singapore (12%), Tokyo (20%), and New York (18%), Jakarta reaches only 6.2% (Planning Bureau of Jakarta Provincial Government 2012) and this leads to insufficiency of road capacity. Consequently, people should consider any additional travel time that is caused by the traffic. Furthermore, public transport service condition also contributes to the increasing of private vehicle use that leads to traffic congestion in Jakarta. People tend to use their private vehicle rather than public transport service because of many reasons such as insecurity as well as inconvenience of public transport service; high uncertainty of public transport schedule; less information received by the passengers; facility of public transport; and unavailability of integrated ticketing system and schedule of various kinds of public transport service (Astono 2015).

In terms of transport problem, Jakarta had formulated Macro Pattern of Transport that describes comprehensive transport solution in order to reduce traffic congestion which was legalized as Governor Decree No.107 Year 2007. Moreover, due to its strong connectivity and dependency with other cities and regencies which are located surrounding Jakarta, the Central Government legalized the Presidential Decree No. 54 Year 2008 concerning Detail Spatial Plan of Jabodetabekpunjur (Jakarta-Bogor-Depok-Tangerang-Bekasi-Puncak-Cianjur). This is done as a way to manage the Jabodetabekpunjur area, or Jakarta Metropolitan Area, as one integrated entity.



Figure 1 Map of Jakarta Metropolitan Area
(Source: Koordinasi Pengaturan Jabodetabek Tak Jalan 2012)

Figure 1 above describes the area of Jakarta Metropolitan Area. Jakarta Province is surrounded by Tangerang Regency, South Tangerang City and Tangerang City on the west as well as Bekasi Regency and Bekasi City on the east. Depok City, Bogor City, Bogor Regency (including Puncak) and Cianjur Regency are located on the south part of Jakarta. Those areas develop one integrated metropolitan area which each area has strong dependencies to others. Jakarta acts as the center for activities while others play roles as satellite cities supporting the Jakarta, for instance by providing residential area, recreation place, etc.

1.2 Increasing of Vehicle Ownership

Jakarta faces a rapid growth of motorization ownership that cover both cars and motorcycles. This phenomenon is also faced by many other Asian cities (Tuan 2011). In regards to the phenomenon of increasing motorization in Jakarta, there were 2 important researches that had been conducted in Jakarta. In November 2001 – March 2004 the research was undergone by The Study on Integrated Transportation Master Plan (SITRAMP), while in July 2009 – September 2011 the same characteristic study was also done by Jabodetabek Urban Transportation Policy Integration (JUTPI) project (Yagi et al. 2013). Referring to the Coordinating Ministry of Economic Affairs Republic of Indonesia (2012), there are several important results underlying the changes of transport situation in Jakarta between 2002 and 2010.

- Increasing of car ownership between 2002 and 2010 from 17% to 25%
- Increasing of motorcycle ownership between 2002 and 2010 from 34% to 72%
- Decreasing of public transport (bus) usage between 2002 and 2010 from 38% to 17%
- Increasing of motorcycle usage as commuting means of transportation between 2002 and 2010 from 21% to 41%
- Increasing of commuter in Jakarta between 2002 and 2010 from 743,000 trips to 1,105,000 trips

In general, increasing vehicle ownership produces some disadvantages both in regards to the negative impact to the environment as well as to the cost that is generated by the traffic. Ernst (2011) explores the impact of one motor car to the environment. First, in extracting raw materials stage, it produces

26.5 ton of waste and 922 million cubic metres of polluted air, then 12 litre of crude oil in oceans as well as 425 million cubic metres of polluted air are produced in its transportation process. The motor cars production itself generates 1.5 ton of waste and 74 million cubic metres of polluted air. Next, 8.4 kg of abrasive waste and 1,016 million cubic metres of polluted air are produced when people use the motor car. Finally, disposing of a motor car contributes 102 million cubic metres to the air pollution.

Another effect of increasing vehicle ownership relates to the cost that is generated by the traffic. Calculated by an environmental researcher in Jakarta, traffic cost reaches up to IDR 28.1 billion each year which consists of IDR 10.7 billion of fuel inefficiency, IDR 9.7 billion of wasted productive time, IDR 1.9 billion of transportation firm losses, and IDR 5.8 billion of health impact (Srihadi 2010).

Specifically in regards to motorcycle ownership in Jakarta, there are couple of facts that become interesting points to observe. First of all, motorcycle becomes the highest number of accident in 2013 which reached up to 119,560 units. It was followed by passenger vehicles at 21,304 units, freight vehicles at 21,335 units, and buses at 4,893 units (Susantono 2014). Secondly, in the period of last 5 years from 2009-2013 in Jakarta, there was an increasing trend of motorcycle ownership as described in the Figure 2.

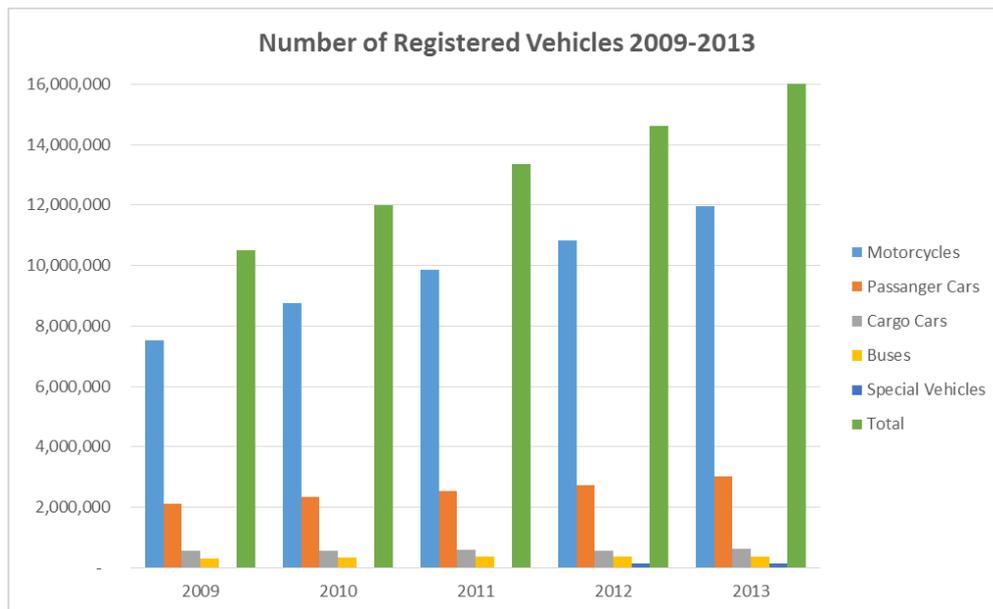


Figure 2 Vehicle Ownership in Jakarta for the period of 2009-2013
 (Source: BPS – Statistics of DKI Jakarta Province 2014)

Figure 2 describes the increasing number of vehicle ownership in Jakarta for the period of 2009-2013. Motorcycle became the most attractive vehicle within the period, followed by passenger cars, cargo cars, buses, and special vehicles.

Overcoming the situation, the Provincial Government of Jakarta have been attempting to reduce the traffic through a transport policy since 1992. At that time, the Provincial Government introduced 'three in one' policy forcing every private vehicle should have at least three passengers. As a result, the policy reduced 24% of private vehicle user and increased average travel speed up to 150%. However, the high level of rising traffic as well as a phenomenon of 'jockey', person who is paid and able to join inside the car due to meet the requirement of 3 passengers for each vehicle, have successfully reduced the policy effectiveness (Prayudyanto et al. 2013).

1.3 Problem Statement

In fact, responding current situation, Provincial Government of Jakarta are preparing some transport policies aimed at limiting the use of private vehicles. Electronic road pricing is still being formulated in order to limit the use of private cars, while motorcycle restriction policy is also being prepared to control the number of motorcycle user in Jakarta. This thesis focusses on motorcycle restriction policy that has been introduced in Jakarta.

Current situation of Jakarta describes that increasing of motorcycle becomes an important issue in transport management. Figure 2 describes how motorcycle ownership were increasing in period of 2009 – 2013. Another result also shows that in 2014 most commuter in Jakarta Metropolitan Area are using motorcycle on their commuting activities (BPS – Statistics of DKI Jakarta Province 2015). These facts explain that number of motorcycle in Jakarta Metropolitan Area has an increasing trend, and potentially contribute to traffic congestion. Therefore, attracting motorcycle user to shift to public transport service is considered as an alternative in reducing traffic congestion.

In December 2014, Transportation Agency of Jakarta Provincial Government introduced a trial of policy concerning motorcycle restriction in some main roads in Jakarta. The pilot project was enacted as Governor Decree of Jakarta No. 195 Year 2014. The policy prohibits motorcycle in two main roads in Jakarta: MH Thamrin street, starting from Bundaran Hotel Indonesia until Bundaran Air Mancur Monas, and West Medan Merdeka street. The prohibition is valid for 24 hours and displayed on Figure 3. Consequently, the Provincial Government provides free buses operating on those streets. The buses operate from 6.00 to 22.00 with 10-15 minutes estimated waiting time. Supporting the policy, there are also many parking spaces available around the streets with maximum capacity up to 6,528 motorcycles and 9,724 cars (Transportation Agency of Jakarta 2014a).

As a pilot project, implementation of the motorcycle restriction policy calls for an evaluation. This is also relevant due to its pro and contra reactions towards the policy. On the one side, official of provincial police claims that the policy reduces 30%-40% traffic congestion as well as increasing travel convenience due to higher level of accuracy of travel time (Aziza 2015a). On the other side the policy is not considered as a solution of the traffic congestion problem because it only moves motorcycle to other alternative ways (Taba 2015).

This thesis comes up with an idea that an evaluation is needed in order to capture actual impact of the motorcycle restriction policy. Then, it could be used as a consideration for fully implementation of motorcycle restriction in Jakarta. Besides, the thesis also contributes to planning practice in Jakarta as an example of how a policy evaluation is carried out in regards to transport sector.



Figure 3 Motorcycle Restriction on Main Roads in Jakarta
(Source: Transportation Agency of Jakarta 2014a)

1.4 Research Objectives

This thesis focusses on policy evaluation of motorcycle restriction in Jakarta. The evaluation attempts to provide comprehensive perspective by not only evaluating the motorcycle restriction policy itself but also analyzing availability of public transport service in Jakarta Metropolitan Area. At the end of this thesis, it formulates some recommendations that are used in order to stimulate the use of public transport service as a way to support the motorcycle restriction policy.

1.5 Research Questions

As a way to achieve the research objectives, this thesis develops several strategic questions that are relevant to those objectives, and the questions cover:

1. What are the responses of motorcycle user around Jakarta towards latest transport policy concerning motorcycle restriction?
 - a. How do people receive and respond the motorcycle restriction policy in Jakarta (performance based measurement)?
 - b. Does the policy achieve its objectives (conformance based measurement)?
 - c. According to people's point of view, is there sufficient public transport service and willingness of people to use public transport service (likelihood to shift to public transport)?
2. What is actual condition of public transport service development in Jakarta compared to Macro Pattern of Transport in Jakarta (conformance based measurement)?

1.6 Research Structure

The thesis of policy evaluation in transport sector would be explained into 6 chapters. Content of each part of the thesis are given as follows.

Chapter 2 Theoretical Framework

This chapter provides some theories related to the transport sector and policy evaluation. It begins with description transport policy in general, then continues discussing some actions that could be taken in order to stimulate modal shift. Next, explanation of policy evaluation is provided as well as couple of dilemmas that are commonly considered in transport sector. The chapter is ended with description of conceptual model that are used on this thesis.

Chapter 3 Methodology

Generally, this chapter explains two important notions: various kinds of method that are applied and various kinds of instruments that are used. In order to evaluate transport policy in Jakarta Metropolitan Area, the thesis applies three kinds of measurements that include performance measurement, conformance measurement, and likelihood to shift to public transport. Next, description of instruments are also provided in order to explain how this thesis does its data collection and analysis process.

Chapter 4 Results

This chapter provides various findings related the study objectives. It begins with actual condition of transport situation in Jakarta, then it continues answering research questions that have been declared on previous chapter, such as responses towards motorcycle restriction policy, achievement of motorcycle restriction policy, likelihood to shift to public transport, and public transport service development.

Chapter 5 Analysis

This chapter provides analysis each results that have been explained on previous chapter. Both evaluation of responses towards motorcycle restriction policy and evaluation of traffic changes are developed based on evaluation concept that is constructed by Van Dore et al. (2013), while likelihood to shift to public transport service is formulated by analyzing willingness and availability of sufficient public transport service based on respondents' perspective. Finally, in order to support the analysis, observation of public transport service development is also included.

Chapter 6 Conclusions and Recommendations

The thesis ends with some final remarks of each analysis. This leads to recommendations of transport policy in Jakarta Metropolitan Area as a way to stimulate people for using public transport service so that traffic congestion in Jakarta would be decreased. In addition, some suggestions are also provided in order to conduct the same topic research in the future.

CHAPTER 2 THEORETICAL FRAMEWORK

TRANSPORT MANAGEMENT AND POLICY EVALUATION

2.1. Transport Policy

Transport policy emerges as a means to intervene transport situation. This is done through formulation of various rule and regulation starting from vehicle control to public transport service improvement. O'Flaherty (1997) in (Bouwman and Linden 2004) classifies two different approaches in formulating transport policy. Firstly, it is based on demand side. The demand-based approach focuses on promoting sustainable mobility through reducing car dependencies, stimulating public transport use, and/or reducing travel demand at certain times. The second approach is based on the supply side, emphasizes on improving transport system capacity, such as road capacity, public transport service capacity, etc. In fact both of two approaches are needed in order to deal with various challenges in transport sector.

In practice, the transport sector have various kinds of challenges starting from physical to institution aspects. Dimitriou (2011) observes root causes of the transport challenges, then he points out several problems. Firstly, it relates to trip characteristic changes, such as increasing income and vehicle ownership, increasing vehicle use, and longer average trip-making. Next, the root cause focuses also on poor land use management that includes increasing urban expansion, inadequate land use control, incompatible traffic mix, and incompatible urban form and density configuration. Other root cause of the challenges also come from insufficient transport infrastructure as well as poor public transport service.

Transport policy as an intervention acts as a way to cope with those transport challenges. One of transport challenge that also becomes a global phenomenon is traffic congestion. There are various reasons contribute to the occurrence of traffic congestion, one of them is increasing private vehicle use as shown in Figure 4. Generally, in terms of low number public transport use, there are two dominant causes that lead to increasing private vehicle: insufficient public transport service and no willingness to use public transport service. Then, this condition leads to high level use of private vehicle that generates traffic congestion. As a response to this situation, related governments / authorities formulate transport policies that are not only limiting the use of private vehicle, which belongs to demand-based approach, but also improving public transport service that is classified into supply-based approach. By having these policies, some improvements towards transport condition are expected to be achieved: increasing of public transport ridership, decreasing of private vehicle use, and reducing traffic congestion.

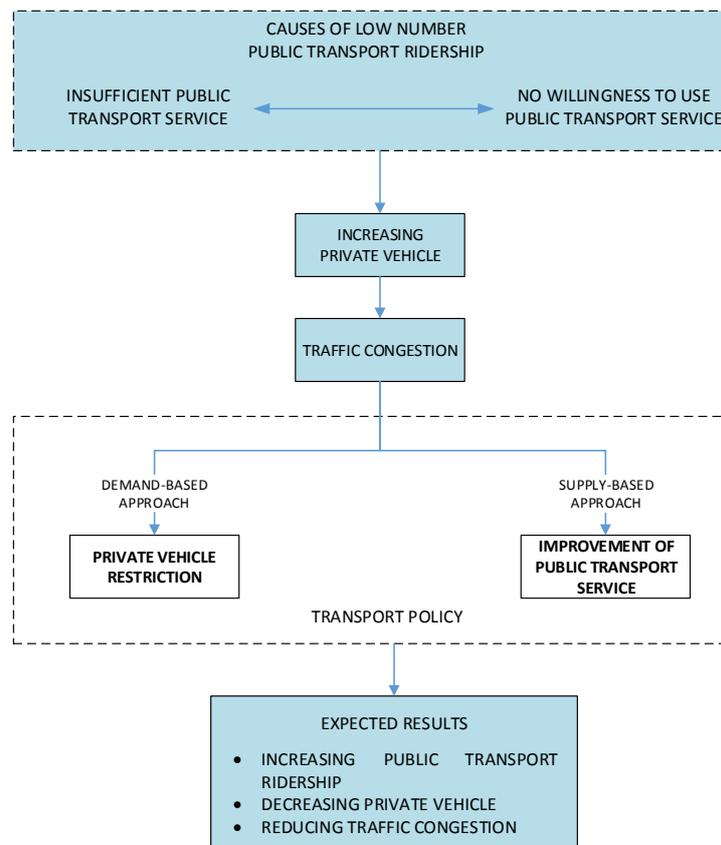


Figure 4 Theoretical Framework

Furthermore, on its structure the transport policy covers three main elements (Annema 2013). First of all is policy goal, for instance to improve accessibility or transport safety. This elements becomes an important part because it directs the actions and use of instruments. Next, another important element is kind of instruments. The instruments define a prescription of how transport policies work in operational level, for instance road pricing policy. The last element is organization which is responsible for implementing the policies. This element becomes important because it directs the user to obey the rule based on the policies, and brings direct impact to the successful of policies. An example of transport policy elements is described. In order to reduce traffic congestion in Jakarta, the Provincial Government of Jakarta formulates a transport policy. The policy goal is clear which is to reduce the traffic congestion. Then the instrument has also been formulated: motorcycle restriction. It means that according to motorcycle restriction policy, motorcycles are not allow to pass in certain main roads on certain period of time. Finally, the organization that is responsible for implementing the policy is Transportation Agency of Provincial Government of Jakarta because the restricted area management belongs to Provincial Government’s authority.

Specifically in developing countries the increase of private vehicle use becomes one of the biggest challenges for the cities (Dimitriou 2011). Overcoming this situation governments should be able to stimulate the use of public transport service. As a way to encourage people to shift to public transport service related government should put equity concept as the center of transportation policies analysis (Vasconcellos 2011). This means that accessibility should be equally provided for the people who live and work around the area.

2.2. Modal Shift

In order to stimulate modal shift to public transport service several considerations are taken into consideration. One of them includes people's transport preferences. As a dominant problem in transport sector specifically in developing countries, as it has been explained before based on Figure 4, high level use of private vehicle leads to traffic congestion. This is caused by most people prefer to use their private vehicle rather than public transport service. Related to this phenomenon, in practice there are some hierarchical levels of decision that people make in terms of their trip, starting from long term to operational level as described in Table 1 (Bouwman and Linden 2004).

*Table 1 Hierarchical Levels in Trip Making Decisions
(Source: Bouwman and Linden 2004)*

| Level | Type of Decision | Type of Policy Measure |
|-------------|-------------------------------------|------------------------------------|
| Long Term | Vehicle ownership, housing location | Public transport, housing policies |
| Short Term | Trip making, trip timing | Mobility advice, public transport |
| Practical | Route choice, route planning | Parking routes, minimized traffic |
| Manoeuvre | Vehicle positioning | Self-explaining roads |
| Operational | Speed regulation of vehicle | Road signs |

Table 1 explains five hierarchical levels of trip decision making that is made by people. As an example, in long term level people choose their place to live. Decision that are made include vehicle ownership and housing location. There are made by considering various kinds of factors such as working location and accessibility. Therefore, in order to intervene the decision the related government should formulate policies concerning residential areas and development plan of transport network so that people would be directed to expected areas of residential, which also have already connected to existing transport network. This logical thinking is also applied on short term, practical, manoeuvre, and operational level.

Overcoming the challenge of high level use of private vehicle, one of the most popular solution is by stimulating the use of public transport service. Bonsall (2005) formulates three considerations that could be done as a way to promote the use of public transport service as shown in Table 2.

First of all, in order to stimulate the use of public transport, restriction on undesirable modes of transport is possibly done. The 'undesirable modes' refers to private vehicle that should be minimized as a way to reduce the traffic congestion. The restriction includes taxes and charges; and regulation and physical restriction. The taxes and charges themselves have also generate other advantage besides its main function on reducing the use of private vehicle: it produces a revenue for the authorities. In addition the regulation and physical restriction act more effective in operational level, for instance by making physical separator of dedicated line for busway.

Secondly, it is related to improvement of desirable modes of transport. The desirable modes refer to public transport services. In order to stimulate the use of public transport, both operator and related governments / authorities should be aware of customer need on public transport service. This leads to provision of facilities and services based on customer need as well as financial inducements that are possibly supported by governments. In terms of those provision, there are some important things that should be considered in managing public transport service, such as walking and waiting time associated with service; speed of public transport; level of comfort; and cost of travel (Vasconcellos 2011).

Consequently improvement of facilities and services would be focused on increasing benefit of public transport services.

The last important consideration also includes marketing. On this focus, public transport services are asked to engage more active towards the costumer by providing information and travel advice. Presentation and marketing activities related to public transport service are also involved to promote the use of public transport service. As an example, by knowing the exact time of waiting and journey, costumer would be able to forecast on what time they should depart from their origin place and decide whether the use of public transport services would be best option for them.

*Table 2 Stimulating the Use of Public Transport Service
(Source: Bonsall 2005)*

| | | |
|-------------------------|------------------------------------|---------------------------------------|
| Stimulating Modal Shift | Restriction of 'Undesirable Modes' | Taxes and Charges |
| | | Regulations and Physical Restrictions |
| | Improvement of 'Desirable Modes' | Provision of Facilities and Services |
| | | Financial Inducements |
| | Marketing | Provision of Information and Advice |
| | | Presentation and Marketing |

In addition, in stimulating public transport ridership government or related authorities should also acknowledge that the use of public transport services are not only rely on people's willingness but also on condition of public transport services themselves. Adopting and modifying the concept of cooperation between two areas / level of government (Zuidema 2015), this thesis attempts to observe the use of public transport services which is based on people willingness and public transport service ability. Ability on this case means that whether public transport infrastructures have already been provided according to people's perspective, while willingness emphasizes on people's intention to use public transport service. The detailed scheme of this description is shown as in Table 3.

*Table 3 Matrix of Public Response Evaluation
(Source: based on Zuidema 2015)*

| | Able | Unable |
|----------------------|---|---|
| Willingness | People want to shift and the public transport service is reliable | People want to shift but there is not any reliable public transport service |
| Unwillingness | People do not want to shift although the public transport service is reliable | People do not want to shift due to unreliable public transport service |

According to Table 3, there would be different responses from governments or related authorities towards the result of analysis based on the Matrix of Public Response Evaluation. If there is already a willingness from people to shift to public transport service, and there is reliable public transport service, then the response would be increasing support from related authorities. In the next quadrant, if there is a willingness without proper public transport service then development of public transport infrastructure becomes a critical action. On the other hand, if there isn't a willingness from people to

shift although there are already sufficient public transport service, promotion actions focused on awareness should be done. Moreover, a subsidy as a way of financial inducement should also be considered in order to attract people for using public transport service. Finally, if the condition refers to no willingness of people and no reliable public transport service, then the response should be combined from public transport infrastructure development to promotion actions including provision of subsidy. To conclude, the related authorities should consider regarding to those four characteristic of conditions to determine what should they do to intervene the transport sector within certain areas. Improper transport policies that is caused by improper analyses of those four major characteristics would result inefficient transport system. This could generate various kinds of disadvantages for people starting from economic to physical and health aspect.

2.3. Policy Evaluation

In practice, transport policies face high dynamic situation. It also means that each component can affect other components within transport system. Large number of interest and parties involved within transport system generate high level of complexity as well as uncertainty to transport problem. This leads to the need of evaluation towards what the authorities / governments have already done facing the problem. Evaluation also ensures that actions that are taken are relevant to minimize negative impact of the problem. Consequently, policy evaluation becomes a critical point to measure effectiveness of the policies that have already implemented and as a means to do continuous improvement to the dynamic situation.

One important thing in regards to policy evaluation relates to understanding of policy implementation. Instead of seeing it as an administrative follow-on process, policy implementation should be considered as an integral part of decision-making process (Barrett 2004). Consequently policies which are produced would cover not only intention to manage or control situation but also become negotiated output generated by implementation process. This perspective emerges because there are various reasons contribute to the potential failure of policy implementation, such as lack of clear policy objectives, involvement of various stakeholders, different values among related organizations, and power and autonomies distribution. By having this perspective in mind, the policy evaluation would generate some recommendations based on practical circumstances as a way to improve the policy.

Next, another important consideration also includes that an evaluation contributes significant impact to the better practice (Niekerk 2014). This is done through continuous improvement that is generated by the evaluation process. Therefore, methodology of evaluation should be clearly defined in order to achieve best description of policy implementation. The methodology has also strongly related to the perspective that is taken by evaluators as their point of view. Crabbe and Leroy (2008) identify some concepts within policy evaluation: Ex ante, ex post, and ex nunc. The concept of ex ante focusses evaluation prior the policy is implemented while ex post emphasizes the evaluation after the policy has been implemented. The ex nunc emerges as an evaluation concept that is carried out in between the policy is being implemented. In addition, they also define three perspective that could be used for evaluator as a way to measure the effectiveness of a plan or policy: Rationalism; Interaction; and Institutionalism. This thesis relies the evaluation perspective on the rationalism that sees the policy as problem-solving oriented. The reason for choosing the perspective relates to the role of the motorcycle restriction policy as a proposed government strategy to reduce the traffic congestion that is caused by the motorcycle. Therefore, the evaluation of the policy relies on how the policy affect the transport situation in Jakarta.

In addition, policy evaluation also develops its criteria in doing its process. Sourisseau et al. (2014) argue that there are at least six criteria that are possibly used to assess a policy: consistency; achievement towards objectives; effectiveness (does the results have already met the objectives?); efficiency (does the outcomes have already justified the budget?); impact or consequences; and relevance (as a response to identified problems). Regarding to this notion, this thesis emphasizes on effectiveness of transport policies in terms of reducing traffic congestion in Jakarta.

Effectiveness of a policy becomes an important criterion in order to achieve its goals. As a way to measure the effectiveness of a policy, Van Doren et al. (2013) classify the evaluation into two aspects: substantive and procedural. Focusing on substantive evaluation in regards to environmental studies, they formulate a combination of two different indicator forms, there are conformance and performance, as shown in Figure 5.

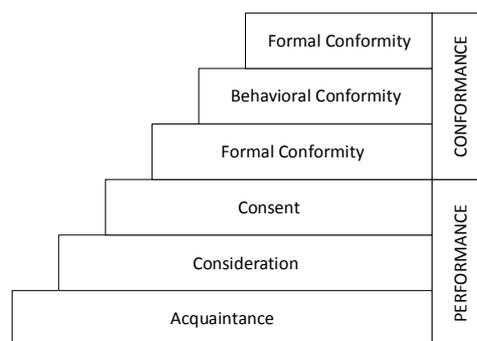


Figure 5 Effectiveness level of a policy
 (Source: Van Doren et al. 2013)

According to Figure 5, effectiveness consist of three levels of performance and three levels of conformance. Performance emphasizes on how decision makers receive and respond the information concerning policy that is being evaluated, while conformance focuses on assessment of condition that has been achieved by the policy comparing to its goals. The first level of effectiveness refers to acquaintance. It means that decision maker has already known the policy. Then, the second level refers to consideration, which is higher than acquaintance level. On this level, the policy has been considered by decision maker as one of alternatives. Next, the third level belongs to consent, which means that that decision maker has already considered as well as attempted to follow the policy. The first three levels of effectiveness are measured through performance measurement. The fourth level is formal conformity, then followed by behavioral and final conformity on the fifth and sixth level respectively. Formal conformity occurs when the policy has been adopted by its lower level governance and / or regulation. Then, behavioral conformity means that the society has already behaved based on what is stated on the policy. Finally, final conformity, which is the highest level of effectiveness, occurs when the policy has achieved the goals that has been formulated on the planning phase.

Both conformance- and performance-based evaluation are applied in practical circumstances. Chapin et al. (2008) apply conformance approach to measure seven local government policies towards state mandate in regards to development limitation in hurricane hazard zones in Florida. As the state government has three main concerns in health, safety, and welfare due to hurricane flooding, Florida's 1985 growth management legislation required the local government to also address those three primary concerns. As a result, the local governments are required to formulate policies which limit the

development inside the high-hazard areas, direct population away from high-hazard areas, and reduce hurricane evacuation clearance time. By analyzing the actual land-use change through parcel-based Geographic Information System (GIS), they conclude that the state mandate of development limitation in hurricane hazard area has not effectively implemented in Okaloosa County, Florida. The use of conformance evaluation on this example shows that it becomes an effective way of measurement to evaluate the practical impact, or outcome, of the policies in actual circumstances.

On the other hand, Faludi (2006) explores the use of performance measurement of European Spatial Development Perspective (ESDP) within European countries. In order to ensure its connectivity European Union develops the ESDP document. Actors who are involved in every member country should apply the ESDP messages into their area based on their authorities. Faludi (2006) explores the related actor responses, specifically in some member countries such as Germany, United Kingdom, the Netherlands, and Nordic countries, towards the ESDP policy by applying the performance approach. The application of performance approach on this example describes that performance measurement is relevant to use if the study focuses on how the related actor response towards the policy or evaluation objects.

These two different articles have already described the use of both conformance- and performance-based evaluation in practice. Conformance-based evaluation emerges as better approach if the evaluation study focuses on how the policies, or evaluation object, achieve the goals. This is done by comparing between realization of the policies in actual circumstances and the policy goals. On the other hand, if the evaluation study emphasizes on measuring how the related actor response to the policies, which significantly contribute the result of the policy, then performance-based evaluation would become better the other one.

2.4. Dilemmas in Managing Transport Problem

Having different detailed characteristics, every regions or areas have their own challenges in managing transport sector. This condition leads to no best way of generic solution overcoming the challenges. However, generally, in formulating transport policy as an intervention policy maker should be aware of various dilemmas related to transport sector.

The first dilemma relates to policy intervention approach. Button (2005) explains two different approaches of government intervention in transport sector: Anglo-Saxon approach and Continental European philosophy. The Anglo-Saxon approach comes up with an idea of efficiency principle as its main concern while Continental European philosophy focuses on role of transport sector as an element of regional development system. It means that Anglo-Saxon approach emphasizes on development of an efficient transport system orienting profit on its operation. On the other hand the Continental European philosophy considers that transport sector should be developed by considering macro objectives of related areas, for instance developing accessibility for suburban areas. Both of two approaches also display different role of to what extend government intervention are needed in managing the problem. The Anglo-Saxon approach needs little intervention of government because it relies on market mechanism while the Continental European philosophy calls more dominant role of government managing certain sector.

In practical situation it is not easy to implement either fully Anglo-Saxon approach or Continental European philosophy. As a result decision of policy maker focuses on to what extend government interventions are needed in order to direct the situation. As an example in developing public transport

service, related government has already decided a link or connection between two areas. This decision is made by consideration of regional development. Private sectors or markets are invited to join bidding process to operate public transport. The operator would be chosen based on its efficiency of their proposal. Therefore the private sectors would develop their public transport system as efficient as they could. Finally, combination between two approaches results in maximum benefit for people from all social class.

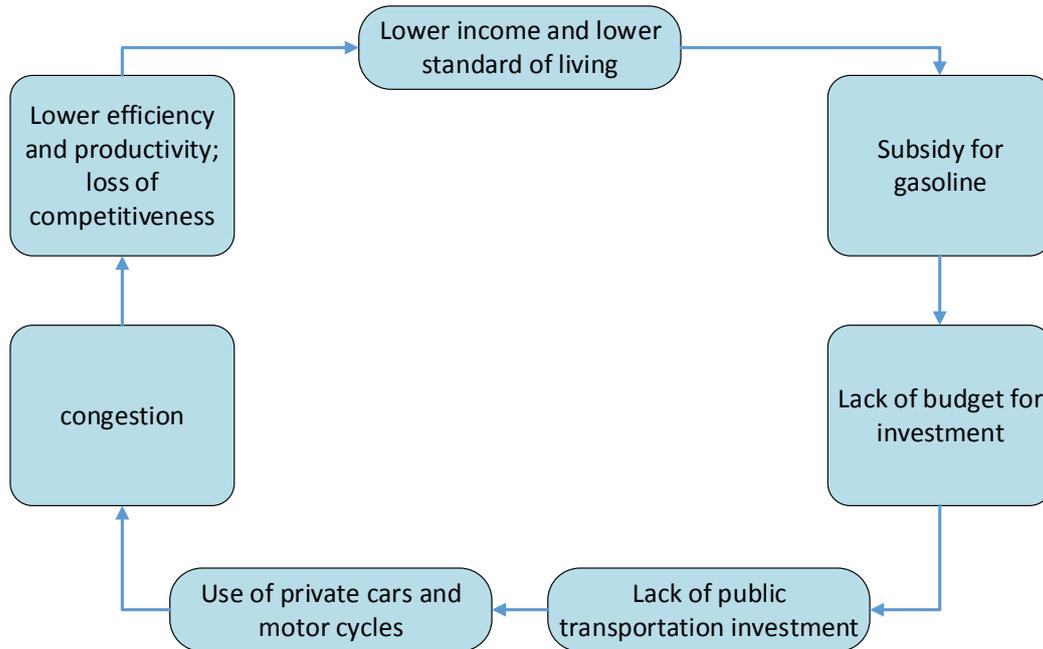


Figure 6 Vicious Cycle of Traffic Congestion in Jakarta
(Source: Prasetya 2013)

Another dilemma that also should be taken as consideration emphasizes on government policy towards public transport services. In some countries, for instance in Indonesia, in order to support economic growth the National Government gives a subsidy to several important aspects. One of them is fuel subsidy. Although at the beginning this idea is relevant to directly support people not to buy the fuel in the high price, at the end the adverse effect of subsidy generates situation even getting worse.

Taking an example of transport situation in Jakarta Prasetya (2013) develops vicious cycle of traffic congestion that is caused by subsidy given by the National Government as shown in Figure 6. The vicious cycle begins with the subsidy for fuel that is given by the National Government because of low number of income as well as low standard of living. Ideally, the subsidy is applied mainly for public transport. The amount of money that is allocated for subsidies lead to lack of budget for investment, including public transportation investment. This condition also leads to insufficient maintenance activities for the public transport infrastructure. As a result, it is an increasing trend of both cars and motorcycles use due to insufficient services that are provided by the public transport. This situation also generates higher traffic congestion, and consequently, it makes people less productive and less competitive. As a result, this generates lower income and low standard of living for the people. Then, it continues with another cycle with the same pathway.

2.5. Conceptual Model

As a closing section of theoretical chapter, accumulating various theories that have been explained, this section provides a conceptual model that is used in order to answer the research questions. It is shown in Table 4. First of all, in order to measure responds of people to the motorcycle restriction policy, performance measurement is applied. It focuses on commuters in Jakarta Metropolitan Area as respondents. Next, conformance measurement is applied in order to capture two important things: traffic changes due to the policy and actual condition of public transport service in Jakarta. The traffic changes that are observed cover main and alternative roads, while public transport service evaluation includes public bus service, Transjakarta, commuter train, Mass Rapid Transit (MRT), and Light Rapid Transit (LRT). Finally, in order to observe intention of people to shift using public transport service, likelihood to shift to public transport service is applied. It emphasizes on two important variables, which are willingness to shift and availability of sufficient public transport service.

Table 4 Conceptual Model

| THEORIES | FOCUS | TARGET | INSTRUMENT |
|---|---|--|--|
| Performance-based (Van Doren et al. 2013) | [Research Question 1.a] Responses of Motorcycle Restriction Policy | Commuter in Jakarta Metropolitan Area | Primary Data Analysis: <ul style="list-style-type: none"> • Online survey |
| Conformance-based (Van Doren et al. 2013) | [Research Question 1.b] Traffic Changes due to Motorcycle restriction policy | Main roads and alternative roads on motorcycle restriction policy | Primary Data Analysis: <ul style="list-style-type: none"> • In-depth interview Secondary Data Analysis: |
| | [Research Question 2] Public Transport Service Development Evaluation | Public Bus Service, Transjakarta, Commuter Train, MRT, and LRT | <ul style="list-style-type: none"> • Official report • Online news • Magazines, books, and journals |
| Likelihood to Shift to Public Transport Service (based on Zuidema 2015) | [Research Question 1.c] Intention to Use Public Transport Service | Commuter in Jakarta Metropolitan Area | Primary Data Analysis: <ul style="list-style-type: none"> • Online Survey |

CHAPTER 3 METHODOLOGY

FORMULATING AN EVALUATION ON TRANSPORT SECTOR

Generally, this thesis attempts to perform policy evaluation in terms of transport sector in Jakarta Metropolitan Area. Taking a motorcycle restriction policy in Jakarta as a case study, the thesis focusses on substantive effectiveness of the policy while at the same time also attempts to evaluate public transport service development.

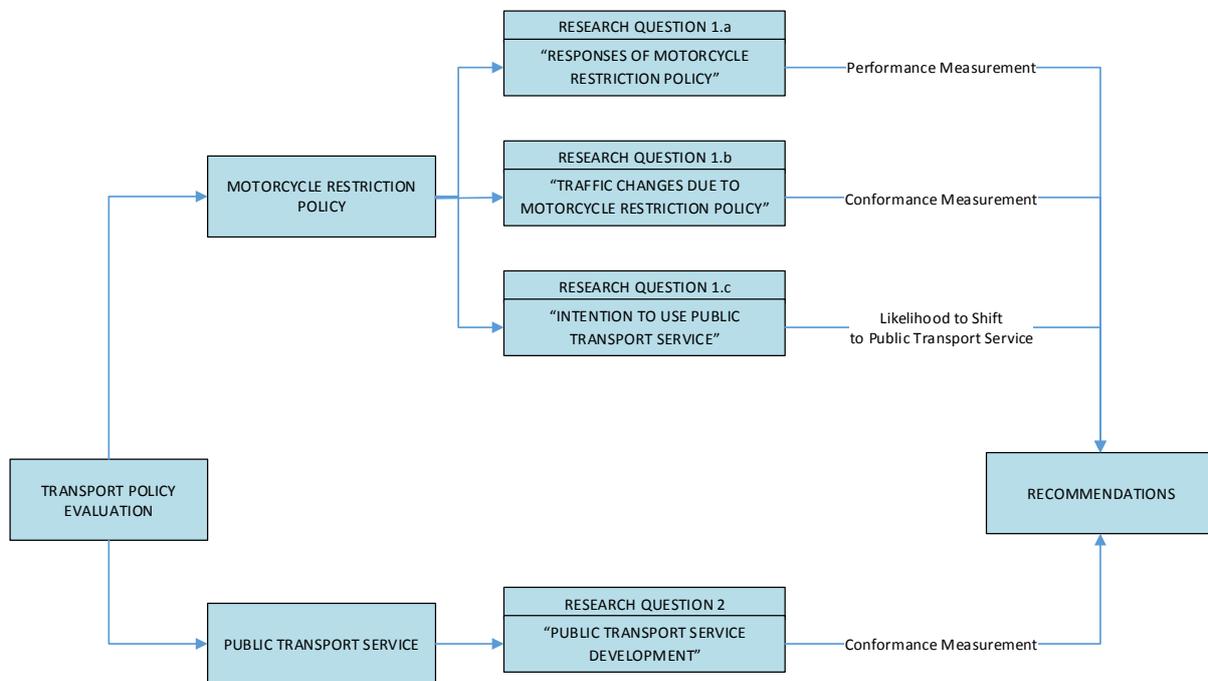


Figure 7 General Methodology of Empirical Study

Figure 7 explains general methodology of the thesis which is based on empirical study. Transport policy evaluation on this thesis focuses on motorcycle restriction policy as its case study while at the same time it also observes public transport service development in Jakarta Metropolitan Area. As a way to evaluate motorcycle restriction policy, the thesis applies three kinds of measurements, there are performance measurement, conformance measurement, and likelihood to shift to public transport service. In addition, in order to strengthen thesis analysis, public transport service development is also evaluated through conformance measurement method.

3.1. Transport Policy Evaluation Methods

In order to evaluate the motorcycle restriction policy, the thesis applies conformance-based measurement, performance-based measurement, and likelihood to shift to public transport. Both conformance- and performance-based measurement focus on the effectiveness of the policy while likelihood to shift to public transport attempts to observe intention of people to use public transport service. Derived from Figure 7, the scheme of the policy evaluation is shown in Figure 8.

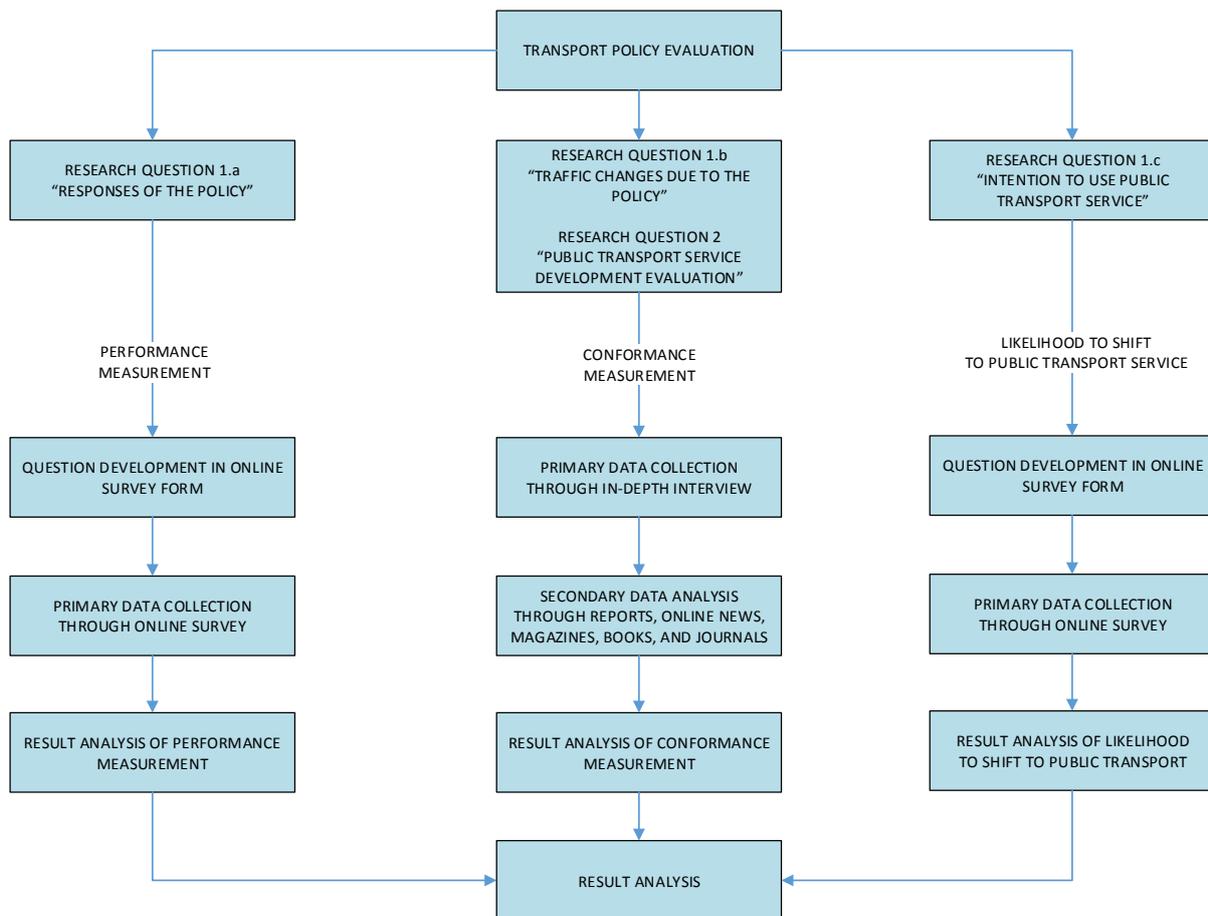


Figure 8 Scheme of Transport Policy Evaluation

According to Figure 8, those three kind of measurements apply both primary and secondary data analysis. Performance measurement develops some important questions that would be questioned, then it collects responses through online survey, and finally analyses the result of performance measurement. Likelihood to shift to public transport applies the same method as performance measurement does. On the other hand, conformance measurement focuses on primary data collection through in-depth interview with some related stakeholders. Then it is complemented by secondary data analysis of various written sources, such as reports, online news, magazines, books, and journals, before it being analyzed into conformance measurement result.

3.1.1. Performance Measurement

The performance measurement focuses on analyses public responses if the motorcycle restriction policy is implemented in wider area than before in Jakarta. Applying ex ante evaluation approach through online survey, the performance measurement attempts to evaluate people’s responses towards motorcycle restriction policy. Detailed characteristics of the performance measurement are shown in Table 5.

Table 5 Characteristics of Performance Measurement

| Characteristics | Performance Measurement |
|-----------------|--|
| Objective | Evaluates people's responses towards motorcycle restriction policy |
| Focus | Motorcycle restriction policy in Jakarta |
| Target | Commuter in Jakarta Metropolitan Area |
| Instrument | Online survey |

In terms of its indicators, the performance measurement adopts indicators that are formulated by Van Doren et al. (2013). Being modified to adjust with the case situation, there are shown in Table 6.

*Table 6 Indicator Adjustment of Performance Measurement
(Source: based on Van Doren et al. 2013)*

| Effectiveness Level | SEA Indicator (Doren et al. 2013) | Transport Policy Indicator |
|--|--------------------------------------|---|
| PERFORMANCE: assessment of how the policy affect people / decision-makers | | |
| I | Acquaintance | The decision-makers read and/or consult the SEA during the decision-making process |
| II | Consideration | The information provided by the SEA is used to develop, review, and/or discuss the plan or plan alternatives during the decision-making process or subsequent decision-making processes |
| III | Consent | <ul style="list-style-type: none"> The SEA educates the actors involved in the decision-making process about the environmental implications of the plan, or Actors involved in the decision-making process alter their vision regarding the plan due to the SEA |

Indicator adjustments, based on Table 6, are needed because case study of motorcycle restriction policy is different than model that is developed by Van Doren et al. (2013). The first level of acquaintance on this thesis refers to a condition when people (commuter) have already known regarding the policy. This idea is relevant with the one that is described by Van Doren et al. (2013) that underlines importance of information for decision maker. Then, second level is consideration. On this level, people have started to consider the policy into their decision making process. However, in fact, there are two possibilities, first, people who are still using their motorcycle due to various reasons such as cost, travel time, unavailability route, etc., and second, people who are shifting to use public transport service. The third level of performance refers to consent. It is the highest of performance level when people have already chosen public transport service as their means of transport.

In order to evaluate effectiveness level through performance measurement, two important questions are formulated, as shown in Figure 9. Firstly it relates to whether people have already known concerning the latest policy of motorcycle restriction in Jakarta. Secondly, it relates to whether people would shift to use public transport service because of motorcycle restriction policy.

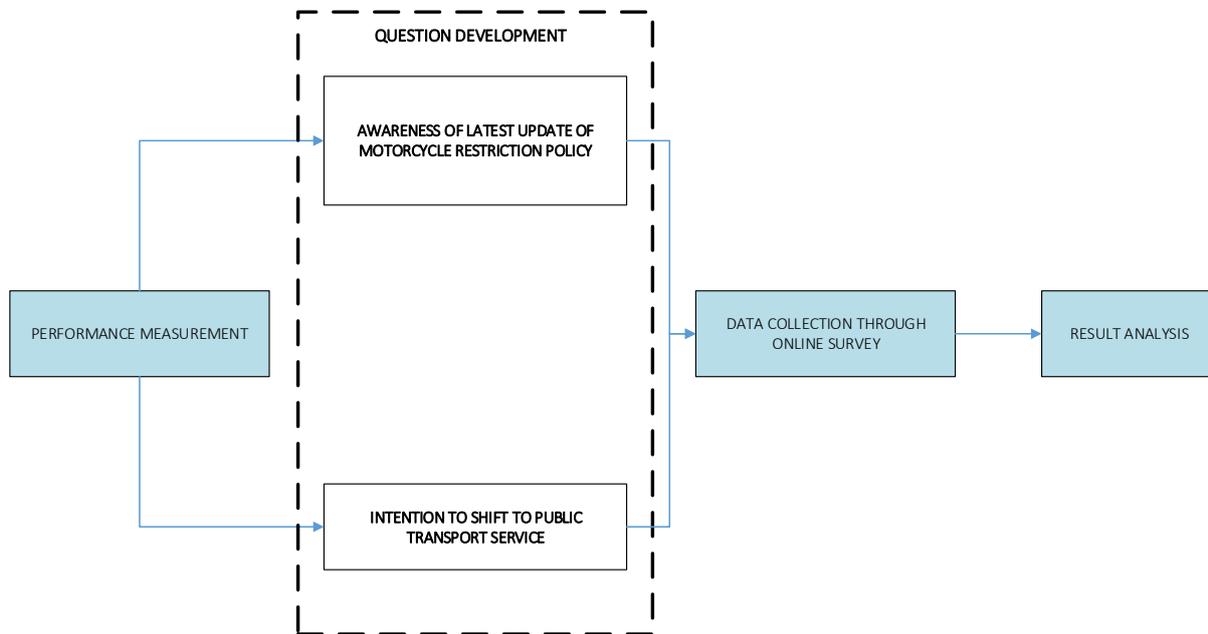


Figure 9 Question Development on Performance Measurement

3.1.2. Conformance Measurement

There are two kinds of conformance measurement that are applied on this thesis. The first one focuses on traffic changes due to motorcycle restriction policy, and another analyses public transport service development in Jakarta Metropolitan Area.

Conformance Measurement – Traffic Changes due to Motorcycle Restriction Policy

The conformance measurement analyses achievement of the policy towards its goals. It measures traffic changes that are affected by the motorcycle restriction policy. Implementing ex-nunc evaluation approach, the conformance measurement applies both primary and secondary data collection method. Characteristics of the conformance measurement are shown in Table 7.

Table 7 Characteristics of Conformance Measurement on Traffic Changes

| Characteristics | Conformance Measurement |
|-----------------|--|
| Objective | Evaluates motorcycle restriction policy in Thamrin and West Merdeka Street |
| Focus | Traffic changes on impacted areas |
| Target | Traffic condition on main and alternative roads |
| Instrument | <ul style="list-style-type: none"> • In-depth interview • Secondary analysis through official reports, online news, magazines, books, and journals |

In terms of its indicators, the conformance measurement also adopts the method of SEA substantive effectiveness measurement that is formulated by Van Doren et al. (2013). It means that there are some adjustment in regards to how each level produces their own indicators. In order to justify effectiveness level in regards to conformance measurement, some adjustments are applied on the indicators as shown in Table 8.

Table 8 Indicator Adjustment of Conformance Measurement on Traffic Changes
 (Source: based on Van Doren et al. 2013)

| Effectiveness Level | | SEA Indicator (Doren et al. 2013) | Transport Policy Indicator |
|--|-----------------------|---|--|
| CONFORMANCE : assessment of policy goal achievement | | | |
| IV | Formal Conformity | The plan becomes more environmentally benign due to the SEA: it prevents, minimizes, or offsets adverse environmental effects | No motorcycle use on restricted areas |
| V | Behavioral Conformity | The policy measures of the plan are implemented accurately | <ul style="list-style-type: none"> • Decreasing of motorcycle rider • Increasing of public transport ridership |
| VI | Final Conformity | Environmental protection | Decreasing traffic congestion in main roads without any significant changes in alternative roads |

Table 8 describes three different levels of conformance. The level order continues from performance level order because there are developed in one comprehensive model of performance and conformance, which are developed by Van Doren et al. (2013). According to the Table 8, the fourth level of effectiveness is formal conformity. On this level, traffic reduction on restricted areas becomes its indicator. It means that on this level, focusing only on restricted areas, traffic reduction is achieved. Next, the fifth level is behavioral conformity. On this level, behavior changes are realized from using motorcycle to public transport service. In addition, on this level focus of evaluation is not only on restricted areas but also covers other impacted areas. As an example, on the case of motorcycle restriction policy, the policy achieves this level of behavioral conformity when people are using public transport service instead of their motorcycle. As a result, traffic congestion would be reduced on restricted areas without generating adverse impact on other alternative roads. Next, Final conformity is the highest level of conformance. On this level, achievement of comprehensive goals are achieved, for instance on the case of motorcycle restriction policy, increasing productivity and improving environmental condition are realized due to minimum traffic congestion.

Conformance Measurement – Public Transport Service Development

The second conformance measurement that is carried out in this thesis focuses on public transport service development. Characteristics of the measurement are shown in Table 9.

Table 9 Characteristics of Conformance Measurement on Public Transport Service

| Characteristics | Conformance Measurement |
|-----------------|--|
| Objective | Evaluates public transport service development |
| Focus | Public transport services in Jakarta Metropolitan Area |
| Target | Public bus service, Transjakarta, commuter train, MRT, and LRT |
| Instrument | <ul style="list-style-type: none"> • In-depth interview • Secondary analysis through official reports, online news, magazines, books, and journals |

Although the same method of conformance measurement is applied in public transport service evaluation, it has different formulation of analyses. The reason of this is related to time period of Macro Pattern of Transport in Jakarta that will be finished in 2020. In other words, right now development is still processing and analysis of public transport service development is not be able to judge that the development is success or fail because there are still some years ahead. Therefore, referring to Macro Pattern of Transport in Jakarta, conformance measurement of public transport service development has different indicators for its elements, as shown in Table 10.

*Table 10 Indicators of Conformance Measurement on Public Transport Service Development Evaluation
(Source: based on Provincial Government of Jakarta 2007)*

| ELEMENTS | INDICATOR |
|--------------------------------------|---|
| Public Bus Development | Revitalization of public buses service |
| Bus Rapid Transit (BRT) | Development of 15 corridors of Transjakarta |
| Light Rapid Transit (LRT) | Development of monorail |
| Mass Rapid Transit (MRT) | Development of MRT |
| Commuter Train / Jabodetabek Railway | <ul style="list-style-type: none"> • Development of commuter train services • Development of double track railway infrastructure |
| Supporting Facilities | <ul style="list-style-type: none"> • Development of public transport connection infrastructure • Development of integrated payment instrument |

3.1.3. Likelihood to Shift to Public Transport Service

As a way to observe people's intention to use public transport service in Jakarta Metropolitan Area, the analysis of likelihood to shift to public transport focuses on three main aspects: origin-destination pattern, willingness to shift, and ability to shift. Characteristics of this measurement are shown in Table 11. The pattern of origin-destination focuses on the places where the commuter live and work. On the other hand, both willingness and ability to shift are based on people perspective. Willingness to shift refers to intention of people to use public transport services while ability to shift measures availability of public transport service according to respondent's perspective on their living area. In terms of data collection, the same online survey form of google forms is also used to gather those three main indicators of origin-destination pattern, willingness to shift, and ability to shift.

Table 11 Characteristics of Likelihood to Shift to Public Transport

| Characteristics | Likelihood to Shift to Public Transport |
|------------------------|---|
| Objective | Evaluates possibilities of modal shift |
| Focus | Intention to shift using public transport service |
| Target | Commuter in Jakarta Metropolitan Area |
| Instrument | Online survey |

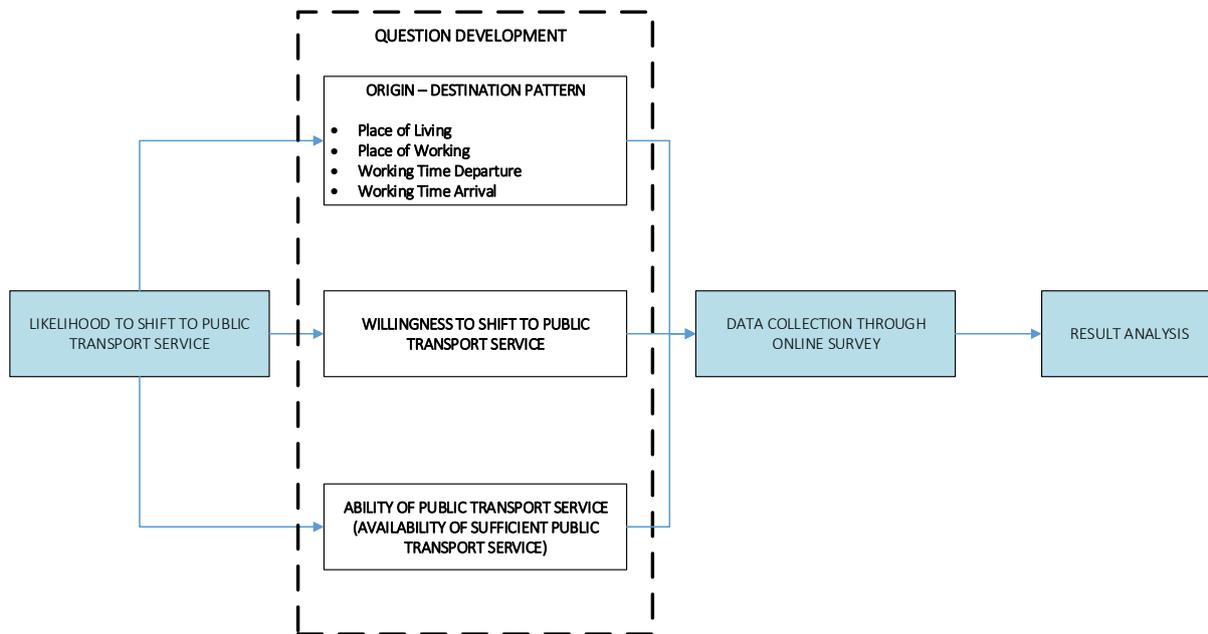


Figure 10 Question Development on Likelihood to Shift to Public Transport

Furthermore, Figure 10 describes question development on the likelihood to shift to public transport measurement. Firstly, in order to analyze origin-destination pattern, four questions are asked to respondents, they include place of living, place of working, working time departure, and working time arrival. Next, willingness of respondents is asked whether they want to shift to use public transport service instead of their motorcycle. The last question includes ability of public transport service. It deals with respondents' perspective on availability of sufficient public transport service.

3.2. Instruments of Evaluation

In order to do data collection, this thesis uses several instruments that are relevant to answer each of research questions. Those instruments are online survey, in-depth interview, and secondary data analysis through official reports, news, magazines, books, and journals.

3.2.1. Online Survey

Online survey instrument is used to do data collection on performance measurement and likelihood to shift to public transport service. In order to reduce biases that possibly occur, characteristics of respondents are developed. The first characteristic is respondents are commuter who are living and working in Jakarta Metropolitan Area. This ensures that opinions that are accumulated are relevant to analysis and discussion on this thesis. Second characteristic of respondents include they are using their motorcycle on their commuting activities. This characteristic is important to analyze effectiveness of motorcycle restriction policy in Jakarta.

The online survey itself is made on *google form*. Period of survey was March 17th – May 25th 2015. At the end of period, total respondents who have participated on the survey was 95 people. Moreover, in terms of its sampling method, the survey applies snowball sampling by using social networking. It means that by social networking the survey is spreading out from one to other respondents. Questions that are asked to respondents consist of twelve questions as shown in Table 12.

Table 12 Questions on Online Survey Form

| CATEGORY | QUESTION TOPIC |
|---|--|
| Origin – Destination Pattern (Characteristics of Trip Maker) | Place of living |
| | Place of working |
| | Working time departure |
| | Working time arrival |
| Characteristics of Journey | Working days in a week |
| | Urgency to move based on profession |
| Characteristics of Transport Facilities | Improvement that should be taken on public transport service |
| Likelihood to Shift to Public Transport | Availability of sufficient public transport service |
| | Reasons for not using public transport service |
| | Willingness to move using public transport service |
| Performance-based Measurement | Awareness of latest transport policy concerning motorcycle restriction policy |
| | Willingness to leave their motorcycle and start using public transport service |

The online survey is aimed at collecting people's responses towards transport policy in Jakarta. In order to support analyses, it also includes three main characteristics of people as decision maker on their own trip. The characteristics consist of characteristics of trip maker, characteristics of journey, and characteristics of transport facilities (Ortuzar and Wilumsen 1990).

The characteristic of trip maker defines related condition of people who want to mobile from one area to another, such as car ownership, possession of a driving license, household structure (young couple, couple with children, retired, singles, etc.), income level, decisions made elsewhere (for instance the need to use a car at work, take children to school, etc.), and residential density. On this case, it is defined by origin-destination pattern of respondents.

The second characteristic, which is journey characteristic, refers to the trip purpose and time of the delay when the journey is undertaken. In regards to trip purpose, public transport services become more preferable means of transport for people to go to work because of their regularity. On this aspect the journey characteristic is defined by working days in a week. In addition, some professions require worker to move from one to other place. As a result, this also becomes a consideration of journey characteristic on this online survey.

The last characteristic is related to transport facility. On this online survey, it emphasizes on improvements that should be taken in order to stimulate the use of public transport services, such as fixed schedule without any delay, safe and convenience, affordable price, broad transportation network, park and ride facility, etc.

3.2.2. In-depth Interview

In order to do primary data collection, this thesis also applies some in-depth interviews. Four interviews are carried out on the process of data collection with four different organizations based on their competencies. Brief description of each interviews are shown in Table 13, and details of each interviews are shown in Appendix 2.

Table 13 In-depth Interviews

| ORGANIZATION | | OBJECTIVE | DISCUSSION TOPICS |
|------------------------------------|--|--|---|
| National Government Organizations | National Planning Agency (Bappenas) | Getting perspective of Central Government in supporting development of integrated transportation in Jakarta | <ul style="list-style-type: none"> Public transport management in Jakarta Metropolitan Area Public transport development plan National policy in regards to transport sector |
| | Ministry of Transportation | | <ul style="list-style-type: none"> Feeder support for Transjakarta service Challenges in transport coordination |
| Provincial Government Organization | Transportation Agency of Jakarta Provincial Government | Getting analysis of motorcycle restriction policy and Jakarta Transportation Macro Pattern | <ul style="list-style-type: none"> Motorcycle restriction policy evaluation Transjakarta development |
| Private Sector | PT. KAI Commuter Jakarta (KCJ) | Getting perspective of train commuter operator in supporting development of integrated transportation in Jakarta | <ul style="list-style-type: none"> Development of commuter train services Development of integrated transport system |

The first interview is conducted with National Planning Agency (Bappenas). As a capital city of Indonesia, Jakarta is also intervened by national policy and plan that are produced by Bappenas. Thus, the interview with Bappenas emphasizes on National Government guidelines and plans regarding transport development in Jakarta as well as supports given to Provincial Government to manage the transport sector. Secondly, the interview is also carried out with Ministry of Transportation. The ministry has significant responsibility in supporting Transportation Agency of Jakarta in managing transport problem in Jakarta. Therefore, the interview focusses on concrete support from Ministry of Transportation as a technical agency of National Government to Provincial Government of Jakarta. Next, the interview also includes discussion with PT. KAI Commuter Jakarta (PT. KCJ) as the operator of commuter train in Jakarta Metropolitan Area. The interview captures development plan of commuter train operation as one of public transport service in Jakarta Metropolitan Area. The fourth interview is conducted with Transportation Agency of Jakarta regarding to motorcycle restriction policy. The Transportation Agency of Jakarta is the government organization which is responsible for transport management within authority of Provincial Government of Jakarta. Therefore, the interview focusses on: implementation of motorcycle restriction policy; development of Transjakarta; and other related transport policies.

3.2.3. Secondary Data Analysis

As a way to capture better actual condition of transport sector in Jakarta, the thesis also carries out secondary data analysis through various kinds of sources, such as official reports, magazines, books, journals and online news. This is done in order to ensure that data and information that have been received are valid. Details sources of the secondary data analysis are shown in Table 14.

Table 14 Secondary Data Analysis

| SOURCES | DETAILS |
|---------------------|--|
| Official Reports | Transjakarta development plan in Jakarta |
| | Public Buses and feeder services of Transjakarta 2014 |
| | Official video of implementation of Macro Pattern of Transport in Jakarta 2012 |
| | Development of MRT Jakarta |
| | Passenger and occupancy report of PT. KCI 2015 |
| | Routes of commuter train |
| | Regional Domestic Product based on province in Indonesia 200 – 2013 |
| | Press release of pilot project of motorcycle restriction policy in Jakarta |
| Magazines | Update Indonesia Volume V No.5 |
| Books | Jakarta in Figure 2014 |
| | Jakarta Transport Agency in Number 2013 |
| Journals | Time Series Comparison of Auto / Motorcycle Ownership and Joint Mode and Destination Choice Models based on Two Large Scale Surveys in Jakarta |
| | Will Jakarta Road Pricing Reduce Fuel Consumption and Emission? |
| Online News | www.beritajakarta.com |
| | www.kompas.com |
| | www.cnnindonesia.com |
| Rule and Regulation | Provincial Regulation No.1 Year 2012 concerning Spatial Plan of Jakarta Province 2030 |
| | Governor Decree No. 103 Year 2007 concerning Macro Pattern of Transport in Jakarta |

CHAPTER 4 RESULTS

TRANSPORT SITUATION IN JAKARTA

4.1. Recent Situation in Jakarta

For the last decade, Jakarta has a significant change in regards to transport problem. Various findings are explored stating that there were significant differences in terms of transport situation in Jakarta, specifically in an essence of motorcycle ridership. Yagi et al. (2013) observe couple of significant survey results that have been conducted in regards to transport mode use in Jakarta. The first one called Household Travel Survey (HST) and it was done in 2002. The HST covered 166,000 households focused on daily travel patterns as well as household socio-demographic characteristics. Another survey called Commuter Travel Survey (CTS) was conducted in 2010 emphasizing on commuting trip characteristics, for instance destination, mode, travel-time, cost, etc. Both survey resulted that at least more than 90% people (commuter) using the same mode of transportation for departing and going home. Besides, they also found eight dominant transportation scheme that are widely used on those specific situation: auto drive alone; auto shared ride; motorcycle; taxi; motorcycle taxi; transit with motorized access; transit with non-motorized access; and non-motorized transport as shown in Table 15. It describes that it was significant increase of motorcycle use, while at the same time it was also noticeable decrease of transit with non-motorized access use. These indicate that people nowadays prefer to use motorcycle rather than public transport service.

*Table 15 Dominant Transportation Scheme in Jakarta
 (Source: Yagi, S., Nobel, D., and Kawaguchi, H. 2013)*

| Transportation Scheme | HTS (2002) | | CTS (2010) | |
|-----------------------------------|------------|--------|------------|--------|
| | Work | School | Work | School |
| Auto drive alone | 4.6% | 0.3% | 8.8% | 0.5% |
| Auto shared ride | 3.7% | 2.5% | 3.9% | 2.7% |
| Motorcycle | 23.5% | 5.7% | 54.7% | 25.5% |
| Taxi | 0.5% | 0.3% | 0.1% | 0.2% |
| Motorcycle taxi | 2.6% | 2.5% | 1.0% | 2.7% |
| Transit with motorized access | 6.2% | 2.9% | 5.9% | 9.7% |
| Transit with non-motorized access | 36.8% | 38.7% | 8.1% | 13.3% |
| Non-motorized transport | 22.1% | 47.1% | 17.3% | 45.5% |

Therefore, as a way to reduce traffic congestion that is caused by increasing private vehicle, there is a need of policies which encourage people to shift to use public transport service. Exercising on the probability of people to shift, Prayudyanto et al. (2013) observe the combination of alternative policies that could affect to the increasing of public transport ridership in Jakarta. They found that by pessimistic level, meaning that the Provincial Government do not formulate any additional transport policy, the public transport ridership would only reach 30%, while if it is combined with full BRT service it would rise into 57.6%. The full BRT service refers to the situation that in 2015 there would be 15 corridors operating within Jakarta, while in 2010 it was only 10 corridors are available. Moreover, if the condition is also combined with road pricing it would achieve higher ridership to 65.4%. Finally, the highest ridership level of public transport, 71.5%, would be realized when the policy is also involved parking management scheme. The Provincial Government of Jakarta is considering to apply parking

management through parking restriction scheme. The scheme divides Jakarta into four main areas. The central area applies 75% parking restriction. This means that the vehicle only possibly park in 25% area that are allowed by the authorities. Other three areas, which were located around central area, also apply parking restriction 50%, 25% and 10% respectively indicating that the more far the location from the central area the more available regarding to the parking areas. Outlining those arguments in general, they argue that Bus Rapid Transit (BRT) should be positioned as basic strategy overcoming the congestion in order to courage people to use public transport. Then, the strategy is also combined with (road) pricing as well as parking management to achieve the maximum result of public transport ridership.

Therefore, reacting to actual situation of transport problem, the Provincial Government of Jakarta initiated a pilot project of motorcycle restriction policy. The policy is implemented on some main roads within Jakarta with only total distance of 2.8 kms. Map of motorcycle restriction area is shown in Figure 11. This thesis attempts to do policy evaluation in transport sector by taking the motorcycle restriction policy as a case study.

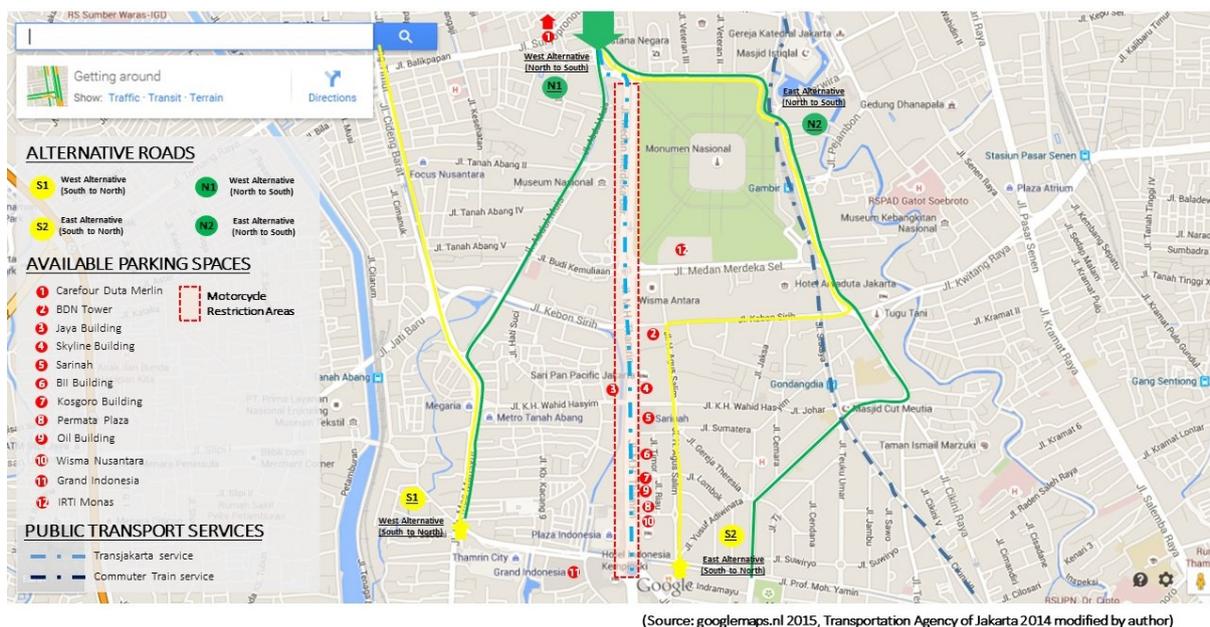


Figure 11 Motorcycle Restriction Areas in Jakarta
 (Source: based on googlemaps.nl 2015 and Transportation Agency of Jakarta 2014)

4.2. Responses towards Motorcycle Restriction Policy

In order to reduce traffic congestion on the main roads, in December 2014 the Provincial Government of Jakarta launched a motorcycle restriction policy on MH Thamrin street starting from Bundaran Hotel Indonesia to Bundaran Air Mancur Monas; and West Medan Merdeka (Transportation Agency of Jakarta 2014). The performance measurement focusses on people’s responses towards motorcycle restriction policy. It is done by asking the knowledge of respondents towards latest transport policy and the responds of respondents if the motorcycle restriction policy is implemented in wider area.

Responses of people towards motorcycle restriction policy are measured through online survey form by using performance method. According to survey results, in terms of knowledge on latest transport policy, 83.16% respondents claim that they have already known about the latest motorcycle restriction policy while the rest of them say that they do not know about it. These are shown in Figure 12.

Another result also includes response towards the motorcycle restriction when it is implemented in wider area. As it is shown in Figure 13, 40% respondents say that they would shift to use public transport service due to the motorcycle restriction policy, while 54.74% of respondents say opposite way. Then, the rest of them are not bothered with the transport policy which mean that they are still use their motorcycle without giving any consideration into motorcycle restriction policy.

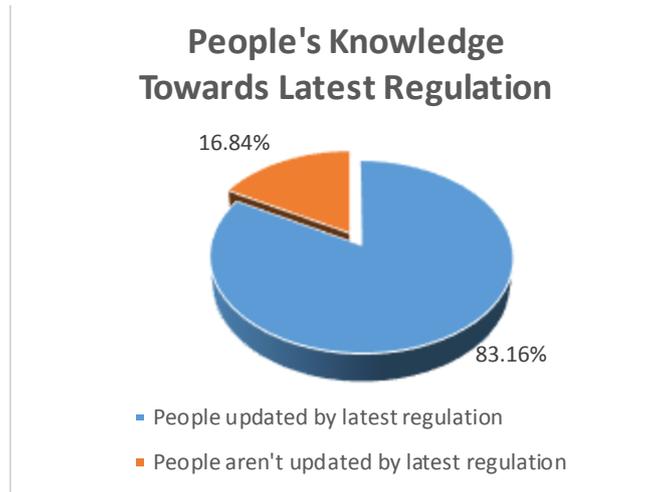


Figure 12 Knowledge on Latest Transport Policy

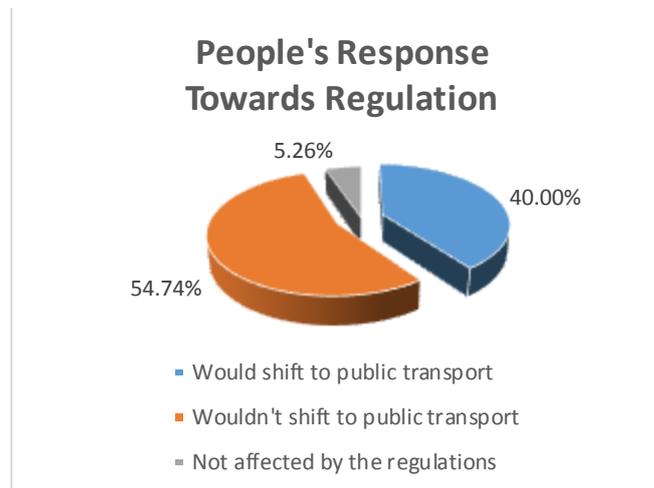


Figure 13 Response towards Transport Policy

4.3. Achievement of Motorcycle Restriction Policy

As a compensation of motorcycle restriction policy, the Provincial Government provides free bus along restricted corridors that could be used by motorcycle users. Besides, alternative ways are also available to be used by motorcycle users. Scheme of motorcycle restriction areas and its alternative roads are shown in Figure 14, while detailed map of it is also shown in Appendix 3.

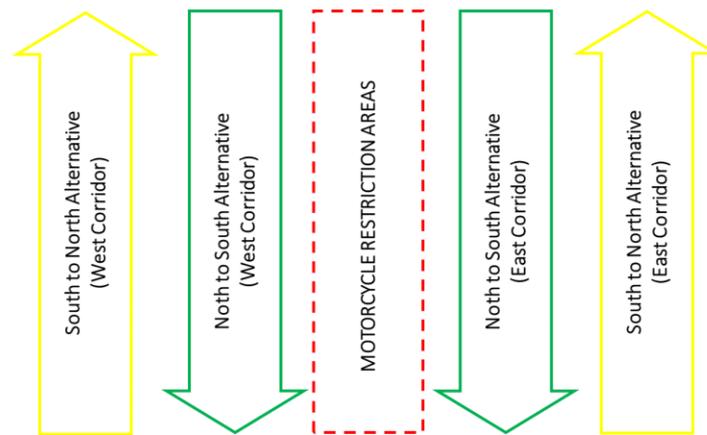


Figure 14 Scheme of Motorcycle Restriction Areas and Its Alternative Roads
(Source: based on Transportation Agency of Jakarta 2014)

Besides those four alternatives, the Provincial Government also provides support for the use of parking space by motorcycle users. Capacity of total parking space which are dedicated for motorcycle along corridors are up to 6,528 units as shown in Table 16. The map of those locations are also included in Appendix 3.

Table 16 Available Parking Space around Motorcycle Restriction Areas
(Source: Transportation Agency of Jakarta 2014a)

| No. | Parking Area | Car Capacity | Motorcycle Capacity |
|--------------|----------------------|--------------|---------------------|
| 1 | Carefour Duta Merlin | 677 | 1,000 |
| 2 | BDN Tower | 420 | 400 |
| 3 | Jaya Building | 200 | 160 |
| 4 | Skyline Building | 502 | 495 |
| 5 | Sarinah | 233 | 73 |
| 6 | BII Building | 1,010 | 640 |
| 7 | Kosgoro Building | 180 | 150 |
| 8 | Permata Plaza | 277 | 200 |
| 9 | Oil Building | 180 | 160 |
| 10 | Wisma Nusantara | 653 | 600 |
| 11 | Grand Indonesia | 5,092 | 1,950 |
| 12 | IRTI Monas | 300 | 700 |
| TOTAL | | 9,724 | 6,528 |

The conformance measurement focusses in measuring achievement of the motorcycle restriction policy towards the goals: decreasing traffic congestion in main road through stimulating the use of public transport service. Therefore, in order to get the latest update related to the policy evaluation, interview is conducted with related stakeholder which is Transportation Agency of Jakarta.

After 4 month implementation, in March 2015 the motorcycle restriction policy was being evaluated its effectiveness. The results of its implementation are drawn in Table 17. According to the Table 17, after implementing the motorcycle restriction policy, there is changes in main roads: decreasing of traffic volume and average travel time; and increasing of average speed. On the other hand, contrast changes also occur in alternative roads which have increasing traffic volume and average travel time

and decreasing average speed. Other changes that also occur after the policy has been implemented for almost 4 months are better condition of vehicle queue in main roads; better condition for pedestrians and bikers in main roads; and increasing of illegal parking areas along the restricted areas.

*Table 17 Evaluation of Motorcycle Restriction
(Source: Transportation Agency of Jakarta 2015)*

| Indicators | Before Policy Implementation | After Policy Implementation | Remarks |
|--------------------------------|---------------------------------|---|--------------------------------------|
| Quantitative Indicators | | | |
| Main Roads | | | |
| Traffic Volume | 6,300 PCU/hour* | 4,886 PCU/hour | Decreasing 1,414 PCU/hour (22.4%) |
| Average Speed | 26.3 kms/hour | 30.8 kms/hour | Increasing 4.5 kms/hour (17.1%) |
| Average Travel Time | 8.2 mins | 6.9 mins | Decreasing 1.3 mins (15.9%) |
| Alternative Roads | | | |
| Traffic Volume | 1,752 PCU/hour | 2,109 PCU/hour | Increasing 357 PCU/hour (20.4%) |
| Average Speed | 22.9 kms/hour | 17.5 kms/hour | Decreasing 5.4 kms/hour (23.6%) |
| Average Travel Time | 22 mins | 27.1 mins | Increasing 4.9 mins (22.1%) |
| Qualitative Indicators | | | |
| Traffic condition | | Better queueing | |
| Pedestrians and bikers | | More comfortable and secure | |
| Parking Space | | Increasing volume in illegal parking areas | |

*PCU: Passenger Car Unit

4.4. Likelihood to Shift to Public Transport

In order to measure the likelihood to shift to public transport, there are 3 indicators that are measured: Origin-Destination Pattern; Willingness to Shift; and Ability to Shift to Public Transport service. The likelihood to shift to public transport attempts to observe intention of shifting from private vehicle user to public transport service by considering condition of public transport and willingness to shift from respondents' perspective. This is also complemented by considering place where respondents are living and working.

Origin-Destination Pattern

The origin-destination pattern describes the distribution of place where the respondents are living and working. Figure 15 describes the distribution of place where the respondents are living based on results of online survey. Dominant respondents, which are 47.37%, live within province of Jakarta. The next dominant living place of the respondents is in Depok City, followed by South Tangerang City, Bekasi City, Bogor City, and Bogor Regency.

Then, observation is moving into place where respondents are working in Jakarta. According to results of online survey, Figure 16 describes the distribution of working place of the respondents. Dominant respondents, which is 51%, say that they are working in South Jakarta area. In fact the area of South Jakarta is dominated by various kinds of offices, and become one major contributor of economic activities for Province of Jakarta. Next, 31% of respondents are having their working place in Central Jakarta. Then, small number of respondents are also working in West Jakarta and East Jakarta.



Figure 15 Distribution of Respondent's Living Place

The next observation also covers time departure and arrival of the respondents. This has strong correlation with place where the respondents are living and working. The more distance of the respondents' place of living and working the more time they need for travelling, then the more early they should depart from their living area. Since the respondents are dominated by people who are living within the Province of Jakarta, 45% respondents claim that they depart from their home at around 6 a.m. In addition, 29% of respondents depart at 7 a.m. from their residential area, and 15% of respondents are leaving their home more early at 5 a.m. The complete result of the departure time of respondents are shown in Figure 17.

Besides departure time, arrival time of respondents is also observed on the measurement. The arrival time refers to the time when respondents are leaving their working place to get back to their home. Figure 18 describes distribution of arrival time of respondents. There is a slightly difference between the most dominant time when respondents are going back to their home at 5 p.m., which is 26%, and the second dominant time at 6 p.m. which refers to 24%. Another slight difference also occurs between respondents who are leaving their working place at 7 p.m., which is 16% of respondents, and those who are leaving at 4 p.m. that is 15% of respondents.

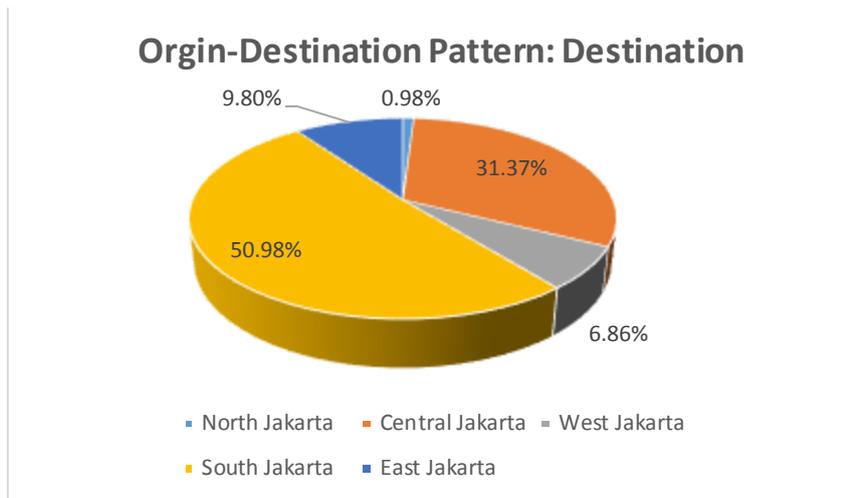


Figure 16 Distribution of Respondents' Working Place

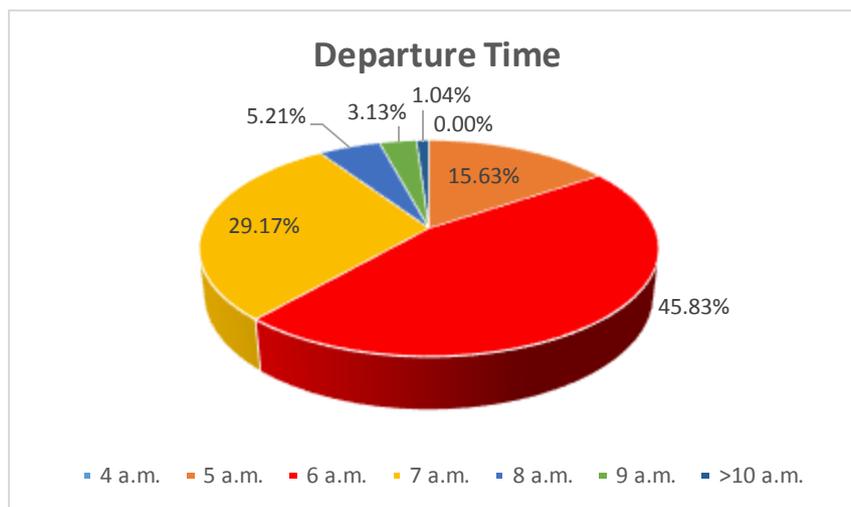


Figure 17 Departure Time of Respondents

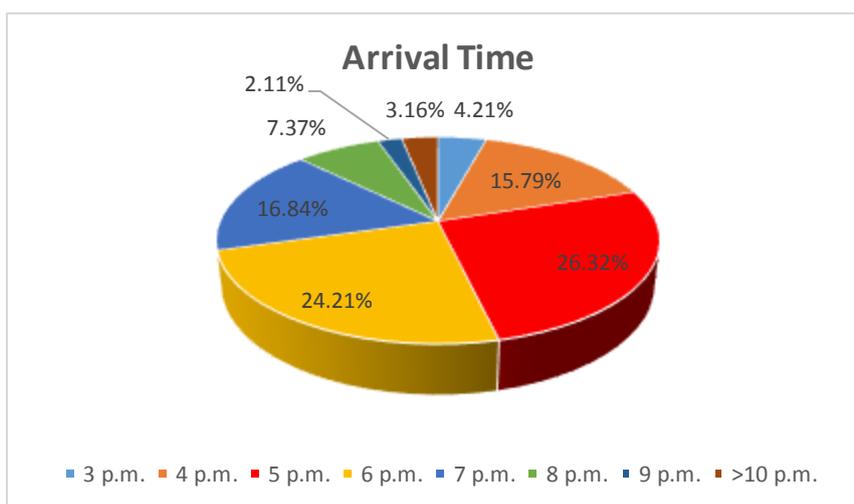


Figure 18 Distribution of Arrival Time

Ability to Shift

In order to measure the potential of respondents' behavior to shift to use public transport service, the first thing that is being observed is the perspective towards public transport service. According to Figure 19 that is based on results of online survey, 51.58% of respondents claim that the public transport service is still insufficient while 48.42% of respondents agree that the public transport service is already sufficient to serve them.

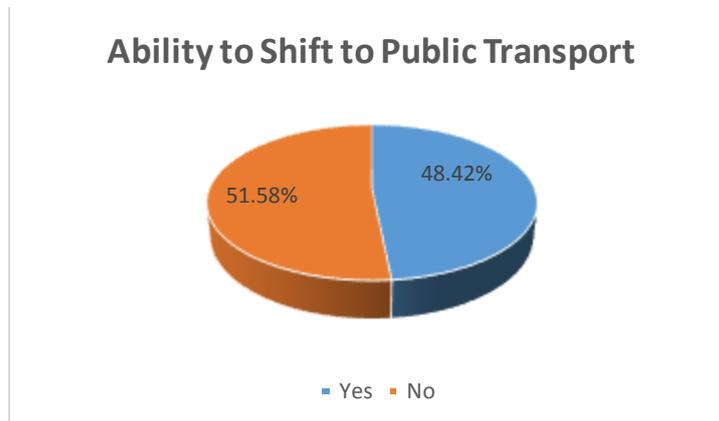


Figure 19 Ability to Shift to Public Transport

Willingness to Shift

The next consideration of shifting to use public transport service is related to willingness of respondents to shift to use public transport service. According to results of online survey, Figure 20 explains that 53.68% of respondents say that they would not shift to use public transport service while the rest of them, which is 46.32% of respondents, are agree to shift to use public transport service.

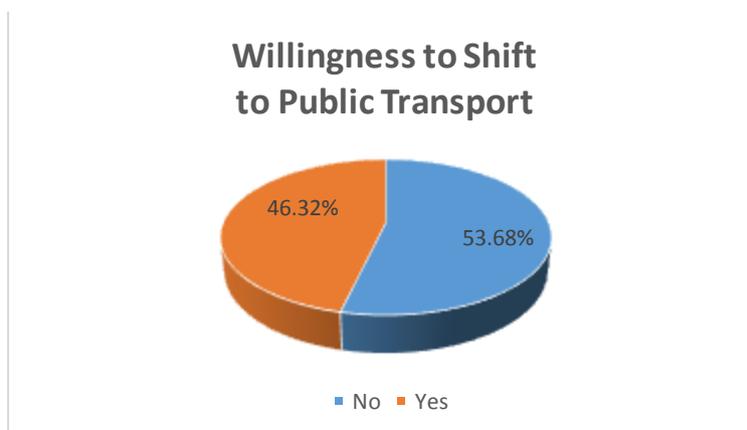


Figure 20 Willingness to Shift to Public Transport

4.5. Public Transport Service Development in Jakarta

In terms of transport sector, Province of Jakarta has already made its master plan. The master plan has already being enacted as Governor Decree No.103 Year 2007 regarding Macro Pattern of Transport in Jakarta. According to the Macro Pattern of Transport, development of transport infrastructure in Jakarta covers at least six sub-sectors, there are public bus development, mass rapid development, road development, railway development, alternative transportation development, and supporting policy development. On this thesis, evaluation of transport system in Jakarta is conducted by focusing on certain sub-components of public transport service development, such as public bus, Bus Rapid Transit (BRT) / Transjakarta, Commuter Train / Jabodetabek Train, Mass Rapid Transit (MRT), Light Rapid Transit (LRT), and other supporting facilities. This is done by analyzing condition of public transport service in Jakarta. In order to stimulate ridership of public transport, both Central Government and Provincial Government should also be able to provide sufficient public transport service for people. Therefore, on this section, the observation and analysis focus on those 6 sub-components of public transport service in Jakarta.

4.5.1. Public Bus Service

Managing public bus in Jakarta is not become an easy thing since public buses should serve variety need of variety passengers. The need of passengers are very wide for instance kind of bus service (fast and limited buses or PATAS and regular buses); operation hour of buses; and bus service areas. Table 18 shows number of buses and routes that available in Jakarta.

*Table 18 Public Bus Services in Jakarta
(Source: Transportation Agency of Jakarta 2014)*

| NO | BUS SERVICES | | | | | | | | | | TOTAL | |
|----|---------------------------|-------|--------------------|-------|---------|-------|--------|-------|------------------|-------|--------|-------|
| | PATAS AC ^a | | PATAS ^b | | REGULAR | | BUSWAY | | APT ^c | | | |
| | BUS | ROUTE | BUS | ROUTE | BUS | ROUTE | BUS | ROUTE | BUS | ROUTE | BUS | ROUTE |
| 1 | Large Buses ^d | | | | | | | | | | | |
| | 806 | 78 | 365 | 29 | 172 | 15 | 683 | 12 | 143 | 13 | 2,149 | 146 |
| 2 | Medium Buses ^d | | | | | | | | | | | |
| | - | - | - | - | 1,455 | 80 | - | - | - | - | 1,455 | 80 |
| 3 | Small Buses ^d | | | | | | | | | | | |
| | - | - | - | - | 14,049 | 160 | - | - | - | - | 14,049 | 160 |

Notes:

^a PATAS AC refers to kind of buses with limited amount of passengers, without any passenger who are standing, and are equipped with air conditioning system.

^b PATAS refers to kind of buses buses with limited amount of passengers, without any passenger who are standing, and are not equipped with air conditioning system.

^c APTB refers to kind of buses that serve as supporting feeder bus for Transjakarta (busway). They operate from some satellite cities such as Bekasi, Bogor, Depok, and Tangerang.

^d Based on Director General Decree of Land Transportation, Ministry of Transportation No.687 Year 2002 large buses have capacity for 79 passengers while medium and small buses have capacity for 30 and 19 respectively.

According to the Macro Pattern of Transport in Jakarta, public bus development covers route management and public bus rationalization. Right now, Provincial Government of Jakarta is still doing on process of revitalization for public transport. As a preliminary observation Kopaja S66 corridor Manggarai – Blok M becomes a pilot project of the public transport revitalization (Aziza 2015b; Andry 2015). Due to the revitalization, there are several changes of public transport operation. First of all it

concerns with operation of public transport service. It moves from minimum payment that drivers should pay to payment that is based on distance kilometers. This means that according to new system, the drivers would not be in hurry in order to get as much as they can in collecting transport cost from passengers. The drivers would get their money progressively based on passengers' distance. This change would also shift behavior of the drivers in their daily working life becoming better organized. The second change occurs in terms of organizational structure. This means that all public transport operator should be incorporated with PT Transportasi Jakarta (Transjakarta). This condition would make better coordination and communication of all public buses in Jakarta.

4.5.2. Bus Rapid Transit (BRT)

In order to promote the use of public transport in Jakarta, Transjakarta plays dominant factor in providing transport service. Having its own dedicated way Transjakarta is expected could increase the use of public transport in Jakarta. In fact, passengers of Transjakarta are always increasing since its beginning era in 2006 as shown in Figure 21.



Figure 21 Passenger of Transjakarta 2006 – 2013
(Source: Statistics of DKI Jakarta Province 2014)

Based on the Macro Pattern of Transport in Jakarta there would be 15 corridors of Transjakarta serving mobility in Jakarta as shown in Table 19. Furthermore, specific details of each corridors are explained in Table 20. According to the Table 19 it describes that almost 80% of Transjakarta corridors have already been built and operated. The rest of them, which are still 3 corridors remaining, are planned to be built in elevated forms (Provincial Government of Jakarta 2013). In addition, Table 21 also describes characteristics of each Transjakarta corridors. The important things is this information is based on theoretical calculation. This means that this would have various differences when they come into practical experience. As an example, since there are many traffic congestion, average travel time of Transjakarta would be more longer than it is expected because in some conditions police are allowed to direct other vehicle get into Transjakarta dedicated way. Furthermore, map of the Transjakarta corridors are described on Appendix 4.

Table 19 Transjakarta Corridors Plan
 (Source: Transportation Agency 2014b, Provincial Government of Jakarta 2007)

| CORRIDOR | ROUTE | REMARKS |
|----------|-----------------------------------|------------------------|
| I | Blok M – Kota | It has operationalized |
| II | Pulogadung – Harmoni | It has operationalized |
| III | Kalideres – Harmoni | It has operationalized |
| IV | Pulogadung – Dukuh Atas | It has operationalized |
| V | Kampung Melayu – Ancol | It has operationalized |
| VI | Ragunan – Kuningan | It has operationalized |
| VII | Kampung Rambutan – Kampung Melayu | It has operationalized |
| VIII | Lebak Bulus – Harmoni | It has operationalized |
| IX | Pinang Ranti – Grogol – Pluit | It has operationalized |
| X | Cililitan – Tanjung Priok | It has operationalized |
| XI | Pulo Gebang – Kampung Melayu | It has operationalized |
| XII | Pluit – Tanjung Priok | It has operationalized |
| XIII | Pondok Kelapa – Blok M | Under construction |
| XIV | UI – Pasar Minggu – Manggarai | Under construction |
| XV | Ciledug – Blok M | Under construction |

Table 20 Information of Busway Corridors in Jakarta
 (Source: Transportation Agency 2014b)

| CORRIDOR | ROUTE (km) | BUS STOP (unit) | AVERAGE DISTANCE BETWEEN BUS STOPS (m) | TOTAL BUSES (unit) | AVERAGE TRAVEL TIME (minute) | MAXIMUM BUS SPEED (km/h) |
|--|------------|-----------------|--|--------------------|------------------------------|--------------------------|
| Corridor I: Blok M - Kota | 12.9 | 20 | 650 | 145 | 90 | 60 |
| Corridor II: Pulogadung - Harmoni | 14.3 | 22 | 700-800 | 55 | 90 | 60 |
| Corridor III: Kalideres - Harmoni | 18.7 | 13 | 700-800 | 71 | 90 | 60 |
| Corridor IV: Pulogadung –Dukuh Atas | 11.85 | 17 | 700-800 | 84 | 90 | 60 |
| Corridor V: Kp. Melayu - Ancol | 15.5 | 17 | 450-2,250 | 57 | 90 | 60 |
| Corridor VI: Ragunan - Kuningan | 13.3 | 18 | 700-800 | 153 | 90 | 60 |
| Corridor VII: Kp. Rambutan – Kp. Melayu | 12.8 | 13 | 500-1,5000 | 151 | 100 | 60 |
| Corridor VIII: Lebak Bulus - Harmoni | 26 | 20 | 500-1,500 | 59 | 120 | 60 |
| Corridor IX: Pinang Ranti - Pluit | 29.9 | 23 | 500-1,500 | 107 | 190 | 60 |
| Corridor X: Cililitan – Tg. Priok | 19 | 18 | 500-1,500 | 40 | 110 | 60 |
| Corridor XI: Kp. Melayu – P. Gebang | 11.35 | 15 | 360-1,250 | 21 | 130 | 60 |

| CORRIDOR | ROUTE (km) | BUS STOP (unit) | AVERAGE DISTANCE BETWEEN BUS STOPS (m) | TOTAL BUSES (unit) | AVERAGE TRAVEL TIME (minute) | MAXIMUM BUS SPEED (km/h) |
|---------------------------------|------------|-----------------|--|--------------------|------------------------------|--------------------------|
| Corridor XII: Tg. Priok - Pluit | 23.75 | 13 | 450-3,178 | 36 | 240 | 60 |

Besides Transjakarta service, there is also additional public transport service that is related to Transjakarta called APTB buses. The APTB buses operate as feeder service of Transjakarta operating from and to other satellite cities and other strategic areas around Jakarta such as Bekasi, Bogor, Depok, and Tangerang. Table 21 explains route of APTB in Jakarta Metropolitan Area.

*Table 21 APTB Service in Jakarta Metropolitan Area
(Source: Provincial Government of Jakarta 2015)*

| VEHICLE NUMBER | ROUTE | BUSES (unit) |
|----------------|-----------------------------------|--------------|
| APTB 01 | Bekasi – Pulo Gadung | 7 |
| APTB 03 | Poris Plawad - Tomang | 10 |
| APTB 04 | Ciputat - Kota | 15 |
| APTB 05 | Cibinong - Grogol | 13 |
| APTB 06 | Bogor - Rawamangun | 10 |
| APTB 07 | Bekasi – Tanah Abang | 20 |
| APTB 08 | Bekasi – Bundaran Hotel Indonesia | 8 |
| APTB 09 | Bogor – Blok M | 10 |
| APTB 10 | Cileungsi – Blok M | 10 |
| APTB 11 | Bogor – Tanah Abang | 10 |
| APTB 12 | Bogor – Tanjung Priok | 10 |
| APTB 13 | Pulo Gadung - Tangerang | 10 |
| APTB 14 | Cikarang - Kalideres | 10 |
| TOTAL BUSES | | 143 |

4.5.3. Light Rapid Transit (LRT)

According to the Macro Pattern of Transport in Jakarta, LRT refers to monorail development. It consists of two lines: LRT Monorail Green Line and Blue Line. The Green Line has total distance of 14.3 km. It serves 16 stations: Stadium Madya, Palmerah, Pejompongan, Karet Interchange, Sudirman-Dukuh Atas, North Setiabudi, Central Kuningan, Rasuna Park, Casablanca Interchange, Grand Melia, Gatot Subroto, Satria Mandala, Komdak, SCBD (Sudirman Central Business District), Gelora Senayan, and Plaza Senayan. On the other hand, the Blue Line serves 15 stations with total distance 13.5 km, and there are Kampung Melayu, Tebet, Dr. Saharjo, Menteng Dalam, Casablanca Interchange, Ambassador, Sudirman-WTC, Batavia Tower, Karet Interchange, Kebon Kacang, Tanah Abang, Cideng, Tarakan, Tomang, and Taman Anggrek Mall.

The development of monorail project itself has a high dynamic of change in Jakarta. The development project started in 2004 in era of Governor Sutiyoso. After 7 years without any significant result, in 2011 the Governor of Fauzi Bowo canceled the development project due to incompetent contractor and investor of the project. Then, in October 2013, the new elected Governor of Jakarta, Joko Widodo, did 'regroundbreaking' for the development project of monorail. The next Governor of Jakarta, Basuki T. Purnama, is chosen because Joko Widodo is elected as the President of Indonesia in November 2014.

Observing and doing some analysis through the situation, the Governor Basuki canceled the development project again. He claimed that he emphasized on technical matters that the development of station in around dams in Setiabudi and Tanah Abang, Jakarta, would be really dangerous for Jakarta citizen. This opinion was resulted by analysis of Ministry of Public Works and Housing. This situation resulted in ‘monument’ of approximately 90 columns that have been built in the area of monorail plan project. (Rudi 2015; Syatiri 2015; Aziza 2015c).

Responding to the situation, the Provincial Government of Jakarta right now is preparing a new LRT development project. The LRT is claimed has better use of technology than monorail and expected would be ready to operate in August 2018 supporting the Asian Games in Jakarta (Suryowati 2015). The LRT itself covers 7 lines with its main station in Kelapa Gading, North Jakarta. The 7 lines are Kebayoran Baru-Kelapa Gading (21.6km), Tanah Abang-Pulo Mas (17.6km), Pesing-Soekarno Hatta Airport (18.5km), Joglo-Tanah Abang (9.3km), Pesing-Kelapa Gading (20.7km), and Cempaka Putih-Ancol (10km) (Jakarta Post 2015). Right now, progress of the LRT development project is still on discussion with various related stakeholders, such as Ministry of Transportation, National Planning Agency (Bappenas), Ministry of Public Works and Housing, Ministry of State Owned Company, Provincial Government of Jakarta, and Adhi Karya Tbk. as an investor.



Figure 22 Columns of Monorail that have been built in Jakarta
(Source: Sari 2015)

4.5.4. Mass Rapid Transit (MRT)

MRT project in Jakarta is carried out in order to provide more options in terms of public transport service to the people who are working and living in Jakarta Metropolitan Area. Generally, MRT in Jakarta will be built in 2 main corridors: South-North Corridor from Lebak Bulus to Kampung Bandan, and East-West Corridor.

The development of South-North corridor is divided into 2 main phases. The first phase would serve Lebak Bulus-Bundaran Hotel Indonesia with total distance is 15.5 km, while the second phase would be built from Bundaran Hotel Indonesia to Kampung Bandan with total distance is 22.7 km. Details of technical data for both development project phases are described in Table 22. The Phase I of South-North corridor is expected would be ready to operate in 2018, while the phase II are planned to serve

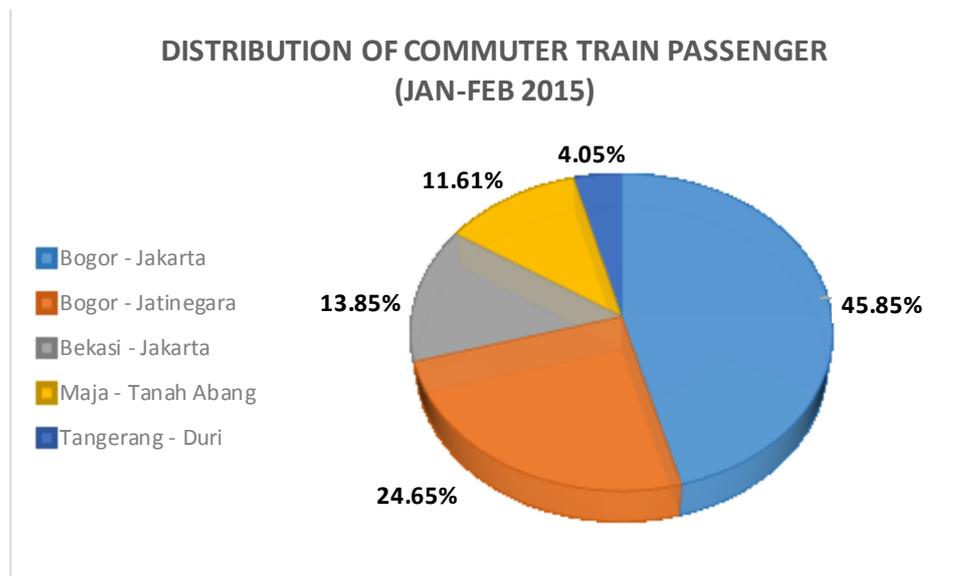
citizen of Jakarta in 2020. The East-West corridor right now is still on feasibility study phase thus is expected to operate in around 2024-2027 (MRT Jakarta 2015).

*Table 22 Details of MRT Development Projects
(Source: Transportation Agency 2014b)*

| NOTES | DEVELOPMENT PROJECT PHASE I | DEVELOPMENT PROJECT PHASE II |
|---------------------------|---|---|
| Route | Lebak Bulus – Bundaran Hotel Indonesia | Bundaran Hotel Indonesia – Kampung Bandan |
| Total Distance | 15.5 km (10.5 km elevated, 5 km underground) | 22.7 km |
| Stations | 13 (7 elevated, 6 underground) | 9 underground |
| Travel Time | 28 minutes | 51 minutes |
| Stopping Time at Station | 40-60 seconds | 40-60 seconds |
| Distance between Stations | 0.8 – 2.2 km | 0.8 – 2.2 km |
| Headway | 4.5 minutes | 3.5 minutes |
| Passenger per day | 340,000 | 400,000 |
| Rolling Stock | 17 train sets or 102 cars (1 set = 6 cars) | 39 train sets or 234 cars (1 set = 6 cars) |
| Electricity | 35-40 MVA | 50 MVA |
| Central Station Capacity | Lebak Bulus (102 cars) | Would be added in Kota Station |

4.5.5. Commuter Train / Jabodetabek Railway

Railway transport has better efficiency rather than other transport mode in terms of travel time in Jakarta Metropolitan Area. Therefore, commuter train in Jakarta Metropolitan Area which is operated by PT. KAI Commuter Jakarta (KCI) become one of attractive public transport especially for people who are living in outside Jakarta, such as Tangerang, Bekasi, Depok, and Bogor.



*Figure 23 Commuter Train Passenger in January-February 2015
(Source: PT. KCI 2015a)*

Right now commuter train service operates 5 corridors around Jakarta Metropolitan Area. Figure 23 describes distribution of passengers in period of January and February 2015. According to the Figure 23, passengers of Bogor-Jakarta corridor dominate over other corridors' passengers. Moreover, details of each corridors are explained in Table 23. Each corridor has different average distance between stations due to different total distance for each corridor. Transit station refers to a station where passengers can transfer to other commuter train to reach their destination. As an example, for passengers who want to use commuter train from Bogor to Bekasi, firstly they have to take either Bogor – Jakarta or Bogor – Jatinegara corridor, then stop at Manggarai as a transit station. Next, they have to take Bekasi – Jakarta corridor to go to Bekasi. Details of each corridors are shown in Appendix 5.

*Table 23 Corridors of Commuter Train in Jakarta Metropolitan Area
(Source: PT KCI 2015b)*

| CORRIDOR | TOTAL STATIONS (stop) | TOTAL DISTANCE (km) | AVERAGE DISTANCE BETWEEN STATIONS (km) | TRANSIT STATION(s) |
|--------------------|------------------------------|----------------------------|---|--|
| Bogor – Jakarta | 23 | 55.08 | 2.39 | 1. Citayam 2. Manggarai 3. Jakarta |
| Bogor - Jatinegara | 29 | 70.56 | 2.43 | 1. Citayam 2. Manggarai 3. Tanah Abang 4. Duri 5. Kampung Bandan 6. Rajawali 7. Jatinegara |
| Bekasi – Jakarta | 14 | 27.34 | 1.95 | 1. Jatinegara 2. Manggarai 3. Jakarta |
| Maja – Tanah Abang | 16 | 52.85 | 1.93 | 1. Tanah Abang |
| Tangerang - Duri | 10 | 19.30 | 3.30 | 1. Duri |

4.5.6. Supporting Facilities

Facilities of public transport service also play major role in stimulating the use of public transport service. As an example facility of park and ride in railway stations. The park and ride facility will allow people who are using their private vehicle to park their vehicle and continue their journey by taking public transport service for instance commuter train. Provision of park and ride facility contributes to increasing of public transport service use. Therefore, in some strategic locations, park and ride facility are available to encourage people to use public transport service. In regards to park and ride facility in stations, according to spatial plan of Jakarta Province there are at least 8 locations of park and ride and other 8 locations that are identified as potential place for park and ride development. Those places are described in Table 24. Detail of locations are shown in Appendix 6.

*Table 24 Park and Ride Facility in Supporting Public Transport Service
(Source: Provincial Government of Jakarta 2012)*

| Park and Ride Location | Potential Location of Park and Ride Development |
|-------------------------------|--|
| Kota / Kampung Bandan | Kalideres |
| Rawa Buaya | Blok M |
| Tanah Abang | Lebak Bulus |

| | |
|---------------|------------------|
| Manggarai | Ragunan |
| Senen | Kampung Rambutan |
| Pasar Minggu | Pulo Gebang |
| Tanjung Barat | Tanjung Priok |
| Cakung | Kembangan |

Another important consideration for passenger also relates to connection between modes of public transport service. Connection not only important for change within one mode of public transport service, as explained in commuter train section, but also to change to other public transport service. In order to reach their destination, usually passenger have to switch from one to two kinds of public transport service. Therefore connection of both those public transport services becomes major determinant for passenger in choosing to use public transport service. Table 25 and 26 show some connections among Transjakarta, Public Bus, and Commuter Train services in Jakarta. Both of the tables describe that Transjakarta service has already made various connection to other modes of transport. This situation would encourage people to give more consideration on taking public transport service. Furthermore, connection between Transjakarta and commuter train becomes an important thing for commuter who are living outside Jakarta. Through this connection they get easily move and switch from train and bus in order to get their destination.

*Table 25 Connection between Transjakarta and Public Bus Services
(Source: Transportation Agency of Jakarta 2014b)*

| BUSWAY CORRIDOR(S) | BUS STOP FOR PUBLIC BUSES AND TRANSJAKARTA |
|---|---|
| Corridor 1: Blok M - Kota | Bus Stop: Blok M |
| Corridor 7: Kp. Rambutan – Kp. Melayu | Bus Stop: Kampung Rambutan |
| Corridor 2: Pulogadung - Harmoni Corridor 4: Pulogadung – Dukuh Atas | Bus Stop: Pulogadung |
| Corridor 2: Pulogadung - Harmoni Corridor 5: Kp. Melayu – Ancol | Bus Stop: Senen |
| Corridor 5: Kp. Melayu – Ancol Corridor 7: Kp. Rambutan – Kp. Melayu | Bus Stop: Kampung Melayu |
| Corridor 6: Ragunan - Kuningan | Bus Stop: Ragunan |
| Corridor 3: Kalideres - Harmoni | Bus Stop: Kalideres |
| Corridor 8: Lebak Bulus - Harmoni | Bus Stop: Lebak Bulus |
| Corridor 9: Pinang Ranti - Pluit | Bus Stop: Pinang Ranti |
| Corridor 10: Cililitan – Tg. Priok Corridor 12: Tg. Priok - Pluit | Bus Stop: Tanjung Priok |
| Corridor 11: Kp. Melayu – P. Gebang | Bus Stop: Kampung Melayu and Pulo Gebang |

*Table 26 Connection between Transjakarta and Commuter Train Services
(Source: Transportation Agency of Jakarta 2014b)*

| BUSWAY BUS STOP | COMMUTER TRAIN STATION |
|--------------------------|-------------------------------|
| Bus Stop: Kota | Station: Jakarta Kota |
| Bus Stop: Dukuh Atas | Station: Sudirman |
| Bus Stop: Juanda | Station: Juanda |
| Bus Stop: Gambir 1 and 2 | Station: Gambir |
| Bus Stop: Central Senen | Station: Senen |

| | |
|---------------------------|---------------------|
| Bus Stop: East Jatinegara | Station: Jatinegara |
| Bus Stop: Manggarai | Station: Manggarai |

The last important feature of public transport service in Jakarta is ticketing system. Right now, for passengers of Transjakarta and commuter train they do have already had a beneficial in terms of ticket payment system. The passengers of both public transport services are able to use e-money facility. The e-money refers to amount of money that are invested in a card that could be used to pay cost of public transport service in Jakarta. Various kinds of e-money have already been produced by various bank in Jakarta, such BNI 46 (prepaid card), BRI (BRIZZI card), BCA (Flazz card), Mandiri (Mandiri Prabayar card), and DKI Bank (Jakcard) (Transportation Agency of Jakarta 2014). Figure 24 describes an example of e-money that is issued by Mandiri Bank, and is possible to pay both Transjakarta and commuter train service as well as do shopping in some cooperated merchants.



Figure 24 An Example of E-Money
(Source: Author 2015)

CHAPTER 5 ANALYSIS

POLICY EVALUATION ON TRANSPORT SECTOR

Based on the data that have been explained on the previous chapter, a transport policy evaluation is carried out in order to measure impact of policy for people. Focusing on the effectiveness of policy, the evaluation attempts to measure how the policy affects to people's behavior through performance measurement as well as analyze the situation by comparing before and after the policy has been implemented through conformance measurement. These two important notions would be complemented by the observation of people intention to shift from motorcycle to public transport service and evaluation of public transport service development.

5.1. Evaluation of Responses towards Motorcycle Restriction Policy

The first thing that relates to policy evaluation is how the policy gives impact to people's daily activities. On this case, performance measurement emphasizes on analysis of people's response towards transport policy. According to the online survey result, 83.16% of respondents claim that they have already known regarding the latest transport policy in Jakarta Metropolitan Area. However, 54.74% of respondents said that they would not shift to use public transport service, although they have already known about the latest transport policy which includes motorcycle restriction. This implies two things. First, there are some reasons for causing people not to use public transport service. This would be discussed on next section of this thesis. Secondly, in regards to information dissemination, related authorities have been success in reaching their objective. This condition also becomes a good start in implementing a new policy.

In terms of performance level of measurement, this relates to the level of consideration (Van Doran et al. 2013). This means that people have already passed first level of acquaintance. The acquaintance level refers to condition that whether people have already been updated by new policy, while the consideration level means that in deciding their decision people have already considered about the latest policy. The consideration level stands higher than the acquaintance level. The highest level of conformance measurement, which is consent level, refers to a condition when people have already adjusted their decision based on policy or regulation that is implemented on that time.

In fact, people have already known regarding the development of transport policy and have been updated by such information. However, when this situation comes to reality, the fact becomes opposite side. It means that although people have already known about the policy but they still do not obey the policy because of many reasons. On this case, although people have already known the motorcycle restriction policy, but in fact they still do using their motorcycle in their daily activities because of many reasons.

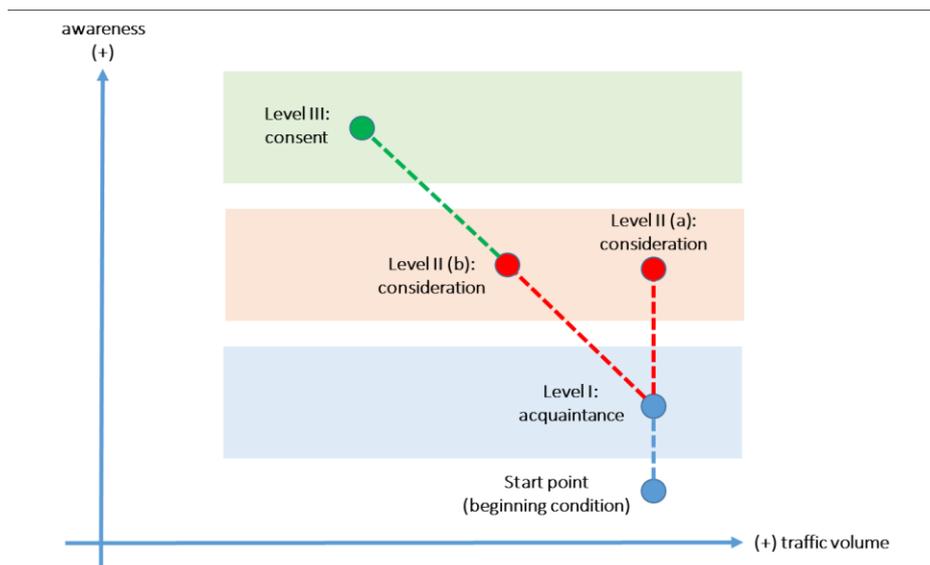


Figure 25 Relationship between Traffic Volume and Awareness on Performance Measurement

Figure 25 attempts to explain relationship between traffic volume and awareness level of people on this situation which is constructed based on Van Doren et al. (2013). At first, there is a beginning situation which refers to a condition when the transport policy has not been implemented. This condition has a certain volume of traffic that becomes a problem for people. Then, in order to reduce the traffic, a new transport policy has been introduced. On the first level of acquaintance, there is an increasing of awareness from people to reduce the use of private vehicle as a way to reduce traffic congestion. At the same time, there is still no decreasing of traffic because people are still using their motorcycle. Then, on the second level of consideration, the information that have been gathered on the previous level are used in decision making process. This leads to two possibilities. The first possibility (level II a: consideration) refers to a situation when decision is not to obey the regulation or policy. On this policy evaluation case, the level II(a) of consideration occurs when respondents decide not use public transport service, and still using their motorcycle. Another possibility (level II b: consideration) occurs when the decision is stop using their motorcycle and start to use public transport service. On this second level of consideration, there is an increasing of awareness from people because they have already started to consider about the transport policy although not all people are deciding not to use their motorcycle anymore. Then, the highest level of consent occurs when all people have already decided not to use their motorcycle and have used public transport service on their commuting activities. As a result the traffic volume would also become much lesser than the beginning condition. At the same time this condition also reflects the highest awareness of people towards the policy and the benefits for their daily life, for instance saving time because of reduced traffic congestion. A difference between the level of consideration and consent is there is a dynamic of people's decision on second level of consideration. Conversely, on the highest level of consent all people have firmly decided for using public transport service that significantly contributes to lesser traffic volume.

To conclude, according to online survey results that have been discussed on previous chapter, 83.16% of respondents have already known about the motorcycle restriction policy. However, only 40% or respondents claim that they would shift to use public transport service, and 54.74 say that they would not shift to use public transport services. This condition reflects situation of level II (a) consideration where people have already known about the policy but still do not obey the policy.

5.2. Evaluation of Traffic Changes due to Motorcycle Restriction Policy

Another effectiveness measurement is also carried out, called conformance measurement, as a way to analyze the changes due to the motorcycle restriction policy. This is done by observing traffic changes between before and after the policy has been implemented. According to data that are issued by Transportation Agency of Jakarta, there are some changes in both main roads and alternative roads in regards to implementation of motorcycle restriction policy as shown in Figure 26.



Figure 26 Changes in both Main Roads and Alternative Roads
(Source: Transportation Agency of Jakarta 2015)

Figure 26 explains important changes which occurred in main roads and contrast results that also occurred in alternative roads. In main roads significant advantages are generated because traffic volume is decreasing 22%, average speed is increasing 17%, and leads to decreasing of average travel time of 16%. On the other hand, contrast results occur in alternative roads. Increasing of 20% traffic volume, decreasing of 24% average speed, and increasing of 22% average travel time contribute to weaknesses of motorcycle restriction policy. In other words, the motorcycle restriction policy actually only moves traffic from main roads to alternative roads. This could be possible because the affected areas are only lie on approximately 2.8 km. Another important point that could be generated from this situation is in fact law enforcement and awareness of people to obey the rule is still on high level. This is proven by expected results that are occurred in main roads. Once again, this becomes another strong point to start a new policy.

In regards to conformance measurement of the motorcycle restriction policy, the above results show that significant changes are occurred both in main roads and alternative roads. It means that objective of the motorcycle restriction policy is achieved although adverse effects of its policy are also occurred. This situation reflects condition of level IV formal conformity as shown in Figure 27.

Figure 27 explains three levels of conformance in regards to motorcycle restriction policy evaluation in Jakarta. It begins with a start point when the motorcycle restriction policy has not been implemented. Level of formal conformity is achieved when expected results are achieved on expected areas. In other words, adverse effects of the policy is not become consideration. On the case of motorcycle restriction, in formal conformity, evaluation only focusses on restricted area (main roads) without taking into account changes in alternative roads. Therefore on this level of formal conformity, it has the least impacted sector and positive impacts.

Next level is level V of behavioral conformity. On this level, evaluation is done by analyzing changes not only on restricted areas of motorcycle but also on its alternative roads. Therefore, the level of behavioral conformity on the case of motorcycle restriction is achieved when people start to use public transport service. It means that traffic congestion that is caused by motorcycle in main roads is reducing without any adverse impacts occur on the alternative roads. This condition produces wider advantages rather than previous situation on first level of conformance because the advantages that are generated is more sustain. By leaving the use of motorcycle and starting to use public transport service, there are

variety of advantages that people could get, for instance better traffic condition, less pollution, shorter travel time, etc.

The highest level of conformance refers to final conformity. On this level, comprehensive goals of policy are achieved. On the case of motorcycle restriction this level refers to reduced traffic that is indicated by decreasing motorcycle use and increasing public transport ridership. Various advantages are generated such as traffic reduction, high level of environment standards and increased productivity. At the same time, impacted sectors that would have those advantages are also wider than previous two levels. As an example, since traffic congestion is reducing travel time of workers is also reducing. It means that they have more time for working and less stress level than before. This condition leads to increasing of productivity, and as a result company income would be increased, and quality of life of workers would also be improved.

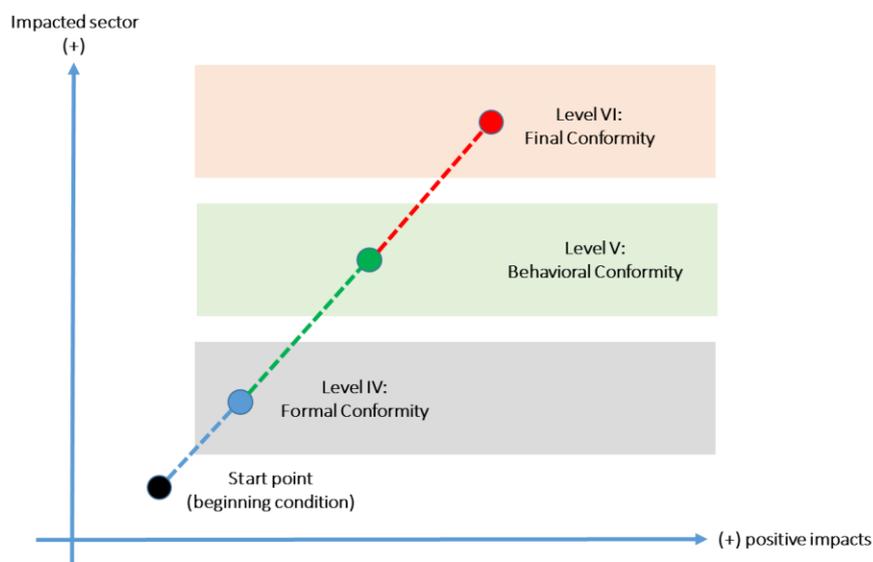


Figure 27 Relationship between Impacted Sector and Positive Impacts that are generated on Conformance Measurement

As a conclusion, in terms of conformance measurement, the motorcycle restriction policy stands for level IV of formal conformity. The reason is because advantages are only achieved on restricted areas, while at the same time adverse effects of the policy still occur on alternative roads.

5.3. Evaluation of Likelihood to Shift to Public Transport

The analysis according to performance and conformance measurement refers to a situation of people who are not using public transport service although they have already known about motorcycle restriction policy. Then, the next measurement, called likelihood to shift to public transport, attempts to observe intention to shift from motorcycle to public transport service based on people's perspective of willingness and ability. Ability refers to availability of sufficient public transport service based on respondents' perspective while willingness focusses on intention of respondents to switch using public transport service.

Condition of both two variables, which are willingness and ability, lead to a need of strategy based on specific circumstances to increase public transport ridership. Figure 28 describes four different strategy

for four different conditions in terms of increasing public transport ridership based on people perspective of willingness and ability.

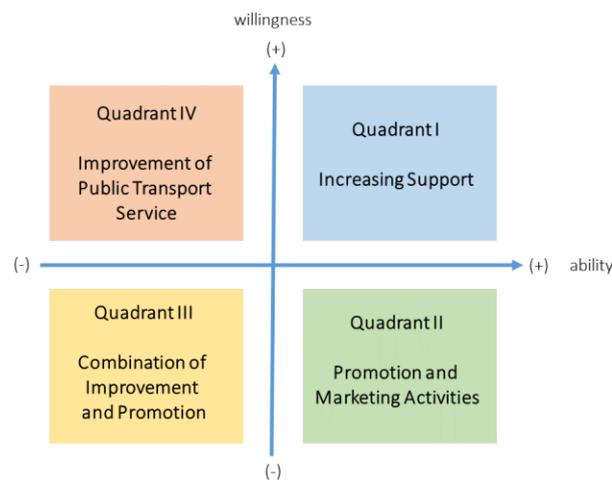


Figure 28 Various Strategies in order to Increase Public Transport Ridership
(Source: based on Zuidema 2015)

Quadrant I refers to an ideal condition that there is a willingness of people to use public transport service, and on the other side there are already sufficient public transport services. Then the strategy is increasing support from various stakeholders. The supports becomes an important things as a stimulation for people. In practical circumstances, this condition is hardly exist because when willingness and ability is on high level based on people perspective then the result will be on high level of public transport ridership.

Quadrant II refers to a condition where there is no willingness of people to use public transport service, and on the other hand there are already available sufficient public transport services. This condition is possible exist when the information about public transport service is not well received by the people. Another reason also includes no stimulation program from both local government and public transport operators to increase public transport ridership. Therefore, in order to stimulate the use of public transport service, the effective way is to do promotion and marketing activities. Example includes subsidy given by either governments or public transport operators.

Quadrant III refers to a condition where there is not any willingness for people to use public transport service, also there are no sufficient public transport services. Then the strategy have to be focused on both side: improvement of public transport service and promoting activities. Besides, gathering supports from all related stakeholders also become another major determinant in increasing of public transport service on this circumstances. Therefore, good coordination and communication through collaborative planning have to be underlay on strategy implementation.

Quadrant IV refers to a condition where there is already willingness to shift to use public transport service but on the other hand the public transport services are still insufficient. This condition is commonly exist in various areas. Therefore, a major strategy that should be carried out relates to the improvement of public transport service. In order to improve public transport services, various considerations have to be taken into account so that an effective actions can be generated, specifically by considering characteristics of trip maker, passenger journey pattern, and transport facility (Ortuzar and Willumsen 1990).

According to the online survey result, 51.58% of respondents claim that there are insufficient public transport services. While in terms of willingness to shift to public transport service, 53.68 of respondents say that they would not shift to use public transport service and keep using their motorcycles. This situation refers to a characteristics of quadrant III. It leads to a need of combination of improvement and promotion activities.

Furthermore, in regards to improvement of public transport service, there is also related result which is taken from the same online survey: reason for not using public transport service. Figure 29 describes various reasons of them. It explains that 77.9% of respondents agree that long travel journey becomes a problem when they are using public transport service. Then, 60% of respondents also agree that uncertainty schedule of public transport service becomes another reason not to use public transport service. Based on this condition, improvement of public transport service should give priority in minimizing passenger’s journey and performing fixed schedule.

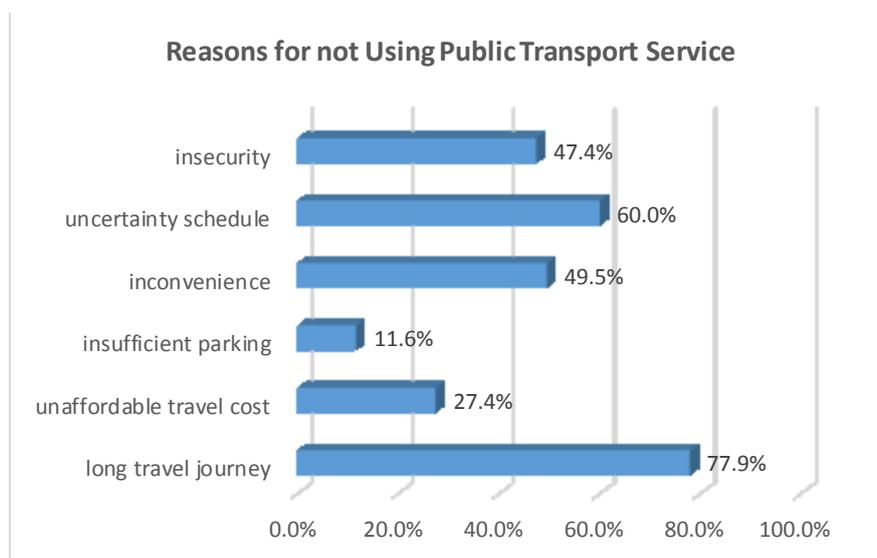


Figure 29 Various Reasons based on Motorcycle Users for Not Using Public Transport Service

On the other hand, in terms of promotion activities, the most proper solution of this condition refers to provision of important information related to public transport services. Besides improving the services, public transport operators should also provide various information to their passengers, especially related to the schedule. It can be done by firstly, formulating fixed schedule of public transport service. Then, it could be complemented by providing time information of next buses / trains departure. Another important information also includes traffic condition on specific corridor so that passengers could estimate the arrival time on their destination.

5.4. Evaluation of Public Transport Service Development

There are two kinds of approaches that are used in formulating transport policy, there cover supply-based and demand-based (Bouwman and Linden 2004). After analyzing motorcycle restriction policy, which refers to demand-based approach, this thesis also attempts to observe actual situation from another perspective which is taken from supply side. Focusing on improving transport capacity, the supply-based approach is also used in managing transport sector in Jakarta Metropolitan Area. The Macro Pattern of Transport in Jakarta explains various actions related to improvement of various transport infrastructures as ways to provide better accessibility for people. Besides, legalized spatial

plan of Jakarta Province also becomes another reference for transport development especially which relates to public transport service infrastructures.

The first public transport service that is observed is public bus service. In Jakarta revitalization of public bus is still ongoing process. Having a pilot project of Kopaja S66 corridor Manggarai – Blok M, the Provincial Government of Jakarta is still trying to formulate best option for public bus service by shifting its organizational and operation management of service. The government is not only considering technical aspect for instance route management and availability of buses but also managing potency of social conflict due to those changes. This complex situation potentially contributes to delay of revitalization of public bus service because according to Macro Pattern of Transport in Jakarta, the revitalization has to be done in 2020.

The next public transport service that is observed is Transjakarta as a Bus Rapid Transit (BRT). Right now, the Transjakarta has already developed 12 corridors out of 15 corridors based on its development plan. According to the Macro Pattern of Transport in Jakarta, the development of all corridors have to be done in 2010. In fact, right now there are still 3 corridors which are under construction. Various reasons contribute to this delay starting from technical aspect such as design changes to financial aspect for instance investment.

The Light Rapid Transit (LRT) development also faces major challenges in Jakarta. Referring to a monorail project, the LRT development experiences up and down era of development. The project of LRT development is finally canceled by the latest Governor of Jakarta in 2015. As a result, there would be a new project of LRT which are expected to operate in 2018. This becomes a good example of the need for both strong support of political factor and detailed technical formulation for an infrastructure project.

In order to reduce road traffic congestion, the Provincial Government of Jakarta also starts development of MRT project. The MRT project consists of two phases that connect south and north area of Jakarta. First phase of its development is expected to be finished in 2018. According to Macro Pattern of Transport in Jakarta, development of those two phases of MRT corridors have to be finished in 2020. In fact this goal is hardly achieved because right now construction of the first phase project is still on process, and the second phase project is still on planning process. However, the important things of this first phase project is to minimize its impact to other transport system in Jakarta. Therefore intensive coordination should be carried out between contractor and transport agency of Jakarta to minimize its construction impact.

Another public transport service that is observed also covers commuter train. The commuter train becomes popular means of transport for those who are living outside Jakarta and working in Jakarta, or vice versa. In fact, it also faces a challenge due to limited railway infrastructure. Having less prioritization than long-distance trains, the commuter train operation is also affected by operation schedule of long-distance train. According to Macro Pattern of Transport in Jakarta, one solution of this problem is by doing double track development. Right now the double track development is still on progress.

In terms of supporting facilities for public transport service the development still have to be done especially related to park and ride facility. There are some locations that are identified as potential location for park and ride development. In terms of public transport service connection, there have already provided available transit stations which allow passenger to change mode of transport. And, finally, in order to provide better service the e-payment method is also available for passengers.

According to those facts, an important point that becomes critical notion is avoiding some factors that can contribute to policy implementation failure in the future. Although those development projects are not classified into policy implementation failure, because according to Macro Pattern of Transport in Jakarta it still has 5 years more ahead, in fact ways to achieve objective of plan are hardly achieved. Therefore, referring to the cause of implementation failure (Barrett 2004), there are several things that have to be considered in managing development project of public transport service in Jakarta.

1. Project plan of development needs specific time period

The Macro Pattern of Transport in Jakarta has become a main reference for public transport service development in Jakarta. In some aspect, for instance BRT of Transjakarta, the plan has already clearly stated specific time period for each development step. However, detailed development plan of other public transport service are not all available, for instance LRT development plan. This condition leads to multi interpretation of understanding. It contributes to project delayed of LRT monorail. In addition since there are some problems of technical and political support with the previous LRT monorail project, the new project of LRT has just began. It starts again from planning phase and is expected to start its operation in 2018. From the all public transport service that have been explained on the Macro Pattern of Transport, only busway development plan that provides detailed explanation regarding its development period. The rest of them, which are LRT, MRT, and commuter train, do not specify detailed period of time for their development. Therefore, in order to avoid misunderstanding among related stakeholders, project plan of public transport service development, which are derived from Macro Pattern of Transport in Jakarta, have to explicitly explain regarding time period of its planning, construction and operation period.

2. Multiple stakeholders are involved resulting in high degree of complexity

Large number of interested parties are involved in development of transport infrastructure system in Jakarta starting from government organizations to state-owned company and private sector. Consequently they also have different interest towards development plan. This condition generates high degree of complexity and uncertainty.

Regarding to Transjakarta operation, in order to provide its service Transjakarta has to develop coordination with Transportation Agency of Jakarta as related authority. Besides, due to function of Jakarta as a capital city of Indonesia, Ministry of Transportation also monitors and supports performance of Transjakarta through provision of feeder service. In daily practical circumstances, operation of Transjakarta also interacts with police as a traffic manager.

The next public transport service is commuter train. PT KAI Commuter Jakarta (KCJ) acts as the operator of commuter train in Jakarta Metropolitan Area. It is a subsidiary company of PT Kereta Api Indonesia (KAI), a state owned company which focuses on railway service. Therefore operation of PT KCJ is mainly to support operation of PT KAI. In regards to its operation, PT KCJ also interacts with Ministry of Transportation as provider of railway infrastructure. In addition, since the commuter train connects various areas within Jakarta Metropolitan Area, then it also develops coordination with related local government authorities, such as Bekasi, Bogor, Depok, and Tangerang.

Other public transport services that also will operate in Jakarta are MRT and LRT. The MRT project right now is still on construction period, and regarding the LRT project, due to its failure of previous LRT monorail project, the new project of LRT is still on planning phase. Both of them are expected to begin their operation in 2018. Although both of them are initiated by private sectors, all of

development phases have to be coordinated with Provincial Government of Jakarta. The reason is because as related authority, the Provincial Government of Jakarta has a responsibility to manage transport sector in Jakarta based on rule and regulation, such as Macro Pattern of Transport in Jakarta, Spatial Plan of Jakarta Province 2030, etc. Therefore, coordination with the Provincial Government should be well established not only in planning phase but also in construction period. In addition minor role is also played by National Government through monitor and provision of advice regarding to planning, construction and operation period.

3. Potency of different perspectives among stakeholders on solving practical issues

Various kinds of stakeholders that are involved also generate different perspective regarding how to solve practical issues. Differences rely on how each actors see the issues. One of example is related to Transjakarta daily operation. With its dedicated way, Transjakarta is expected become the solution of traffic congestion that is increasing in Jakarta from time to time. Transjakarta has to work properly without any congestion on its dedicated way. On the other hand, there is also a responsibility of police to manage traffic condition. The police has a discretion right that allows them to manage vehicles direction as a way to reduce traffic congestion. In fact, in some congested road, sometime the police directs vehicles get into Transjakarta dedicated way. Consequently, instead of having its benefit due to its dedicated way, Transjakarta also experiences the same congested road. This condition makes Transjakarta loses its main advantage. In order to avoid this kind of issue, an agreement have to be made among Transjakarta operator and police. It is better to maintain Transjakarta dedicated way only for its buses, because this condition also attracts private vehicle users to shift using public transport service such as Transjakarta. As a result, by maintaining its dedicated way Transjakarta will be able to provide punctual service to its costumer, and this stimulates the ridership of Transjakarta.

4. Limited power to manage problem

Jakarta Metropolitan Area consists of various local governments and a provincial government of Jakarta. Besides it also involves various non-governmental organization starting from state owned company to private sector. This situation leads to limited control that each organization has. As a result, many root causes of problems are identified not from its internal organizational but outside their authorities.

One of example includes operation of commuter train. Having not affected by traffic congestion, commuter train service becomes popular means of transport especially for those who are living in other satellite cities. In fact, for some corridors, due to limited railway infrastructure, the operation of commuter train is also affected by operation of long-distance train. Consequently, commuter train has less priority rather than long-distance train. As a result, some commuter train schedules become delayed and it affects to other commuter train operations. The solution of this problem is not belong to PT KCI as the operator of commuter train. Ministry of Transportation has the responsibility to improve railway infrastructure, while operation with long-distance train and commuter train have to be coordinated with PT. KAI. Therefore, coordination and communication should be well developed not only within organization but also to other related organizations.

CHAPTER 6 CONCLUSION AND RECOMMENDATIONS

STIMULATING THE USE OF PUBLIC TRANSPORT SERVICE

6.1. Conclusion

According to facts and analysis that have been described on previous chapter, before formulating recommendations towards transport policy in Jakarta Metropolitan Area, there are some important things that are considered as final remarks.

Firstly, according to the performance based measurement, more than half of respondents claim that they would not shift to use public transport service although they have already known concerning the motorcycle restriction policy. It means that there are some reasons of not using public transport service. However, one positive point of the situation is that dissemination of information regarding latest policies in transport sector has been successfully achieved. This becomes a good start for implementing new policies.

Next, in terms of pilot project of motorcycle restriction policy, the conformance based measurement shows that the policy only moves traffic from main to alternative roads. It explains that people have not really aware of using public transport service as a way to reduce traffic congestion. Instead of using public transport service, people are still using their motorcycle for various reasons. However, another positive point from this situation is in fact law enforcement and awareness of people to follow the policy are on high level. This becomes another strength to start with new policies.

In addition, based on respondents' perspective, there is not any sufficient public transport service as well as any willingness to shift to public transport service. Consequently strategy of combination between improvement and promotion of public transport service should be applied as a way to stimulate public transport ridership.

Another perspective is also taken on the thesis which is based on supply side approach. It describes that provision of public transport service is still under process. Delay of infrastructure development are caused by various factors, such as lack of clear policy objective, multiple stakeholders whose are involved, different perspective among stakeholders, and limited power to control.

6.2. Recommendations

Recommendations on this thesis cover two main topics. Firstly, it focuses on implementation of motorcycle restriction policy. Then, next recommendations emphasize on how to stimulate the use of public transport services as a way to reduce traffic congestion.

Recommendations on implementation of motorcycle restriction policy

According to performance measurement results, people's response towards motorcycle restriction policy stands on level II (a) of consideration. It means that although people have already known regarding the policy, they still prefer to use their motorcycle. In terms of traffic changes due motorcycle restriction policy, which is based on conformance measurement results, in fact people still use their motorcycle but not passing main roads, which refers to level IV of formal conformity. Those couple of

facts describe that implementation of motorcycle restriction policy needs to be improved so that people are really aware of importance of using public transport services. Therefore, in order to perform better implementation of the policy, some recommendations are developed as shown in Table 27.

Table 27 Recommendations of Motorcycle Restriction Policy Implementation

| RECOMMENDATIONS | ACTIONS | STAKEHOLDERS |
|---|--|---|
| Widening Affected Areas | Widening restricted area of the policy | <ul style="list-style-type: none"> • Transportation Agency of Jakarta |
| Provision of Incentive for Motorcycle Users | Formulation of special fare for motorcycle user on certain parking areas | <ul style="list-style-type: none"> • Transportation Agency of Jakarta • Operator of parking management on buildings along the motorcycle restricted areas |
| | Transjakarta special fare for motorcycle user who park their motorcycle | <ul style="list-style-type: none"> • Transportation Agency of Jakarta • PT. Transjakarta |

Firstly, the recommendation focuses on widening restricted area of the policy. This means that currently, the policy is implemented in only approximately 2.8 km. By having wider restricted areas, motorcycle users will start to think to shift to public transport service due to their efficiency. If the policy is implemented in wider areas, they would have longer travel time because they have to find alternative ways, and as a result, they would also consume more fuel than before. In order to realize this action, Transportation Agency of Jakarta plays major role in developing the policy.

Secondly, the recommendation includes provision of incentive for motorcycle users. This is possibly done through provision of special fare for motorcycle parking and Transjakarta service. In practice, these can be combined into one integrated solution. An example is explained. Motorcycle users are possible to park their motorcycle on the provided parking areas along the restricted policy areas. The motorcycle users will be given special fare of parking, which is lower than normal fare parking, and will also be given a parking card. The parking card is also possible to be used as Transjakarta passenger ticket. The card will be returned to operator of parking management when the motorcycle users go out from parking areas. In fact, this action calls for collaborative actions among related actors, such as Transportation Agency of Jakarta, operator of parking management on building along the motorcycle restricted areas, and PT. Transjakarta.

Recommendations to Stimulate the Use of Public Transport Services.

Besides focusing on improvement of policy implementation, the thesis also develops recommendations that emphasizes on how to stimulate the use of public transport service. This is done in order to provide fair recommendations. On the one hand, people are “forced” to leave their private vehicles. Consequently, on the other hand, public transport services have also to be improved. This is relevant with the results of measurement of likelihood to shift to public transport service. The results explain that according to people’s perspective, there are not any sufficient public transport service as well as willingness of people to shift using public transport service. Consequently, there is a need of combination strategy of public transport improvement and promotion. As another supporting facts, the thesis also takes into account regarding public transport service development in Jakarta. The results describe that many development projects of public transport service are still under processing either

on their planning or construction period. This becomes relevant to combination strategy. Therefore, recommendations on this thesis focus on how to stimulate the use of public transport service so that people would be happy to move using public transport. The recommendations are developed based on idea of improving public transport service and promoting public transport service, and are shown in Table 28.

Table 28 Recommendations to Stimulate Public Transport Service Use

| RECOMMENDATIONS | ACTIONS | STAKEHOLDERS |
|---------------------------------------|--|---|
| Improvement of Operation and Services | Ensure punctuality of public transport service schedule | <ul style="list-style-type: none"> ● PT. Transjakarta ● PT. KAI Commuter Jakarta (KCJ) ● PT. MRT Jakarta ● Regional Police of Jakarta ● Transportation Agency of Jakarta |
| | Schedule synchronization of public transport services | <ul style="list-style-type: none"> ● PT. Transjakarta ● PT. KAI Commuter Jakarta (KCJ) ● PT. Kereta Api Indonesia (KAI) ● PT. MRT Jakarta ● Transportation Agency of Jakarta |
| | Security and convenience improvement for passengers of public transport services | <ul style="list-style-type: none"> ● PT. Transjakarta ● PT. KAI Commuter Jakarta (KCJ) ● PT. MRT Jakarta |
| Improvement of Facilities | Improvement of basic infrastructure for public transport services | <ul style="list-style-type: none"> ● Ministry of Transportation ● Transportation Agency of Jakarta ● PT. MRT Jakarta |
| | Improvement of public transport units | <ul style="list-style-type: none"> ● Transportation Agency of Jakarta ● Ministry of Transportation ● PT. KAI Commuter Jakarta (KCJ) ● PT. MRT Jakarta |
| | Improvement of connection infrastructure among public transport services | <ul style="list-style-type: none"> ● Transportation Agency of Jakarta ● Ministry of Transportation ● Local Governments of Bogor, Tangerang, Depok, and Bekasi |
| | Development of E-payment | <ul style="list-style-type: none"> ● PT. Transjakarta ● PT. KAI Commuter Jakarta (KCJ) ● PT. MRT Jakarta ● Banking / private sector |
| Promotion | Provision of basic information and travel advice of public transport services, such as provision of route map, schedule information, and traffic condition | <ul style="list-style-type: none"> ● PT. Transjakarta ● PT. KAI Commuter Jakarta (KCJ) ● PT. MRT Jakarta ● Transportation Agency of Jakarta |
| | Development of online itinerary planning for public transport services | <ul style="list-style-type: none"> ● PT. Transjakarta ● PT. KAI Commuter Jakarta (KCJ) ● PT. MRT Jakarta ● Transportation Agency of Jakarta |

Basically, the recommendations cover three main aspects, there are improvement of operation and services, improvement of facilities, and promotion. Each aspects cover two until four actions in order to stimulate the use of public transport service.

The first recommendation focuses on improvement of operations and services. Main actions on this aspect cover ensuring punctuality service, developing synchronized schedule among public transport services, and provision of in-mode services. Having punctual schedule possibly becomes a major determinant in attracting the use of public transport service in Jakarta Metropolitan Area since time consideration is a priority when people commute. They do not want to waste their time waiting for uncertain public transport services. Therefore, ensuring punctual service is critical action to stimulate the use of public transport service. In terms of stakeholders who are involved, there are at least five main organizations. As public transport operators, PT. Transjakarta, PT. KCJ, and PT. MRT Jakarta have to develop and maintain operation cycle that has punctual service. This also needs support from regional police of Jakarta Province as a traffic manager on practical level. Besides, Transportation Agency of Jakarta also contributes to realization of punctual services through its practical and operational policy regarding transport management and public transport service in Jakarta.

Another determinant also comes from synchronized public transport schedule. It makes passengers easier to change to other services. Besides, synchronized public transport schedule also avoids delayed passengers on certain bus / train station due to uncertain public transport services. This calls a collaboration among public transport operators, such PT. Transjakarta, PT. KCJ, and PT. MRT Jakarta. In addition PT. KAI is also invited in order to synchronize its long-distance trains with commuter trains that are operated by PT. KCJ. Finally, Transportation Agency of Jakarta is also involved as technical agency authority of government level in Jakarta Province.

The last action of operation and services improvement, which is improvement of in-mode services, emphasizes on security and convenience aspect. Improvements on this aspect are important due to high level of criminals that are occurred in public transport service in Jakarta. Therefore, as a way to stimulate the use of public transport service each operators have to be able to ensure passengers' security both in their station and units. In addition, improvement of convenience aspect also relates to number of units that are available to serve from each operators. It means that the more service units are available the more options for passengers to choose. This leads to a behavior of not forcing themselves get into crowded units. As a result, passengers' convenience level will be improved because service units are not too crowded. In other words, in order to increase passengers' convenience the operators have to consider of adding their units. This action of security and convenience improvement for passengers heavily depends on capacity of each public transport operators, such as PT. Transjakarta, PT. KCJ, and PT. MRT Jakarta to develop their services.

The second aspect of recommendation refers to improvement of facilities. Regarding to public transport facilities, first thing that has to be considered is basic infrastructure. This includes railway for commuter train and dedicated busway of Transjakarta as BRT. In order to reduce delayed service of commuter train, double track development project have to be accelerated. Directorate General of Railway, Ministry of Transportation, is the institution that has responsibility on this action. In addition, dedicated busway of Transjakarta have also to be broaden so that it performs its advantage compare to private vehicles. This responsibility belongs to Transportation Agency of Jakarta as a government organization that has the highest authority in managing traffic within authority Jakarta Province. PT. MRT Jakarta also has a responsible for its railway development.

Besides their basic infrastructure, improvement of units available has also to be carried out for each operators. This leads to increasing of passenger convenience because the more units are available refers to the more options for passengers to choose their departure and arrival time. Moreover, formulation of good management for their units including maintenance activity also contributes to an improvement on this aspect of facilities because good maintenance management of public transport services avoids broken units that leads to insufficient public transport services. In regards to provision of additional Transjakarta buses, Transportation Agency of Jakarta plays dominant contribution since the budget comes from regional budget. Ministry of Transportation also supports public transport service improvement in Jakarta by providing buses for feeder services that also connect with Transjakarta service. PT. KCI and PT. MRT Jakarta are responsible for the provision of additional units for their services.

Another facility improvement also covers connection infrastructure. It means that supporting facilities for passengers who want to change to other public transport services have to be improved. This kind of improvement focuses on several transit stations that have one or more bus / train stops within walking distance. Main objective of connection infrastructure improvement is reducing transfer time so that passengers will be able to have their total travel time as efficient as they can. Furthermore it also contributes to increasing of passengers' convenience because it facilitates passengers to move and change to other public transport services. Since it deals with various public transport operators, Transportation Agency of Jakarta and Ministry of Transportation dominates the action. Furthermore, due to locations of bus / train stations in various city / regency, local governments of Bogor, Tangerang, Depok, and Bekasi are also invited to involve into the action.

Last important notion within facility improvement is related to development of e-payment. Innovation of this aspect makes passengers easier to pay to all kinds of public transport services. In addition, it also becomes a good start to initiate an integrated public transport services in Jakarta. Therefore collaborative actions of the public transport operators and banking / private sectors become major determinant on the development of e-payment.

The third recommendation deals with promotion aspect. It refers to provision of basic information of public transport services and development of online itinerary planning. The provision of basic information helps passengers decide what kinds of public transport services that suit to their need and condition. At the same time, it also can be used as a media to promote advantages of public transport service comparing to private vehicles. Then, development of online itinerary planning becomes relatively new thing in Jakarta Metropolitan Area because it has not yet realized. Generally, by developing the online itinerary planning system, it helps passengers prepare their journey at anytime and anywhere. Furthermore, since it is based on web, the system is easy to access for all range of public transport service passenger. Both the public transport operators and Transportation Agency of Jakarta are involved on this actions so that information regarding public transport services in Jakarta will be well received by passengers.

6.3. Reflection

Managing transport sector in Jakarta Metropolitan Area calls for collaborative actions among related parties. This becomes a critical aspect to point out due to its high level of complexity and uncertainty. As a result, communication and coordination should be well established not only among related governments organization but also to private sector and communities who are involved. Facing this dynamic situation in society, transport policy should have a mechanism to cope with its challenges. One

of tools that is possibly used is by doing policy evaluation. The evaluation would not only produce analysis of policy implementation but also generate some recommendations for related authorities to manage the challenges.

In terms of policy evaluation, the concept of evaluation which is formulated by Van Doren et al. (2013) is well implemented on the case of motorcycle restriction policy in Jakarta Metropolitan Area. This also becomes a contribution for planning theory and practice by providing an example of comprehensive policy evaluation on transport sector. The evaluation covers not only according to demand-based approach but also based on supply side approach. Consequently, in terms of stimulating the use of public transport service, combination of public transport service improvement and promotion and marketing activities should be carried out. However this strategy needs strong support not only in financial aspect but also in politics and technical support. Therefore in carrying out the strategy comprehensive understanding on at least those three main aspects should be applied.

Then, in regards to recommendations, this thesis applies combination strategy of improvement public transport service and promotion activities. The recommendations emphasize on some actions that could be taken as a way to stimulate the use of public transport ridership. As a result, the recommendations are only focused on practical sector. Therefore, in order to produce more comprehensive evaluation result in the future, it is better to include institutional analysis of public transport service in Jakarta. This will produce better perspective and more comprehensive problem analyses. Besides, in terms of sampling method, as a way to get equal perspective respondents have also be taken at same proportion. In other words the sampling method that could possibly use is stratified sampling method which divided population of commuter based on their living and working place. The last suggestion for future research includes more discussion and interviews that have to be carried out with more stakeholders, such as Directorate Generale of Railway, Ministry of Transportation, PT. MRT Jakarta, and PT. Adhi Karya.

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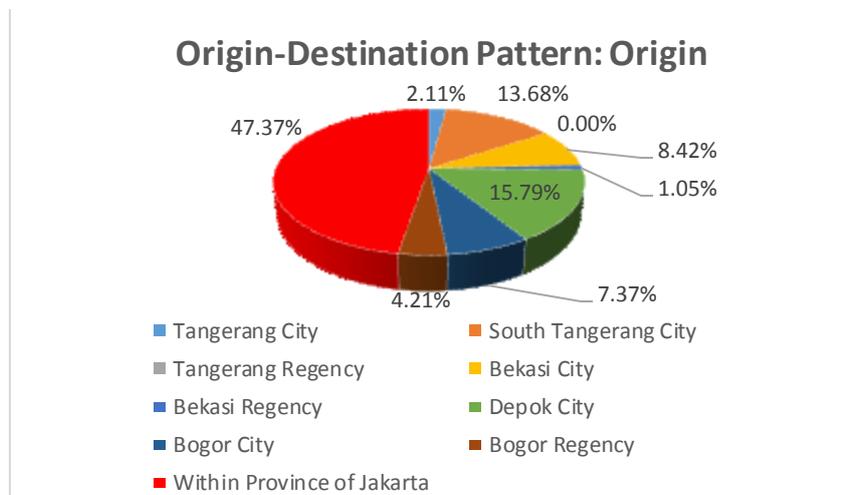
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APPENDIX 1 ONLINE SURVEY RESULT

CHARACTERISTICS OF TRIP MAKER

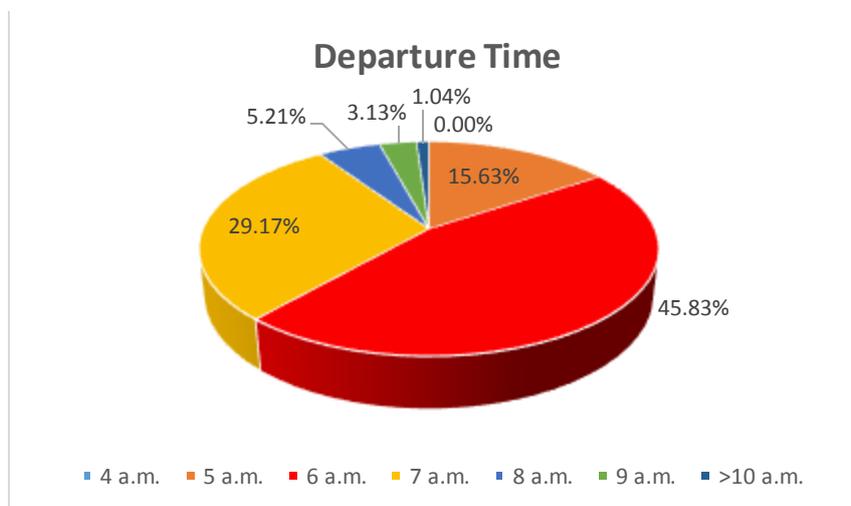
1. Place of live : (a) Tangerang City / Kota Tangerang
- Lokasi tempat tinggal* (b) South Tangerang City / Kota Tangerang Selatan
- (c) Tangerang Regency / Kabupaten Tangerang
- (d) Bekasi City / Kota Bekasi
- (e) Bekasi Regency / Kabupaten Bekasi
- (f) Depok City / Kota Depok
- (g) Bogor City / Kota Bogor
- (h) Bogor Regency / Kabupaten Bogor
- (i) Within Province of Jakarta / Di dalam Provinsi DKI Jakarta



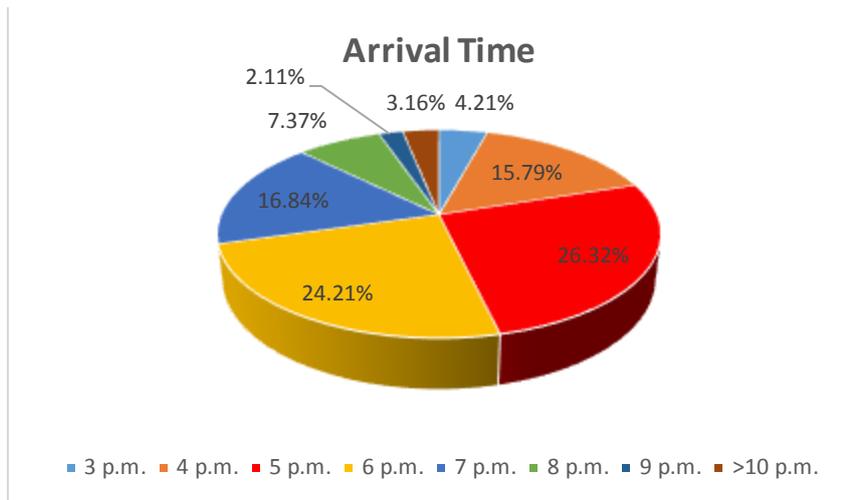
2. Place of work : (a) North Jakarta / Jakarta Utara
- Lokasi tempat kerja* (b) Central Jakarta / Jakarta Pusat
- (c) West Jakarta / Jakarta Barat
- (d) South Jakarta / Jakarta Selatan
- (e) East Jakarta / Jakarta Timur
- You are allowed to answer more than one locations if you have more than one jobs in different places.
Anda dipersilakan untuk mengisi jawaban lebih dari satu lokasi jika Anda memiliki lebih dari satu jenis pekerjaan di lokasi yang berbeda.



3. What time do you usually go to work? : (a) 04.00–04.59 Western Indonesian Time / WIB
 Kapan Anda berangkat bekerja dari rumah? (b) 05.00–05.59 Western Indonesian Time / WIB
 (c) 06.00–06.59 Western Indonesian Time / WIB
 (d) 07.00–07.59 Western Indonesian Time / WIB
 (e) 08.00–08.59 Western Indonesian Time / WIB
 (f) 09.00–09.59 Western Indonesian Time / WIB
 (g) >10.00 Western Indonesian Time / WIB

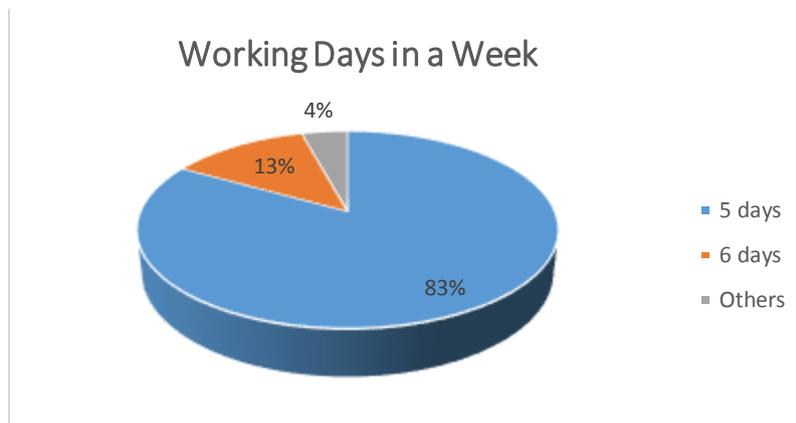


4. What time do you usually go back to your home? : (a) 15.00–15.59 Western Indonesian Time / WIB
 Kapan Anda pulang ke rumah setelah bekerja? (b) 16.00–16.59 Western Indonesian Time / WIB
 (c) 17.00–17.59 Western Indonesian Time / WIB
 (d) 18.00–18.59 Western Indonesian Time / WIB
 (e) 19.00–19.59 Western Indonesian Time / WIB
 (f) 20.00–20.59 Western Indonesian Time / WIB
 (g) 21.00–21.59 Western Indonesian Time / WIB
 (h) >22.00 Western Indonesian Time / WIB

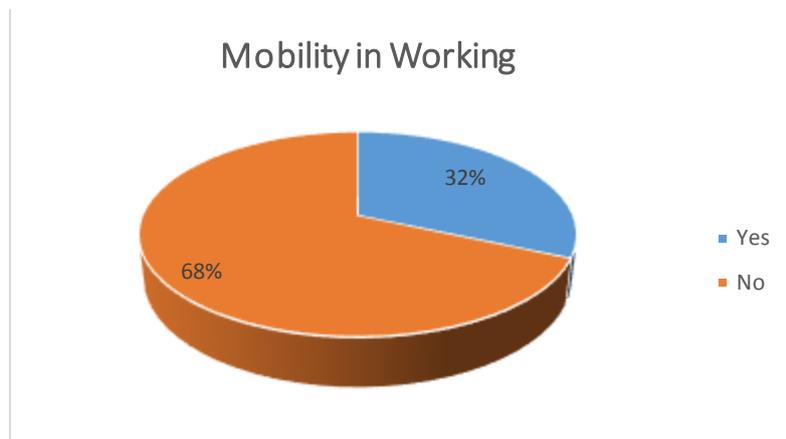


CHARACTERISTICS OF JOURNEY

5. How many days in a week do you commute? (a) 1 day / 1 hari
Berapa hari dalam seminggu Anda bepergian untuk bekerja? (b) 2 days / 2 hari
(c) 3 days / 3 hari
(d) 4 days / 4 hari
(e) 5 days / 5 hari
(f) 6 days / 6 hari
(g) 7 days / 7 hari



6. Does your profession courage you to move to more than one destination in a day? (a) Yes, it does / Ya
Apakah pekerjaan Anda menuntut Anda untuk bepergian ke lebih dari satu lokasi setiap harinya? (b) No, it don't / Tidak

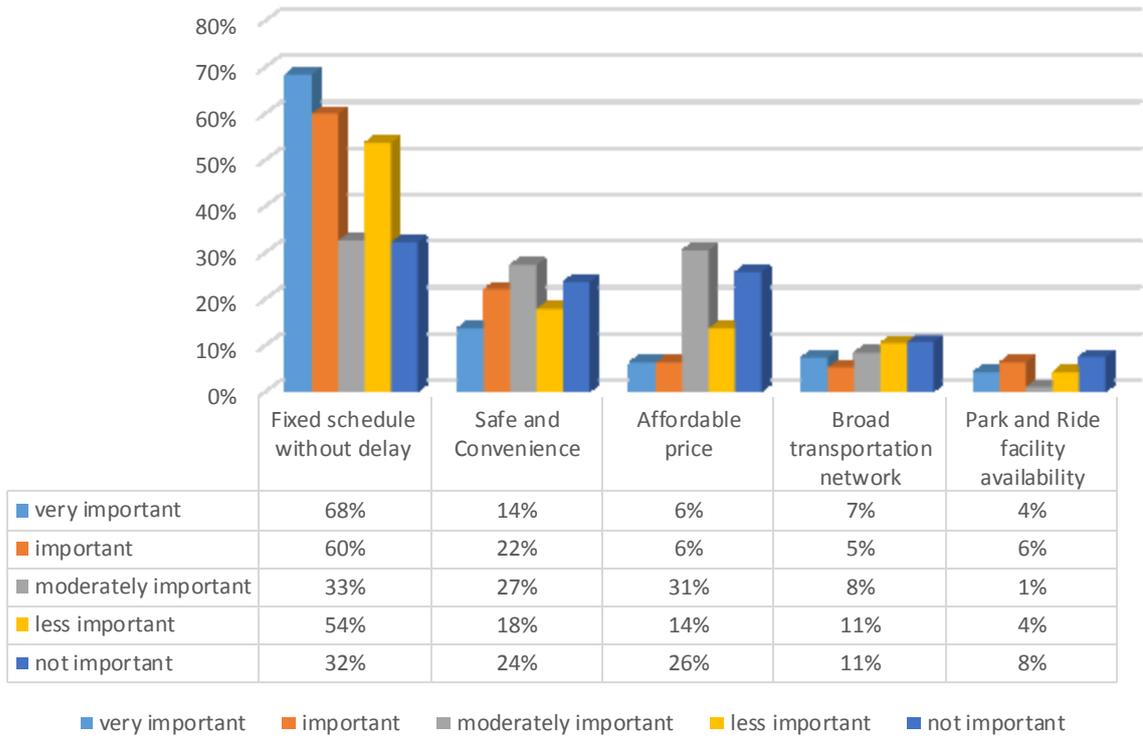


CHARACTERISTICS OF TRANSPORT FACILITIES

7. In order to provide better service, public transportation should improve various kinds of aspects. According to your perspective, please indicate the most important aspect to improve in regards to public transport service. Scale 5 refers to the most important aspect.
Dalam rangka meningkatkan kualitas pelayanan, transportasi umum perlu melakukan perbaikan di berbagai aspek. Berdasarkan sudut pandang Anda, silakan berikan urutan prioritas untuk hal yang sangat penting untuk diperbaiki. Skala 5 mengindikasikan aspek terpenting yang perlu diperbaiki.
- a. Fixed schedule without delay / *Jadwal tepat waktu*
 - b. Safe and Convenience / *Aman dan nyaman*
 - c. Affordable price / *Harga terjangkau*
 - d. Broad transportation network / *Jaringan transportasi luas*
 - e. Park and Ride facility availability / *Ketersediaan fasilitas park and ride*
 - e. Other (please specify) / *Lainnya (silakan sebutkan)*



Improvements of Public Transport Services



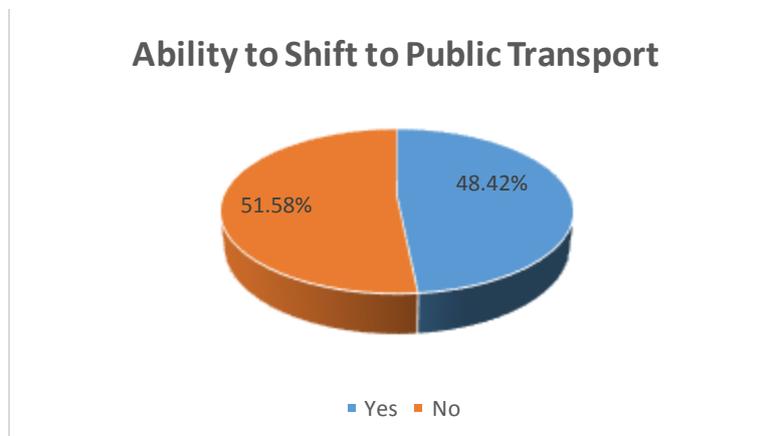
LIKELIHOOD TO SHIFT TO PUBLIC TRANSPORT

8. According to your point of view, is there any sufficient public transport service from your living area to your place of work?

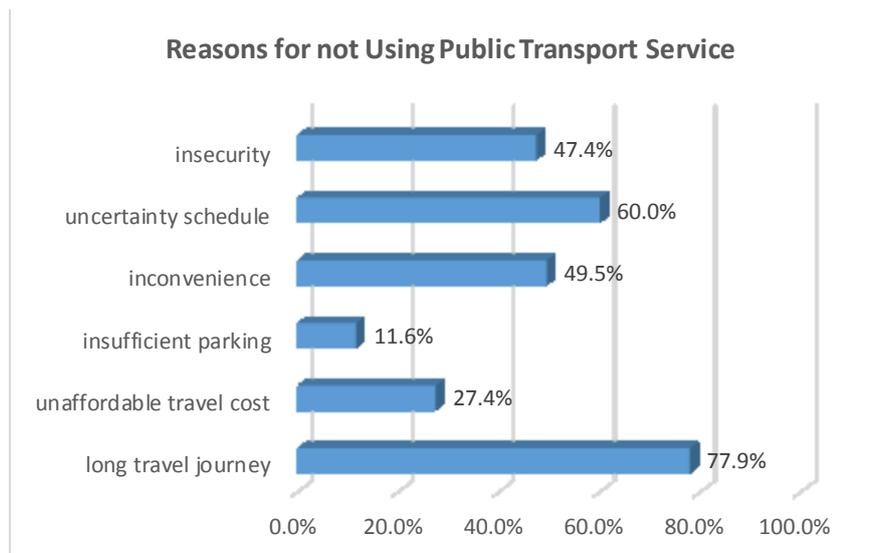
(a) Yes, it is / Ya

(b) No, it isn't / Tidak

Menurut Anda, apakah tersedia transportasi public yang baik dari lokasi tempat tinggal menuju lokasi tempat Anda bekerja?



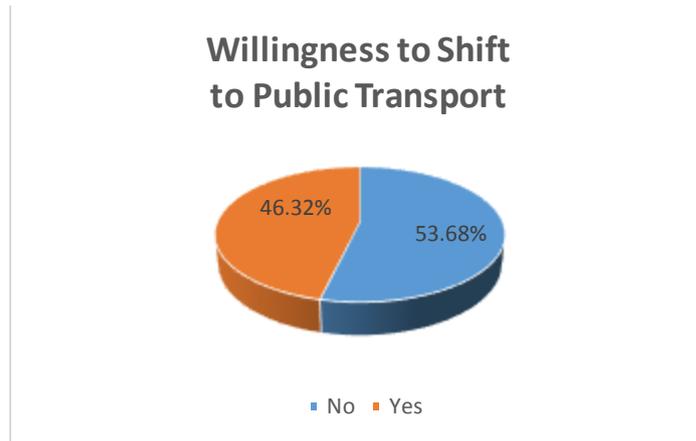
9. What is/are your reason(s) not to use public transportation in your commuting activities? It is possible to mark your answer more than one.
Apakan alasan Anda tidak menggunakan transportasi umum di dalam aktivitas bepergian untuk bekerja? Anda diperbolehkan untuk memilih lebih dari satu jawaban.
- : (a) Relatively long travel journey including waiting time and walking distance / *Perjalanan yang relative memakan waktu lama, termasuk waktu menunggu dan jarak berjalan kaki*
(b) Relatively unaffordable travel cost / *Biaya perjalanan yang relative tinggi*
(c) Insufficient parking facility due to limited area and high number of parking vehicle / *Kekurangan fasilitas parkir akibat terbatasnya area parkir and tingginya jumlah kendaraan yang diparkir*
(d) Inconvenience / *Tidak nyaman*
(e) Uncertainty schedule / *Jadwal yang tidak pasti*
(f) Insecurity due to high level of crime rate inside public transportation / *Ketidakamanan yang disebabkan oleh tingginya tingkat kriminalitas yang terjadi di transportasi umum*



- 10 As a way to reduce traffic congestion in Jakarta, Provincial Government of Jakarta will enable new transportation policy, such as motorcycle prohibition and road pricing, on some main roads in Jakarta. These policies would also in line with some improvements in public transportation services. Imagine that the policy would be implemented on some main roads that you always pass every day. What will you do towards this situation?
Sebagai salah satu upaya mengurangi kemacetan, Pemerintah Provinsi DKI Jakarta merencanakan beberapa kebijakan baru di bidang transportasi,
- : (a) I will keep using my motorcycles and try to find other alternative ways / *Saya akan tetap menggunakan sepeda motor dan akan berusaha mencari jalan alternatif*
(b) I will stop using my motorcycles and start to use public transportation / *Saya akan berhenti menggunakan sepeda motor dan akan mulai menggunakan transportasi umum*



misalnya pembatasan sepeda motor dan electronic road pricing, untuk beberapa jalan utama di Jakarta. Kebijakan ini juga akan sejalan dengan perbaikan kualitas pelayanan transportasi umum. Bayangkan jika kebijakan tersebut diimplementasikan pada beberapa ruas jalan utamayangAnda lalui setiap harinya. Bagaimana Anda menyikapi situasi tersebut?



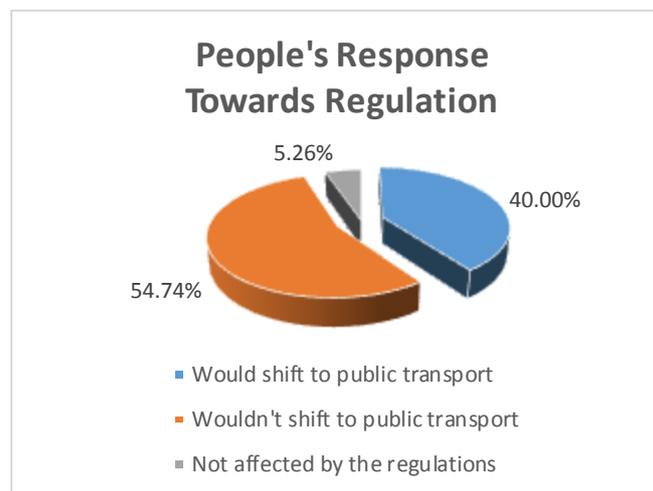
PERFORMANCE-BASED MEASUREMENT

11. Have you already known the latest transportation regulation concerning motorcycle prohibition for some roads in Jakarta? : (a) Yes, I have / *Ya, Saya sudah mengetahuinya*
 (b) No, I have not known about the policy / *Tidak, Saya belum mengetahuinya*
Apakah Anda sudah mengetahui peraturan terbaru terkait pelarangan penggunaan sepeda motor untuk beberapa ruas jalan utama di Jakarta?





- 12 If there is a new transportation policy regarding motorcycle ridership in Jakarta, do you consider the policy into your choice of commuting preference?
- Jika terbit kebijakan transportasi terbaru terkait penggunaan sepeda motor di Jakarta, apakah Anda mempertimbangkan peraturan tersebut dalam pemilihan moda transportasi yang digunakan untuk bepergian dalam rangka bekerja?*
- : (a) Yes, I would consider the regulation. As a result I would prefer to use public transportation rather than motorcycle / private car / *Ya, Saya akan mempertimbangkannya. Oleh karena itu Saya akan memilih untuk menggunakan kendaraan umum daripada kendaraan pribadi*
- (b) Yes, I would consider the regulation but it is better for me to use my motorcycle / private car because of some reasons / *Ya, Saya akan mempertimbangkannya, tetapi lebih baik bagi Saya untuk menggunakan sepeda motor / mobil karena berbagai alasan*
- (c) No, I would never take into my consideration concerning the latest policy / *Tidak, Saya tidak pernah mempertimbangkan peraturan tersebut.*



APPENDIX 2 INTERVIEW AND DISCUSSION RESULT

| | |
|--------------------|--|
| Interviewee | : Mr. Petrus Sumarsono |
| Position | : Functional Staff at Directorate of Transportation |
| Institution | : National Planning Agency (Bappenas) |
| Date | : Thursday, April 16th 2015 |
| Objectives | : Getting perspective of Central Government in supporting development of integrated transportation in Jakarta |

Introduction

As a capital city of Indonesia, Jakarta with its surrounding called Jakarta Metropolitan Area are classified into one of National Strategic Area. National Planning Agency contributes to the development through its various research, analysis, and synchronization of related ministries producing national plans and policies towards Jakarta Metropolitan Area.

Discussion

- Vehicle ownership control
 - According to the Central Bank regulation down payment for vehicle purchasing should be at least 30%
 - The regulation is applied for both cars and motorcycles
- Mass Rapid Transit (MRT) development
 - The project is built by collaborative actions between Central Government and Provincial Government of Jakarta.
 - The Central Government shares 51% funds while Provincial Government contributes 49%
 - The project uses loan from JICA
 - The project would be finished in 2018
 - The project consists of three corridors:
 1. Corridor I and II connect south and north area of Jakarta
 2. Corridor III connects east and west area of Jakarta
- Railway development
 - Double track railway development is done to connect Jakarta Cikarang. This emphasizes to improve connectivity of Jakarta to its eastern areas
- Feeder Service of Transjakarta
 - It called APTB which services to areas where are located in the satellite areas such as Bekasi, Bogor, Tangerang
 - It is managed by Transportation Agency of Provincial Government of Jakarta. Since the service is cross provincial border, authorities of APTB management should belong to the Ministry of Transportation
- Feeder Service from private sector
 - It usually serves from residential areas to some strategic locations in Jakarta (point to point services)
 - This becomes an added value for developer to market their product (houses)
 - This could be complementary of feeder service that also possible to reduce the use of private vehicles

- Worker Transportation Services
 - There is not any regulation regarding worker transportation services provision by institution / working organization
- Managing Transportation
 - Try to manage the public transport from informal to formal organization
 - Transport policies have already been directed to support public transport use
 - Although volume of vehicles are rising, seat capacity is relatively decreasing because the vehicles are dominated by medium and small vehicles. These vehicles also have cheaper daily payment that should be paid to the vehicle owners.
- Public transport management system
 - Scheme of public transport route approval
 1. Service-based
 - Local authorities offer routes that would be served by public transport
 - Amount of subsidy is determined by service performance
 - This scheme is already applied to Transjakarta
 2. Route proposal
 - This is commonly found in many public transport management
 - Private applies for route to related authorities, for instance local transportation agency. Then the agency would decide whether the proposal is accepted.
 - There is no standard related to amount of vehicle for each specific route
 - This also becomes a financial barrier because route approval becomes financial resource for local areas.
- Commuter train
 - Public Service Obligation (PSO) is amount of money that is paid by the government as a subsidy to the public transport operators
 - Commuter train is operated by PT. KAI Commuter Jabodetabek (KCJ)
 - KCJ is a subsidiary company of PT Kereta Api Indonesia (KAI)
 - PT KAI is a state owned company while PT KCJ is a private company
 - The PSO is given from governments to PT KCJ through PT KAI. This becomes an institutional barrier for development of PT KCJ
 - It is more effective to give the PSO directly to PT KCJ
- In Indonesia, there is only one train producer company, it is PT INKA
- Train station management:
 1. Closed system
 - Only passengers that are allowed to enter the stations
 2. Open system
 - Everybody are allowed to enter the stations

Interviewee : Mrs. Eva Chairunisa
Position : Corporate Communication Manager
Institution : PT. KAI Commuter Jabodetabek (KCJ)
Date : Teusday, April 21st 2015
Objectives : Getting perspective of train commuter operator in supporting development of integrated transportation in Jakarta

Introduction

Commuter train becomes one of popular public transport service in Jakarta Metropolitan Area due to its large capacity and relatively short travel time. PT. KCJ, which is a subsidiary company of PT. KAI (Kereta Api Indonesia), is the operator of the commuter train. In operating the commuter train, PT. KCJ coordinates with PT. KAI as the operator of long-distance train and Ministry of Transportation as railway infrastructure provider. Since both of PT. KCJ and PT. KAI are using the same railway, there is an agreement towards train scheduling operation which long-distance trains are more prioritized than commuter trains.

Discussion

- Latest Information regarding Commuter Train Service
 - Total commuter train trip in a day is 876 trips (April 1st 2015). This number was rising from previous capacity which only had 757 trips in a day
 - Maximum capacity of commuter train can reach up to 791,000 passenger in a day.
 - A commuter train consists of either 8 or 10 couches, and each couch has capacity up to 200-230 passengers
 - Right now PT KCJ has 69 commuter trains that serve 876 trip a day.
- Development of commuter train service
 - In 2019 PT KCJ should have managed to serve up to 1,2 million passengers
 - In order to achieve the target in 2019 there should be 1,400 – 1,600 units
 - In 2008-2014 there was already 664 units
 - In 2015 there will be 120 new units
 - In the period of 2016-2019 there should be 100-160 additional units each year
 - Commuter train trips
 - Due to the same railway that is used by both commuter train and long-distance train commuter train services are limited by available slots that are managed by PT KAI Operational Area I Jakarta
 - In 2014 PT KCJ has 873 slots but only 757 slots are occupied
 - In 2015 PT KCJ has 988 slots but only 876 slots are occupied
 - Payment method
 - There are two kinds of ticket payments: daily and subscriber
 - There is already an integrated ticketing system with busway (Transjakarta) through electric money / e-money which is proposed by private sector (banks). This service has been applied since 2013
- Integrated transport system development
 - PT KCJ as an operator of commuter train has already prepared for the integration of transport system, for instance by applying electronic ticketing
 - In order to integrate various mode of transport government should act more intensively, for example by developing transport infrastructure

- Challenges of integrated transport system
 - Accumulated passengers on the peak hours
 - Limited authority. PT KCI only deals with commuter train operation while in practical circumstances it not only focusses on the commuter train but also long-distance train and other KAI subsidiary companies
 - In order to overcome the challenges it need both national and local government support

- Technical data regarding commuter train operation
 - Five main corridors are: (a) Bogor – Jakarta; (b) Bogor – Jatinegara; (c) Bekasi – Jakarta; (d) Maja – Tanahabang; (e) Tangerang – Duri
 - Distance for each corridors: (a) 55.082 kms; (b) 70.561 kms; (c) 27.342 kms; (d) 52.847 kms; (e) 19.297 kms.
 - Passenger volume in January 2015: (a) 8,822,423; (b) 4,742,762; (c) 2,664,717; (d) 2,234,594; (e) 779,198. Total passenger in January 2015 was 19,243,694.
 - Passenger volume percentage in January 2015: (a) 45.85%; (b) 24.65%; (c) 13.85%; (d) 11.61%; (e) 4.05%
 - Passenger volume in February 2015: (a) 8,101,233; (b) 4,358,475; (c) 2,400,436; (d) 2,054,254; (e) 725,885. Total passenger in February 2015 was 17,640,283.
 - Passenger volume percentage in February 2015: (a) 45.92%; (b) 24.71%; (c) 13.61%; (d) 11.65%; (e) 4.11%
 - Average passenger in January – February 2015: (a) 1-5 stations: 8,892,666; (b) 1-8 stations: 7,193,655; (c) 1-11 stations: 6,635,676; (d) 1-14 stations: 5,965,952; (e) 1-17 stations: 4,124,310; (f) 1-20 stations: 2,524,115; (g) 1-23 stations: 1,380,035; (h) 1-26 stations: 98,459; (i) 1-29 stations: 61,402; (j) 1-32 stations: 4,521; (k) 1-35 stations: 2,610. Total average passenger January – February 2015 was 36,883,401.
 - Average passenger percentage in January – February 2015: (a) 1-5 stations: 24.11%; (b) 1-8 stations: 19.50%; (c) 1-11 stations: 17.99%; (d) 1-14 stations: 16.18%; (e) 1-17 stations: 11.18%; (f) 1-20 stations: 6.84%; (g) 1-23 stations: 3.74%; (h) 1-26 stations: 0.27%; (i) 1-29 stations: 0.17%; (j) 1-32 stations: 0.01%; (k) 1-35 stations: 0.01%

| | |
|-------------|--|
| Interviewee | : Mr. Malawat |
| Position | : Section Head of Urban Transportation Area I, Directorate Urban Transportation System Management, Directorate Generale of Land Transportation |
| Institution | : Ministry of Transportation |
| Date | : Wednesday, April 22 nd 2015 |
| Objectives | : Getting perspective of Central Government support in development of integrated transportation in Jakarta |

Introduction

As a way to stimulate the use of Transjakarta by commuter, Ministry of Transportation supports operation of feeder service for Transjakarta. This is done by providing buses for the feeder service.

Discussion

- Feeder support from Bogor, Depok, Tangerang and Bekasi to Jakarta
 - There are four corridors: Depok – Grogol; Summarecon – Bundaran Hotel Indonesia; Paris Plawat (Tangerang) – Kemayoran; Paris Plawat (Tangerang) – Blok M
 - The operator is PPD which is a state owned company in transport sector
 - In 2013 there were 10 big buses
 - In 2014 there were 78 big buses which have 80 seat capacity
 - In 2015 there will be 210 big buses
- In terms of financial support, local authorities are possible to ask to the Central Government through Ministry of Transportation
- Private vehicle ownership controlling are done through several policies:
 - Progressive taxes
 - Practical policies, such as 3 in 1
 - Provision of parking areas
- Transjakarta development
 - Still focusing on existing corridors
- Challenges in development of integrated transportation system
 - Local authorities support
 - Local authorities have responsibilities in providing areas related to transport infrastructure, such as bus stop, train station, etc.
 - As an example, in Depok, the Major rejects bus stop design of feeder service bus to Jakarta
 - Managing Local Social Impact
 - As an example, new public transport development would be conflicted to existing public transport

Interviewee : Mr. Massdes Arroufy
Position : Department Head of Traffic Management
Institution : Transportation Agency, Provincial Government of Jakarta
Date : Thursday, April 30th 2015
Objectives : Getting analysis of motorcycle restriction policy and Jakarta Transportation Macro Pattern

Introduction

Transportation Agency of Jakarta is the most responsible agency in terms of managing transport within Jakarta Province. Due to its high dependency to other Provinces, Cities, and Regencies, in carrying out its duties the Transportation Agency of Jakarta coordinates with other related stakeholders. Various transport policies become its responsibility such as 3 in 1 policy, motorcycle restriction policy, and Transjakarta development plan (because it only serves people within Province of Jakarta).

Discussion

- Motorcycle restriction policy evaluation
 - Objectives of the policy:
 - Encouraging people to use public transport
 - As a preparation of Electronic Road Pricing (ERP) policy implementation
 - Reducing traffic congestion
 - Reducing traffic accident
 - Traffic volume in main roads:
 - Before: 6,300 passenger car unit (PCU)/hour
 - After: 4,886 PCU/hour
 - It decreased 1,414 PCU/hour or 22.4%
 - Average speed in main roads:
 - Before: 26.3 kms/hour
 - After: 30.8 kms/hour
 - It increased 4.5 kms/hour or 17.1%
 - Average travel time in main roads:
 - Before: 8.2 mins
 - After: 6.9 mins
 - It decreased 1.3 mins or 15.9%
 - Traffic volume in alternative roads:
 - Before: 1,752 PCU/hour
 - After: 2,109 PCU/hour
 - It increased 357 PCU/hour (20.4%)
 - Vehicle speed in alternative roads:
 - Before: 22.9 kms/hour
 - After: 17.5 kms/hour
 - It decreased 5.4 kms/hour (23.6%)
 - Average travel time in alternative roads:
 - Before: 22 mins
 - After: 27.1 mins
 - It increased 4.9 mins (22.1%)
 - The traffic became better in terms of making queue



- Free bus ridership reached 40.3% who were using motorcycle before motorcycle restriction policy implementation
 - The ridership is still relatively low due to unreliable headway bus (because the buses are still limited)
- Pedestrians and bikers feel more comfortable and secure
- Parking area
 - There was no increasing volume of parking vehicle in 12 legal park areas, except monas
 - There was increasing volume of parking vehicle in illegal park areas, such as Kebon Kacang Street and Sunda Kelapa Street
 - This phenomenon is caused by high parking rate of legal park areas
- Challenges
 - Limited number of free buses as a compensation for motorcycle rider
 - In order to provide significant impact motorcycle restriction policy, the policy should be implemented in wide coverage areas
- Regulation Change
 - Before: Governor of Jakarta Decree No. 195 Year 2014
 - The motorcycle restriction is applied 24 hour
 - After: Governor of Jakarta Decree No. 141 Year 2015
 - The motorcycle restriction is applied only from 06.00 – 23.00
 - This change also attempts to spread out traffic volume on the peak hour
 - In addition, according to Traffic Law the traffic policy should explicitly explain time duration when the policy is implemented
- Recommendations:
 - An improvement the number of free buses
 - Incentives for motorcycle parking rate
 - Alleviation of illegal parking areas
 - Controlling use of road / alleviation of street trader
- Busway development
 - Twelve corridors have been built and operated
 - Three corridors are under construction which two of them are elevated built
 - Height of busway separators are 20 cms then they are modified into 40 cms
 - One of challenge in busway development relates to law enforcement
 - Busway sterilization does matter in making Transjakarta service reliable
 - In practical situation police are allowed to implement their own policies. This rights is called 'discretion rights'
 - In some situation, making use their discretion rights police are allowed to direct some vehicles get into busway. As a result the vehicles would increase traffic volume in busway. This leads to increasing of Transjakarta travel time.
 - Ideal condition of Busway in Jakarta
 - Twelve corridors are served by 1,029 articulated buses while fifteen corridors should be served by at least 1,289 articulated buses
 - An ideal bus headway is around 2-4 minutes
 - In fact, there are only 700 buses serve those twelve corridors which consist of both single and articulated buses. These 700 mix buses are equal to 450 articulated buses.

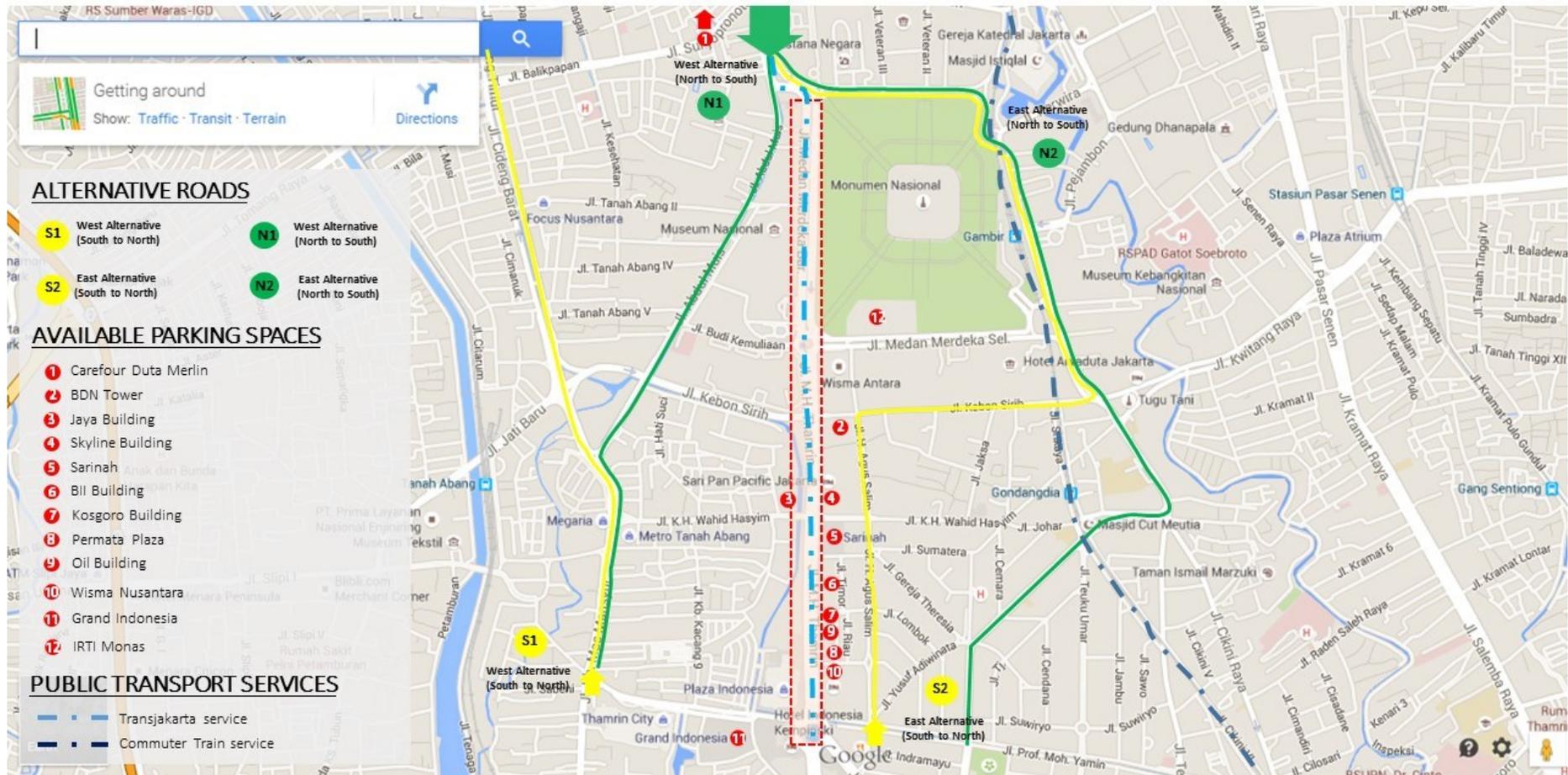


This means that comparing to the ideal situation of twelve corridors service, Transjakarta has only less than 50% buses.

- In 2015 the Provincial Government of Jakarta gave IDR 1.3 billion / EUR 68,343.36 as subsidy to Transjakarta
- Electronic Road Pricing (ERP) Implementation
 - The Provincial Government of Jakarta is still preparing provincial government institutional arrangement of ERP, including its legal aspect such as Governor Decree
 - The Governor Decree would act as legal base for Provincial Government of Jakarta to take some money from money through ERP fine

APPENDIX 3 MAP OF MOTORCYCLE RESTRICTION POLICY

MOTORCYCLE RESTRICTION POLICY AREA



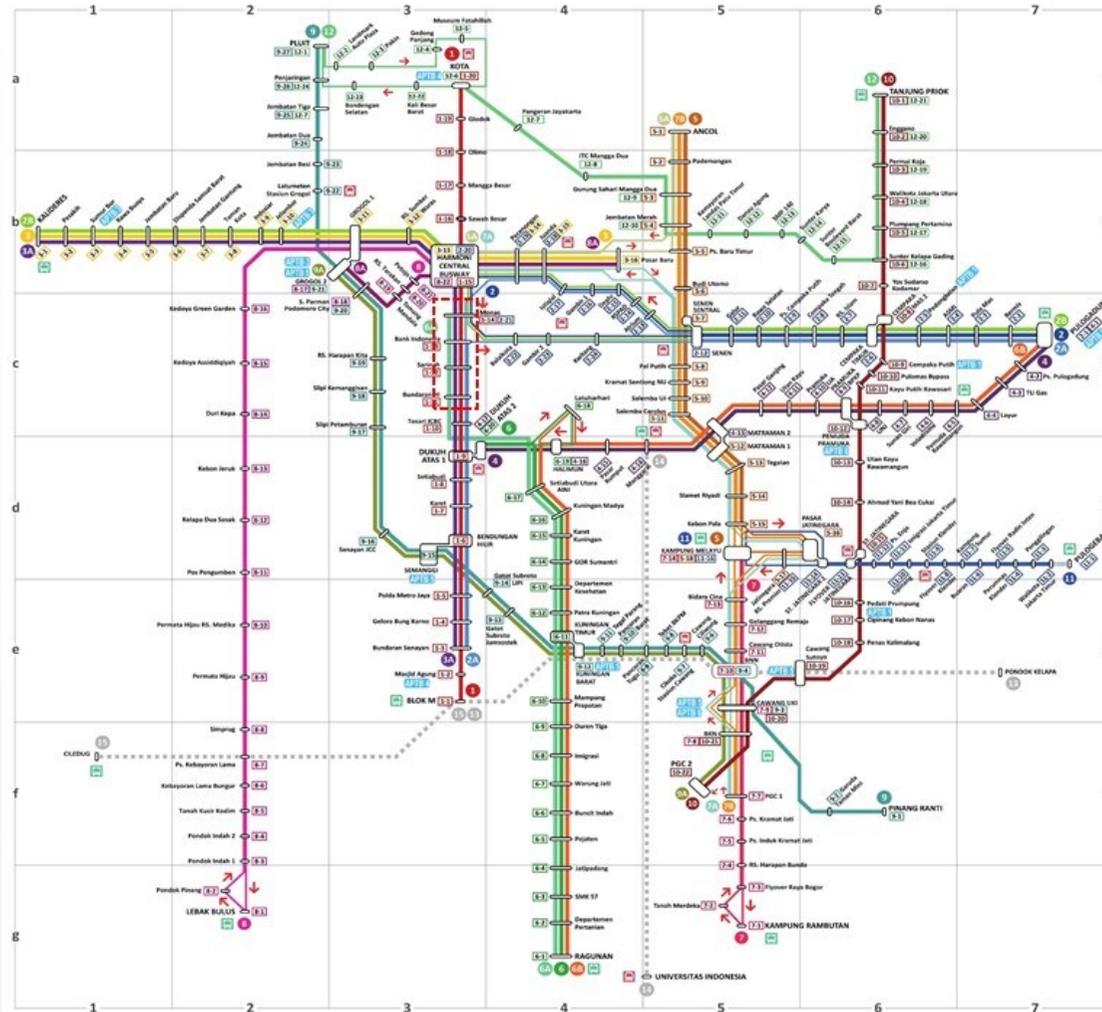
(Source: googlemaps.nl 2015, Transportation Agency of Jakarta 2014 modified by author)

ALTERNATIVE WAYS OF MOTORCYCLE RESTRICTION AREAS IN JAKARTA

(Source: Transportation Agency of Jakarta 2014)

| Direction | West Alternative | East Alternative |
|--------------------------------------|--|---|
| Senayan (South) – Harmoni (North) | Jenderal Sudirman – Dukuh Atas – Karet Pasar Baru – KH Mas Mansyur – Cideng Barat – Cideng Timur – Kebon Sirih – Abdul Muis – Majapahit – Gajah Mada | Jenderal Sudirman – MH Thamrin – Bundaran Hotel Indonesia – Sutan Syahrir – KH Agus Salim – Kebon Sirih – MI Ridwan Rais – East Medan Merdeka – North Medan Merdeka – Majapahit – Gajah Mada |
| Harmoni (North) – Senayan (South) | Hayam Wuruk – Juanda – Veteran 3 – North Medan Merdeka – Majapahit – Abdul Muis – KH Mas Mansyur – Karet Pasar Baru – Galunggung – Dukuh Bawah – Jenderal Sudirman | Hayam Wuruk – Juanda – Pos – Gedung Kesenian – North Lapangan Banteng – West Lapangan Banteng – Pejambon – East Medan Merdeka – M Ridwan Rais – Tugu Tani – Menteng Raya – Cut Mutia – Sam Ratulangi – HOS Cokroaminoto – Galunggung – Dukuh Bawah – Jenderal Sudirman |

APPENDIX 4 BUSWAY CORRIDORS IN JAKARTA METROPOLITAN AREA



TRANSJAKARTA CORRIDORS

- Corridor 1 : Blok M – Kota
- Corridor 2 : Pulogadung – Harmoni
- Corridor 3 : Kalideres - Harmoni
- Corridor 4 : Pulogadung – Dukuh Atas
- Corridor 5 : Ancol – Kampung Melayu
- Corridor 6 : Ragunan – Dukuh Atas
- Corridor 7 : Kampung Rambutan – Kampung Melayu
- Corridor 8 : Lebak Bulus – Harmoni
- Corridor 9 : Pinang Ranti – Pluit
- Corridor 10 : Tanjung Priok – Cililitan
- Corridor 11 : Pulogebang – Kampung Melayu
- Corridor 12 : Pluit – Tanjung Priok

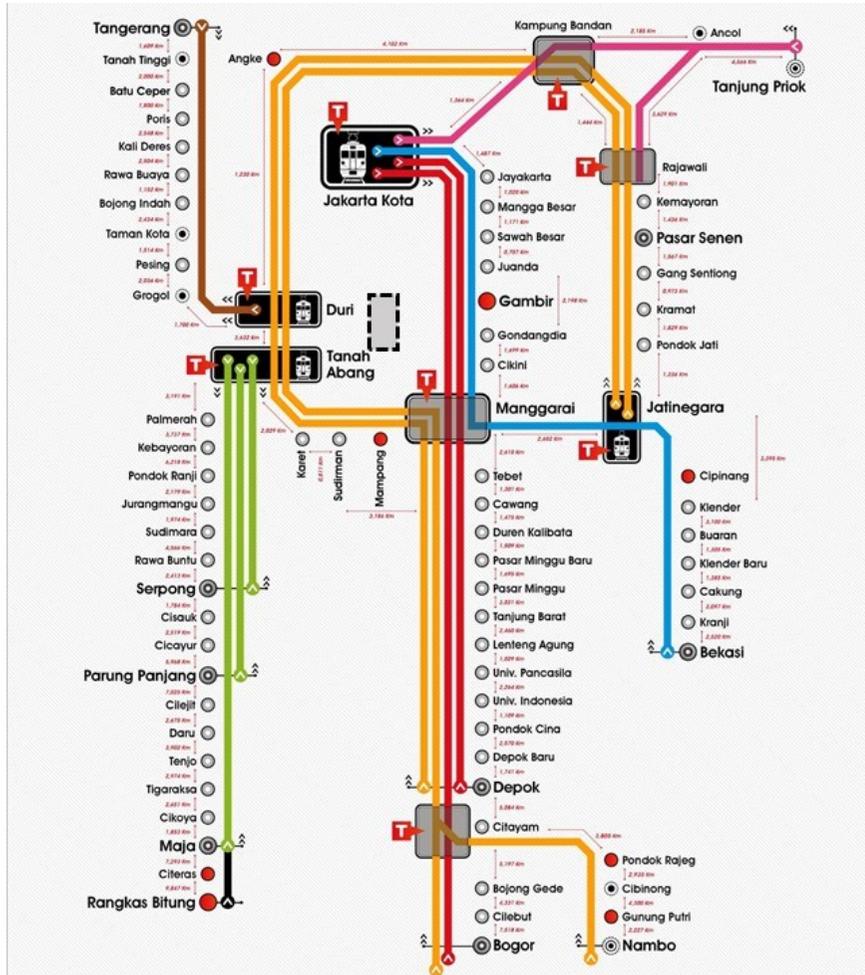
TRANSJAKARTA CROSS-CORRIDORS
 (only operates on specific period of time)

- Corridor 2A : Pulogadung – Bundaran Senayan
- Corridor 2B : Pulogadung – Kalideres
- Corridor 3A : Kalideres – Bundaran Senayan
- Corridor 5A : Ancol – Harmoni
- Corridor 6A : Ragunan – Monas
- Corridor 6B : Ragunan Pulogadung
- Corridor 7A : PGC – Harmoni
- Corridor 7B : PGC – Ancol
- Corridor 8A : Grogol – Harmoni
- Corridor 9A : Cililitan - Grogol


Motorcycle restriction Area
 (Medan Merdeka Barat – MH Thamrin)

(Source: Transjakarta 2013)

APPENDIX 5 COMMUTER TRAIN CORRIDORS IN JAKARTA METROPOLITAN AREA



COMMUTER TRAIN CORRIDORS

- Corridor Bogor – Jakarta Kota
- Corridor Bogor - Jatinegara
- Corridor Bekasi – Jakarta Kota
- Corridor Maja – Tanah Abang
- Corridor Tangerang - Duri
- T Transit Station
- Commuter train doesn't stop at this station
-  Motorcycle restriction area

(Source: PT. KCI 2015b modified by author 2015)

PT. KAI Commuter Jabodetabek – Stasiun Juanda

Street of Jl. Ir. H. Juanda I, Central Jakarta 10120 – Indonesia
 Phone: (+62)21 3453535 / Fax: (+62)221 34834084
 Email: commuter@krl.co.id / Website: www.krl.co.id
 Facebook: [informasi.commuterline](https://www.facebook.com/informasi.commuterline) / twitter: [@commuterline](https://twitter.com/commuterline)

APPENDIX 6 MAP OF PARK AND RIDE FACILITIES IN JAKARTA

MAP OF
PARK AND RIDE FACILITIES
IN JAKARTA

ADMINISTRATIVE AREAS

- West Jakarta
- South Jakarta
- East Jakarta
- Central Jakarta
- North Jakarta



PARK AND RIDE LOCATIONS

- 1 Kota /
Kampung Bandan
- 2 Rawa Buaya
- 3 Tanah Abang
- 4 Manggarai
- 5 Senen
- 6 Pasar Minggu
- 7 Tanjung Barat
- 8 Cakung

POTENTIAL PARK AND RIDE LOCATIONS

- 1 Kalideres
- 2 Blok M
- 3 Lebak Bulus
- 4 Ragunan
- 5 Kampung Rambutan
- 6 Pulo Gebang
- 7 Tanjung Priok
- 8 Kembangan

(Source: Wikipedia 2015; Provincial Government of Jakarta 2012)