# ROLE OF STAKEHOLDER INVOLVEMENT IN IMPLEMENTING BUS RAPID TRANSIT

## (CASE STUDY OF BOGOTA, JAKARTA, AND YOGYAKARTA)

## MASTER THESIS

A thesis submitted in partial fulfillment of the requirements for the Master Degree from Institut Teknologi Bandung and the Master Degree from the University of Groningen


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**DOUBLE DEGREE MASTER PROGRAME**


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**FACULTY OF SPATIAL SCIENCES**
**UNIVERSITY OF GRONINGEN**


**2013**

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Approved
Supervisors
Date: August, 2013

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# Abstract

Government of Yogyakarta develops Bus Rapid Transit (BRT), namely TransJogja, to fulfill the increased need of transportation due global economic growth. However, the Government of Yogyakarta Province faces technical and social challenges in BRT implementation. Those challenges affect TransJogja's reliability in delivering high quality public transportation system. The government needs to involve other stakeholders to manage such complex situations.

In order to involve stakeholders effectively, Yogyakarta could learn from the experience of other cities that have implemented BRT. In this case, this thesis uses Bogota's and Jakarta's experiences in implementing BRT as objects of comparison. The study relies on literature review in the analysis.

First, this thesis starts with defining BRT and stakeholder's involvement concept as the basis in developing research framework. There are four basic elements to be discussed: vehicle, infrastructure, technology, and management. Second, it maps out stakeholder's interest and contribution in the BRT development as it is important for decision makers. Furthermore, in the analysis, the stakeholder involvement is assessed according to four phases and five negotiations types to obtain the consensus resolution.

The results show that Bogota, Jakarta, and Yogyakarta implemented BRT in different stages and set of stakeholders according to their local characteristics. Each city compromised with the obstacles they encountered; resulting in decreasing quality and quantity of BRT facilities. However, each city has, to some extent, developed collaborative type of decision making process although the degree of collaboration is different. Another finding shows that there are six groups of stakeholders who have their own role in the BRT decision making process: government, professional, civil society organization, BRT company providers, and users groups.

Keyword: Bus Rapid Transit, comparative analysis, stakeholder involvement

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# CHAPTER I
# Introduction

## I. 1 Background

The need of transportation is increasing in line with global economic growth. Particularly in developing countries, the increased household income is followed by increasing of private vehicle ownership (Cervero, 1996). Yet, the pace of motorization is not followed by adequate level of physical facilities and institutional capacity, and quality of public transit systems (Kogdenko, 2011). Without policy intervention to maintain the public transit system in developing countries, the private car usage will increase and resulting in traffic congestion (Kutzbach, 2008).

In order to respond the increasing motorization trend, governments improve the public transit system by developing Bus Rapid Transit (BRT). BRT is the government's 'pull' approach by forcing *private* car users to use public transportation and afterward following by park-and-ride, and increase non-motorized vehicle, etc. (see Müller et al, 1992). In ITDP (2007) BRT is defined as *"Bus based transit system that delivers rapid and frequent operations by providing segregated right-of-way infrastructure and excellence in marketing and customer service"*. The segregated rights-of-way can enhance bus speed, reliability, safety, and identity (TCRP, 2003). The implementation of BRT potentially improves transportation system, reduce travel time, reduce fuel consumption, and increase public transport ridership.

However, governments, as the main actor in transportation development, face challenges in BRT implementation with regard to technical issues (such as finance, technology, and road condition) and social issues (such as politics and social rejection) of its location. The technical rationality can solve the technical problem by complying BRT technical standards and regulation from transportation authority. The incremental BRT development is government's attempt to cope with technical issues. The BRT develops by extending the geographic areas or network length and by upgrading its elements or facilities.

Other challenges in BRT development deal with social issues. Most of difficulties come from social problems, because BRT development deals with other stakeholders, such as local residents, other transport providers, and political situation. For example, in Jakarta (see **Figure I.1**), other transport provider opposed BRT because they feared that their income would significantly decrease due to BRT presence (http://www.beritasatu.com, Publish 28 March 2012). Local resident also rejected BRT because BRT segregate line development that used

median line would add traffic congestion and damage the environment (http://metro.sindonews.com, publish 4 June 2013)

**Figure I.1** Social rejections from opposing transport providers (left) and local residents (right) in Jakarta BRT development


*Source: store.tempo.co; foto.news.viva.co.id*

Similar to other developing countries, some cities in Indonesia, including Yogyakarta, are also implementing BRT. Yogyakarta BRT, namely TransJogja, emerged in order to improve the Yogyakarta public transportation service quality and reduce the traffic congestion. However, TransJogja has not run on segregated lanes and is still running on mixed traffic with other transportation modes (GTZ, 2004). Such condition compromises TransJogja's speed and punctuality. The implementation of dedicated line in Yogyakarta faces various challenges. Yogyakarta has narrow roads with the capacity of 2-3 lanes. If one lane is used exclusively for TransJogja, the road will become narrower and reduce the capacity for other transport modes. Furthermore, in Yogyakarta there are many side frictions such as on-street parking for two- and four-wheeled vehicles on both major and arterial roads (See **Figure I.2**). Implementing special line for TransJogja could "sacrifice" on-street parking, while the parking attendant earns their living from this economic activity. This condition leads to social dilemma in the communities.

**Figure I.2** TransJogja development problems dealing with on street parking

*Source: author's*

In order to reduce the potential conflicts that may appear in TransJogja development because of those complex technical and social issues, the government as the regulator and initiator of BRT needs involve stakeholders through open discussion in the decision making process. Nowadays stakeholder participation has become an integral part of infrastructure projects (El-Gohary et al., 2006). The decision making process invites various actors to listen to their opinions and to share ideas and suggestions as a part of seeking solution. It is important to count on stakeholder's opinion and concerns to better facilitate the development of a project that will meet the needs of stakeholders. Synchronizing the stakeholder's willingness and opinion becomes the key in developing Bus Rapid Transit.

## I.2 Research Objectives

The study aims to compare the practice of stakeholder involvement in accelerating the implementation of Bus Rapid Transit system. The research uses Bogota and Jakarta as objects of comparison and compares their experiences to takes the lessons-learnt for recommending measures to improve quality service of Yogyakarta's BRT, the TransJogja.

Bogota is known as a city that successfully implements a bus rapid transit system and Jakarta pioneered the operation of BRT in Indonesia. Compare to Bogota and Jakarta, Yogyakarta implemented BRT most lately. By knowing the Bogota and Jakarta approach in developing the BRT system, Yogyakarta could learn the significant key factors in managing Bus Rapid Transit from the experienced city to improve TransJogja service. Yogyakarta could learn how Bogota and Jakarta reduce the potential conflicts or deal with their stakeholders.

In the last part, some recommendations for improving TransJogja can be generated based on those lessons. This recommendation can be contributed to the improvement of the urban transport system in Yogyakarta.

## I.3 Research Questions

This study departs from one key research question: "*What is the role of stakeholder involvement in implementing Bus Rapid Transit in Bogota and Jakarta that can be learned by Yogyakarta?*". To answer the key research question, the question is divided into three sub questions as follows:

1. Who are the stakeholders and what are their positions in the implementation of BRT in Bogota, Jakarta, and Yogyakarta?
2. How is the process of stakeholder participation in the implementation of BRT in Bogota, Jakarta, and Yogyakarta?
3. What are the similarities and differences between Bogota's, Jakarta's, and Yogyakarta's stakeholder involvement in their BRT implementation?

## I.4 Research structure

This research consists of nine chapters and the content of each chapter can be described as follows:

Chapter 1: Introduction

The introductory chapter consists of background, research objectives, research questions, and research structure.

Chapter 2: Methodology

This chapter will explore the methods of this research. Then, the case description and the case selection criteria are defined. In the last part of this chapter, as the strategy to answer the research questions the research data would be described.

Chapter 3: Bus Rapid Transit

This chapter will focus on BRT concept. At the beginning of this chapter it defines the BRT concept, explains the definition, and then continues to the element and characteristics of BRT. After that, the description of the BRT practice in the world will be described.

Chapter 4: Stakeholder involvement

The focus of discussion in this chapter is on stakeholder involvement in implementation of BRT.

The discussion will include the definition of stakeholder involvement and explore the process of the stakeholder involvement including defining who would be involved, knowing their position, as well as knowing the stakeholder involvement process. The objective of this chapter is to obtain the empirical knowledge of stakeholder involvement as the basic comparison of the research.

Chapter 5: Stakeholder Involvement in the implementation of TransMilenio, Bogota

This chapter contains the description of the historical and current condition of public transport in Bogota. Afterwards, it discusses stakeholder participation in the development of Bogota BRT which include the actors, their position, and the participation process.

Chapter 6: Stakeholder Involvement in the implementation of TransJakarta, Jakarta

This chapter consists of the description of the historical and current condition of public transportation in Jakarta and subsequently stakeholder participation in Jakarta BRT development: the actors, their position, and the participation process.

Chapter 7: Stakeholder Involvement in the implementation of TransJogja, Yogyakarta

This chapter has the same research method structure as two previous chapter. It will start by the explanation of the historical and current condition of public transport in Yogyakarta and then the discussion about stakeholder participation in Yogyakarta BRT development: the actors, their position, and the participation process.

Chapter 8: Comparison and lessons learned of stakeholder involvement in Bogota, Jakarta, and Yogyakarta

In this chapter, to identify the lessons learned from the stakeholder involvement in BRT, three cities (Bogota, Jakarta, and Yogyakarta) are used as the object of comparison. The comparative study will lead to the similarities and differences of stakeholder participation of BRT among three cities. Then there are conclusions about the lessons learned and transfer possibilities for Yogyakarta BRT.

Chapter 9: Conclusion, Reflection and Recommendation

This chapter provides conclusion, reflection and recommendations for the development of BRT in Yogyakarta with regard to stakeholder involvement process. The reflections and recommendation are intended to the government and decision makers in Yogyakarta

# CHAPTER II
# Methodology

This chapter explores the method used in this research to answer the research question. In order to answer the question the Comparative Analysis Study is used by making comparison to find similarities and differences among object comparison.

Initially, this chapter will explain the comparative analysis and the result found about the objects to be compared. Then it will continue by describing the research framework as guidance in this research. After that the list of required data will described to answer the research question. The last part of this chapter is conclusion.

## II.1 Comparative Analysis

Comparative analysis in research methodology aims to find the major similarities and differences among countries (Keman, 2006). By doing so, the research could focus on finding conclusion to answer the problems. Keman (2006) mentions that the comparative method could give some views implying aspects such as:

- Comparative method focuses on cases
- Comparative method systematically serves several goals like developing typologies and classifications
- Comparative method allows hypothesis testing, if not prediction

Other reasons or purposes why the research uses comparative method are mentioned by Woltjer (2013). He stated that there are at least 5 reasons: Contextual reasons (what other countries are like), Classification (make less complex variations), Hypothesis-testing (elimination of explanations), Prediction (about likely outcomes in other countries), and Policy transfer.

The policy transfer becomes the main goal of this research which is focusing on finding recommendation to improve TransJogja operations and services. In order to achieve that aim this research uses other cities experience to be learned. Transfer policy possibilities by analyzing explore the other cities approach in implementing BRT.

## II.2 Case Study Research

The research question is a 'what' type question. Yin (2009) mentions that the exploratory approach is proper to answer that type of question. Exploratory approach evaluates the situation that has been changed (Baxter and Jack, 2008). Furthermore, Yin suggest that case study is also appropriate to analyze the actor behavior and Lor (2011) added that the actor

behavior and case-oriented studies are the qualitative matter of research and needs multidisciplinary resources.

Landman (2008) mention in comparative study approaches there are three methods in choosing object to be compared for research comparison: it compares single country, few countries, and many countries. Those methods are defined as follows:

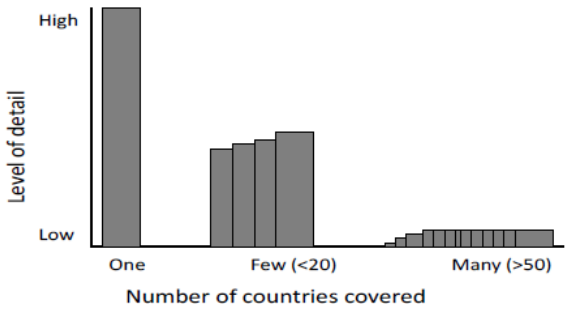
1. The single-country study

   The single country study uses one country to be compared with the case study. By concentrating in one specific country the case will more detailed to be examined (see **Figure II.1**). The chosen country must have a specific characteristic or maybe an extreme pattern of cases that could be use as the representative of a group or a category of countries. The single case approach is a kind of confirming analysis based on one country's history.
2. The few-countries study

   In this category more than two up to twenty countries are used in a research. These countries have similar characteristics and represent one idea to be compared. In its process, it should use similar features to be measured.
3. The many countries study

   This comparison is known as quantitative method and typically uses multivariate analysis. This method is used for formal testing of hypotheses and will result in global reflection of object research.

**Figure II.1** Number of countries being studied and level of detail




*Source: Lor, 2011*

On the one hand, choosing only one object to be compared for BRT implementation research could be too subjective, because BRT system has been known as an improvement of public transportation in developing countries and deals with the *locus* characteristics. Another reason is that BRT has standardization of planning, construction, and operation. On the other hand, by using many objects for comparison will make the depth of the research incomprehensive. The use of many countries method is more suitable to obtain the general opinion or common result of a policy. In order to obtain objective and proper depth of detail, this research uses two cities as the objects to be compared with BRT of Yogyakarta. By using those cities, it is assumed that the result will be objective with its depth of detail characteristics level.

In selecting objects of comparison, this research uses cities whose characteristics are the same in urban development and public transportation improvement.

## II.3 Case Description and Case Selection Criteria

Yogyakarta is on the way to improve its urban transportation quality. The government of Yogyakarta promotes to buy the service concept of BRT as public transportation. In the implementation of BRT, Yogyakarta faces some difficulties. Yogyakarta needs precedent and guidance from another city.

To obtain the optimum results, there are three criteria in selecting cities that have already implemented the BRT system as the object. Those criteria are: have similar aim to improve public transportation, similar government system, and more or less have the same economic growth. Based on those criteria, this research chooses three cities as object of case study: Bogota, Jakarta, and Yogyakarta. In addition, in choosing the compared city, this research uses the historical of BRT development of Yogyakarta which is Yogyakarta refered to Jakarta when implemented BRT, while Jakarta copied Bogota.

According to the first criterion, all of three cities implement BRT concept in order to improve their public transportation. Bogota improved its public transportation due to penny war in the region (to be explained in Chapter V). The Trans Jakarta emerged due to the plan of Jakarta government to improve their old public transportation and reduce traffic congestion (to be explained in Chapter VI). And lastly, Yogyakarta government has willingness to reduce traffic congestion and serve tourist and student in the region. The second criterion is about the similarity of the governmental system among compared cities. Dolowitz and Marsh (1996) mention that the lessons learned from other countries could be applied if each constitutional structure has similar units of government and within a relatively harmonious political culture. For the second criterion, those three cities come from democratic and republic countries. They have separate governmental structure; executive and legislative, and separate governmental level from national, provincial, and municipalities. According to the third criterion, those cities come from developing countries, Bogota and Jakarta is the capital city of developing countries. In the next section, each case study will be elaborated thoroughly based on those criteria.

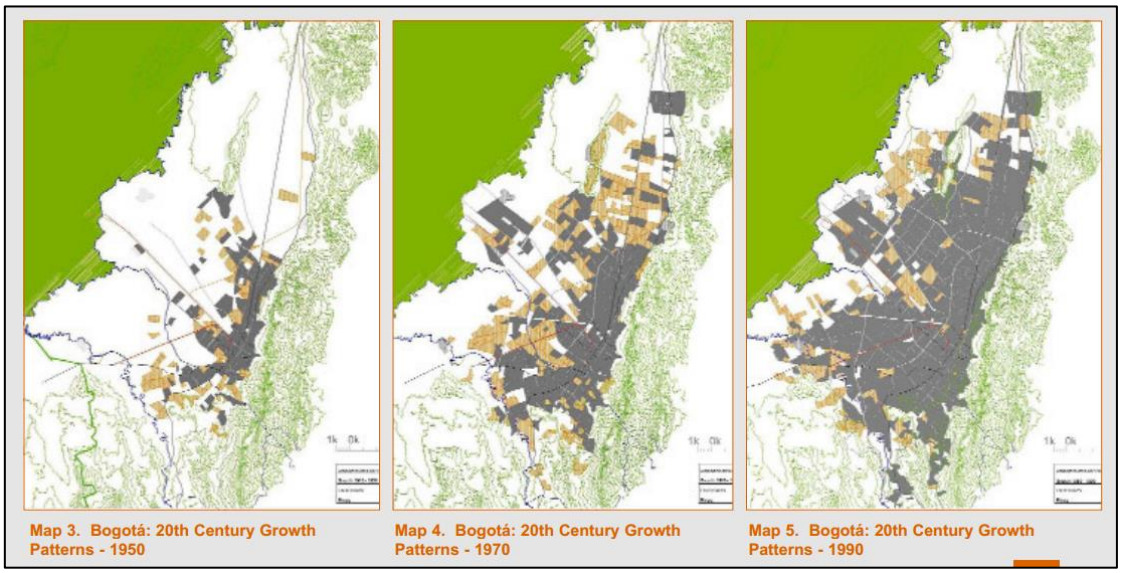
1. Bogota.

   Bogota is the capital city of Colombia. Bogota becomes the center of national economic growth due to its function as the center of administrative, political, and financial activities. It is located on 2.600 m above sea level on the Andes Mountains. In 2006 Bogota had 6.760.000 population (emi.pdc.org, 2013). The city of Bogota has 1.587 km$^2$ of area from 1.138.910 km$^2$ of Colombia in total (Baker Tilly Colombia, 2008). It makes Bogota as the biggest city in Colombia.

Bogota grows in linear shape influenced by the former tramway track (Saavedra, undated) that was developed in about 1884. The tramway is the important thing because it has effect on the relation between urban development and transportation (see **Figure II.2**).

Bogota is led by a Principal Mayor and is helped by District Council. They are chosen through general election, the same way like presidential election system. They both are in charge for city organization and management. The city is divided into 20 district and run by an administrative panel who are elected by majority voting and consist of more than seven members.

**Figure II.2** Bogota Development

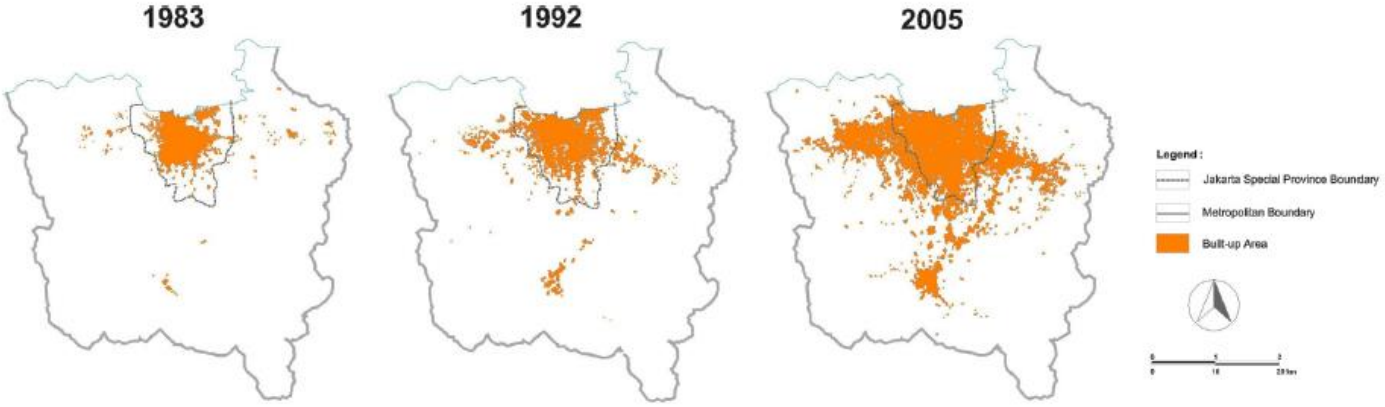



*Source: Rueda-Garcia, Nicolas.*

2. Jakarta

   Jakarta is the capital city of Indonesia. As the capital city, Jakarta that also acts as the main administrative city, political, and financial center becomes a metropolitan city together with other cities known as BODETABEK (acronym for Bogor–Depok–Tangerang–Bekasi) which are located in the west-south-east ring of Jakarta (see **Figure II.3**). Jakarta covers 650 km2 area (including the Seribu Islands on the north Jakarta) (DepHut, 2013) and based on census 2011 Jakarta has 10.187.595 citizens (Disdukcatpil DKI Jakarta, 2013), making Jakarta to be the most populous city in Indonesia.

**Figure II.3** The development of Jakarta becomes Jakarta Metropolitan / JABODETABEK




*Source: Hudallah and Firman (2012)*

According to the governmental types, the government of Jakarta is divided into two types ; executive and legislative. The executive is led by the governor and the legislative is the Provincial House of Representatives. Both of them are chosen via general election every 5 years.

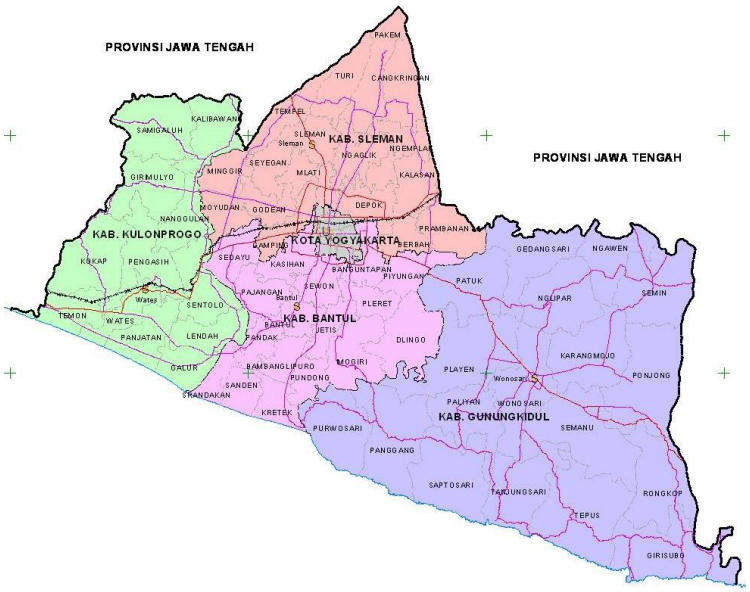
3. Yogyakarta

Yogyakarta is the capital city of Yogyakarta Special Region (YSR) (equivalent to province) in Java, Indonesia. Located in the southern part of Java Island, YSR is the second smallest province in Indonesia (after DKI Jakarta). YSR covers 314.792,91 Ha in total area and Yogyakarta has 3.186,79Ha area which means it is only around 1,012% of total area of YSR province (YSR provincial data,2004). Yogyakarta development cannot be separated from other municipalities in its border. Yogyakarta municipality lays directly adjacent with two other municipalities in this province, Sleman (on the north) and Bantul (on the south). The population of Yogyakarta municipality is 388.627 people (2010 Population Census). Due to its location, Yogyakarta development and urban growth are heavily affected from other municipalities. YSR itself has 3.457.491 people based on 2010 Population Census. Surrounded by 4 regencies, Yogyakarta becomes a center of activity for other regencies (see **Figure II.4**). Yogyakarta has bounded by a four-lane (dual-carriageway) ring road for two-wheel and four-wheel vehicles in separation. The road network forms a rectangular grid pattern within the ring road and a number of one-way street exists within the city center.

The development of Yogyakarta is based on two main roots; Keraton and education place. Yogyakarta is called Special Region because it is ruled by Sultan (The King of Keraton) and also acts as Governor. It differs with other provinces in Indonesia. The sultan leads Yogyakarta province for a lifetime, but has limited power in governmental bureaucracy by law. Decision making power is shared with the legislative. Yogyakarta is well known as and educational city because it has many leading university. Those universities turn to be independent power of urban development, because once they are built, the supporting

infrastructure would automatically developed. Yogyakarta fast growth also develops surrounding suburban area. Consequently, the local government anticipates its urban and traffic development by constructing a fast track route surrounding the city called Ring Road Yogyakarta. The Ring Road creates urban development out of the inner city boundaries.

**Figure II.4** DI. Yogyakarta Province and Yogyakarta Municipalities




*Source: http://www.pip2bdiy.org/sigperkim/peta.php*

As part of YSR Province, Yogyakarta Municipalities is led by a Mayor. To serve the communities well, the major divides the job and responsibilities in several specific jobs, called Dinas. For example, to serve the transportation flow and public transport, Yogyakarta has Dinas Perhubungan (Municipal Transport Authority). A mayor rules Yogyakarta for 5 years and is elected by general election every 5 years. In Legislative level, YSR and Yogyakarta Municipalities have Municipalities/Regional House of Representative (DPRD). They are elected and on duty for 5 years. Similar to other municipal house of representatives in Indonesia, the Yogyakarta House of Representative also coorporate with the municipal government to exercise their budgeting power and to develop regional financial plan.

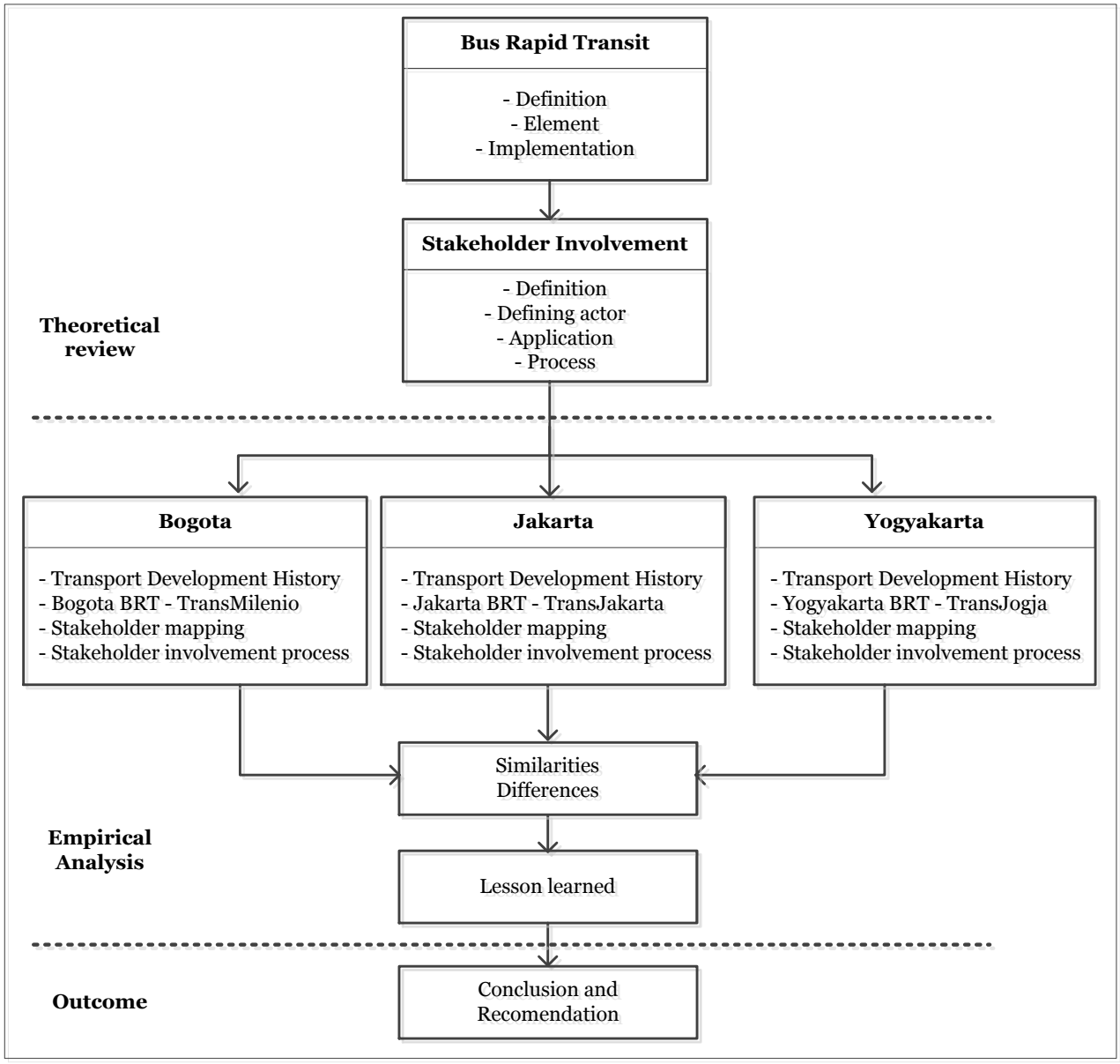
## II.3 Research Framework

The general framework of the research is shown in **Figure II.5** below. In order to understand the basic knowledge of BRT system, the first step of theoretical review is explaining the concept of the Bus Rapid Transit system, how it works and what the standards are. After that this research will explain the stakeholder involvement especially to know about their role related to social problems that hamper bus rapid transit development.

The second step is empirical analysis. It is done by undertaking the comparative analysis in Bogota, Jakarta, and Yogyakarta. It starts by defining historical transportation development, BRT development, and stakeholder involvement process. According to data from those cities, the research will continue by analyzing the similarities and the differences in each city, and taking the best practice from Bogota and Jakarta to be used in TransJogja improvement. The main focus is implementing the BRT concept, dealing with stakeholder that may be involved in developing Yogyakarta Bus Rapid Transit, and finding some potential transfer possibilities to adopt any positive aspect from Bogota and Jakarta.

The last step is making conclusion, reflection and recommendations that can be proposed as a guideline for bus rapid transit planning in Indonesia particularly in Yogyakarta.

**Figure II.5** Research Framework



## II.4 Research Data

To answer the research questions, data and information on implementing BRT are collected and taken from literature published, journals, academic books, NGO research, meeting reports, and from governmental feasibility study in accordance with the implementation of BRT in Bogota, Jakarta, and Yogyakarta. **Table II.1** shows the required data to answer the research questions.

**Table II.1** Data Required for Research

| No. | Research Question | Strategy to answer | Data Required | Main Source of Data |
|---|---|---|---|---|
| 1. | Who are the stakeholders and their positions in the implementation of BRT in Bogota, Jakarta, and Yogyakarta? | Mapping the stakeholder by identifying the actor, position and their contribution in the BRT decision making process in Bogota, Jakarta, and Yogyakarta | BRT guideline and policies to know element of BRT, the challenges of implementation, and stakeholder that may arise | Journal, academic research, NGO research, newspaper, governmental regulation from various countries, and meeting report of decision making process |
| 2. | How is the process of stakeholder participation in the implementation of BRT in Bogota, Jakarta, and Yogyakarta? | Identify and analyze the method of decision making process in Bogota, Jakarta, and Yogyakarta | Method in decision making process particularly on stakeholder involvement in BRT implementation. | |
| 3. | What are the similarities and differences between Bogota's, Jakarta's, and Yogyakarta's stakeholder involvement in their BRT implementation? | Analyzing stakeholder implementation process and procedure. Then, comparing it with Yogyakarta's approach | BRT element and decision making process in Bogota, Jakarta, and Yogyakarta, finding their strength as the lesson learn to improve the Yogyakarta BRT weakness | Result from point 1 and 2 |

*Source: Author*

## II.5 Literature Review

From **Table II.1** it is shown that to conduct the research, the key concepts, terms, and theories related to stakeholder involvement during BRT implementation could be achieved through literature reviews. Cronin et al. (2008) mentions that to obtain objective results in the literature review, the information about a particular subject should be gathered from many sources. The data sources used for research should be up-to-date or latest literature so it could suit the current problem condition. According to Bell (1999), there are two steps in arranging literature review: firstly, searching for the relevant interest of the topic which could come from institutions, research groups, journals, conferences, and from key researchers; secondly, writing the literature review critically.

## II.6 Conclusion

Comparative analysis study is to find the relationships of the major similarities and differences among countries with the aim to improve TransJogja operations and services. To achieve the goal, a comparative method is conducted by comparing Yogyakarta BRT with Bogota and Jakarta BRT. Bogota and Jakarta are chosen as object of comparison because both of them are in conformity with the case's selection criteria. They have similar government system, similar aims to improve public transportation, and more or less have same economic growth. Bogota, Jakarta, and Yogyakarta have inadequate public transport quality that need to be improved. They also have same government system, which is executive and people representative in legislative institution. For economic growth, all of these cities come from developing countries. Although Yogyakarta is not capital city of nation like Bogota and Jakarta, Yogyakarta is capital city of YSR province and become administration center and economic in YSR province (See **Table II.2**). These criteria are taken in order to create compatibility as much as transfer possibility of the good aspects from Bogota and Jakarta BRT to be adopted by BRT of Yogyakarta.

**Table II.2** Comparison Object Selection Criteria

| | **Bogota** | **Jakarta** | **Yogyakarta** |
|---|---|---|---|
| BRT aims | Eliminating *penny war* (competition within old public transport) in the region | Replacing old public transportation and reduce traffic congestion | Reduce traffic congestion and restructuring old public transportation to serve tourist and student in the region |
| Government system | Principal Mayor in executive and District Council in legislative | Governor led provincial executive institution and in legislative there is Provincial House of Representatives | Sultan as YSR Governor, led provincial executive, Yogyakarta municipality led by Mayor and in legislative there is Provincial House of Representatives |
| Economic growth | Capital city of Colombia, central of administrative, political, and financial activities | Capital city of Indonesia, central of administrative city, political, and financial center | Capital city of YSR province. The main activity is service sector activities such as tourism and education. |

*Source: Author*

Before conducting comparative research, firstly it starts with exploring bus rapid transit concepts and stakeholder involvement to find guideline of research. Then, it continues to comparative research by studying literature review related to the implementation of BRT in Bogota, Jakarta, and Yogyakarta. Lesson learned are taken by finding strength of BRT implementation in Bogota and Jakarta in order to improve Yogyakarta BRT weakness.

The literature review would be explained in the next chapter. Chapter III will explore the Bus Rapid Transit concept, while Chapter IV will explore the stakeholder involvement. At the end of each literature review, the conclusions would be presented as guidance to describe the compared cities.

# CHAPTER III
# BUS RAPID TRANSIT

Based on the research framework in the previous chapter, this chapter would discuss the literature review. This chapter consists of the basic concept of Bus Rapid Transit (BRT). BRT concept is identified and implemented differently in every country in the world. Each country implements the BRT concept based on their characteristic problems.

This chapter begins by discussing and explaining the definition of BRT concept, then the elements and characteristic of BRT, the implementation BRT concept all over the world, and the last part to be discussed is the conclusion of chapter III.

## III.1 Defining BRT Concept

As mentioned in Chapter I, BRT is 'pull' approach of the government's effort to cope with the urban motorization and reduce the traffic congestion by forcing the private car user to use public transportation. BRT presence could improve urban transportation condition and increase the public transit service level. In planning and operating BRT there are certain rules to be conducted.

With the purpose of this research about the implementation of BRT, first of all it is important to find the main concept of BRT. Federal Transit Administration (in Levinson et al., 2003) gives a definition of BRT as follows:

> *"BRT is a flexible, rubber-tired rapid-transit mode that combines stations, vehicles, services, running ways, and Intelligent Transportation System (ITS) elements into an integrated system with a strong positive identity that evokes a unique image"*

Another BRT definition is presented in Bus Rapid Transit Planning Guide by Institute for Transportation and Development Policy (2007). It is said that BRT is:

> *"a high-quality bus based transit system that delivers fast, comfortable, and cost-effective urban mobility through the provision of segregated right-of-way infrastructure, rapid and frequent operations, and excellence in marketing and customer service"*

According to those definitions above, in brief BRT is a rapid transport mode with bus-tired based operating on special infrastructure and technology (e.g. running way, special information technology, special boarding and alighting system). Another characteristic of BRT is that it has a

frequent operation time schedule. These characteristics bring four categories of elements in BRT concept including:

1. Vehicle

   Vehicles are tools to transport passengers and in this case bus-tired are used. Levinson et al. (2003) gives implementation guideline of vehicle standard. The bus that could be categorized as BRT is convenient, comfortable to be boarded /be alighted, easy to be operated, and in addition aspect to the bus standard the BRT should be environmentally friendly. Some considerations are taken from Dublin Bus Rapid Transit (Core Dublin Network, 2012) that the vehicle (bus type) should consider:

   - Seizing the accessibility of city road;
   - Minimizing the waiting time at BRT stops;
   - Being able to transport passengers average in each shelter; and
   - Giving appropriate seat compare with an average duration of passengers' journeys.

   The recent arising environmental issues reinforce the vehicle selection of BRT's fleet to meet the environmental standard or low pollution vehicle (Levinson, 2003). Thus, the bus fleet should implement green vehicle technologies that are environmentally friendly like CNG-fueled bus, diesel-electric hybrids, electric trolley buses, and the low-noise vehicle technology.

2. Infrastructure

   Infrastructure in BRT relates to the running ways and bus stop/shelter. The road infrastructure is the main characteristic of BRT concept. Type of BRT is categorized by its road characteristics. They cause every type of BRT to have huge differences. Miller (2009) gives some reasons about the usage of buses as the priority vehicle on streets and highways:

   - Increase transport capacity,
   - Minimize or reduce delay,
   - Maintain service reliability and high speeds,
   - Support public transport for environmental preferences

   Another element of BRT's infrastructure is shelter. The basic purpose of shelter/bus stop is a place for passengers to board and alight easily and safely, and it could give weather protection. At the shelter, there is a passenger service giving information about route and schedule or real-time information about bus arrival time (Core Dublin Network, 2012). The real-time bus tracking could be used by management to maintenance the bus headway (Ferris, 2011; Munoz et al., 2013). Moreover, the infrastructures are much related to transit development with land use policy.

3. Technology (Intelligent Transport System and Fare System Technology)

   Technology is used to keep the vehicle (bus) remaining on its route, minimizing delay by traffic control signal, and informing the up to date travel time to the passenger. Such technology could be presented on the bus, at the shelter, and on the road passed by the bus,

for example a privileged action (giving priority) for buses on intersection by giving them extra time for the green light or activating the green light of traffic light on intersection when detecting a bus coming.

Another technology is associated with the fare collection. This technology could be used to accelerate boarding time and reduce contact with the driver. Conventional on board fare collection slows the boarding process. The technology could make an intervention and make the boarding process faster because it allows fare/ticket picking previously or automatically when aboard into the bus. The technology in ticketing system could arrange any payment based on trip distance or subscription by a certain time.

4. Management

   Wright and Hook (2007) it is explained that management is the matter of marketing and customer service provision. Marketing and branding could attract and give positive impact to the customer's willingness to try using a BRT system, particularly to divert the private car user to use public transportation (Levinson, 2003).

## III.2 BRT in Global Review

After being introduced and successfully operates in Curitiba Brazil (1974) BRT has been expanding rapidly in all over the world. Curitiba succeeds in inspiring other cities to develop this public transport system in order to solve their traffic problem. In the 1970s, the development of BRT systems was limited in the North America and Latin American. Then, in the late 1990s, the BRT concept kept being implemented and being duplicated. The BRT systems began to be operated in Quito, Equador (1996), Los Angeles, USA (1999) and Bogotá, Columbia (2000). The reasons why BRT becomes popular are that BRT has a minimum cost in building its infrastructure, high performance and impact, and in implementation it is faster (Hidalgo and Gutiérrez, 2013).

As shown in **Table III.1** below, Latin America becomes a leading country in the development of BRT in the world (by number of passengers). Most cities in Latin America develop their BRT system as city/wide approach (BTI, 2013). BRT is developed to minimize traffic congestion and to connect suburban and urban area. BRT development could influence or be influenced by land use planning. In Curitiba, the urban growth is significantly shaped by the BRT access (Menckhoff, 2005). The City Fix – EMBARQ (2013) stated that Curitiba has successfully implemented their BRT system because its government supports the improvement of their public transportation. The government integrates the transport system plan into the land use policy. In this case the government invited private sector to manage and plan the transportation system for the city (Junge and Groh, 2008).

**Table III.1** BRT development all over continent

| Regions | Passengers / day | Number of cities | Length (km) |
|---|---|---|---|
| Africa | 238,000 (0.9%) | 3 (1.9%) | 62 (1.6%) |
| Asia | 6,275,622 (24.9%) | 29 (18.8%) | 977 (24.5%) |
| Europe | 1,656,966 (6.6%) | 43 (27.9%) | 699 (17.5%) |
| Latin America | 15,877,911 (62.9%) | 52 (33.8%) | 1,332 (33.4%) |
| Northern America | 849,285 (3.4%) | 20 (13.0%) | 592 (14.8%) |
| Oceania | 327,074 (1.3%) | 7 (4.5%) | 328 (8.2%) |
| Total | 25,224,858 (100%) | 154 (100%) | 3,990 (100%) |

*(Source: http://www.brtdata.org/)*

Asia becomes the second largest continent implementing the BRT concept. BRT contributes to improving the public transport system of the city. Actually the idea came from the government who felt that the existing public transport system at the time was inadequate and significantly needed to be developed. The rise of BRT system was due to giving better condition in public transportation. Jakarta and Seoul adopts their BRT system from Bogota, Colombia (CAI-Asia, 2010; Matsumoto). Kogdenko (2011) said there are several problems in the BRT implementation and the most common problem is the lack of the BRT system capacity and the grow of city's urban and motorization. However, the challenges do not make the progress of BRT development to be delayed. Some cities continue developing the system (Hidalgo, 2009).

In Europe, BRT develops as urban context (Cristóbal-Pinto, 2008). The BRT system as an urban transport planning dealing with urban models presents relatively dense cities with narrow streets where most activities and residence are mixed (Finn et al., 2011). Europe BRT system or sometimes is called as BHLS (Buses with High Level of Service) fills the gap between regular bus and LRT in terms of performance, cost and capacity, for the particular conditions of European cities (Hidalgo and Gutiérrez, 2013).

For Africa particularly in Johannesburg-South Africa caught FIFA World Cup 2010 soccer tournament as a window opportunity to develop their BRT system named Rea Vaya. World Bank (2013) found that Africa's travel demand is dispersed and no single mayor route focused. They also found that African countries are affordable to invest the development but the citizens cannot afford to buy the system. It becomes a challenge that they have to deal with.

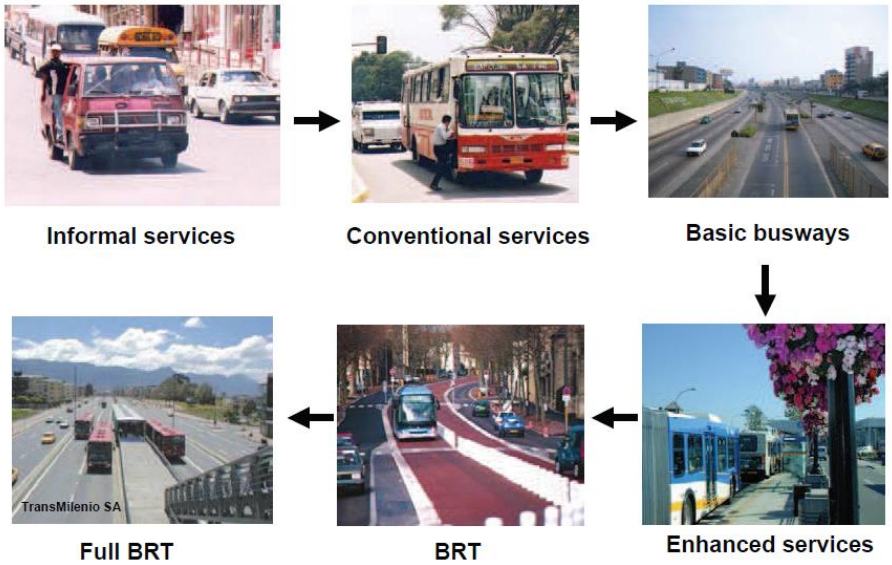
## III.3 Challenges in managing the BRT Development

Managing BRT development means to make a combination of policy among Infrastructure (Hardware), Technology (Software), and Managerial (Orgware) (Filipe and Macario, 2012). The four BRT main elements (in section II above) are implemented by making integration of each other. This integration aims are to improve the positive influences of systems and reduce its possible negative side effects of BRT. The positive influence is that the public transportation will

be organized, scheduled, and monitored. On the other hand, BRT has also negative side effect, for example the increase of possible roadway congestion due to BRT's priority lane construction cutting the number of available lanes of another vehicle. Therefore to reduce the negative impact, the BRT development should be flexible and adaptable to the current local situation. Hook (2005) mentioned that BRT does not develop by itself but its development expansion is often followed by regulatory reformation of urban transport system. In line with Hook's statement, Levinson et al. (2003) stated that BRT can be built following the availability of existing funds, in other word BRT can be built gradually. The gradual development is carried out in accordance with the growth of the community's needs, support, and interest.

**Figure III.1** shows that bus rapid transit is the further step of the current public transport system. The public transport evolution depends on local aspect, such as population density, financial resources, geography, topography, and political will to implement a high-quality system. In early times, public transport was formed by informal public services with unstructured institution, and then it improved into formal form but still in conventional services. The conventional services mean that public transport is operated in basic services, such as unscheduled and indefinite time travel. To serve the passenger better, the government develops busway, but it is still in simple infrastructure. After that, step-by-step it is improved on complex and complicated BRT infrastructure system. The flexibility of BRT development makes the BRT popular in many countries in the world.

**Figure III.1** Public transport evolution




*Source: ITDP, 2007*

The public transport evolutions (above) are defined based on its service quality. **Table III.2** shown that BRT has steps and characteristics based on its facility, started from the early shape of the BRT system, then continue with the middle class of the BRT development stage, and

finally achieving the full BRT system. **Table III.2** arrange based public evolution and BRT characteristic, particularly from basic busway.

**Table III.2** Public transport development based on its facilities

| Element | Informal service | Conventional service | Basic Busway | Enhanced service | BRT | Full BRT service |
|---|---|---|---|---|---|---|
| | | | Initial BRT Stage | Intermediate Stage | | FULL BRT |
| **Vehicle** | - Old vehicle<br>- Small capacity | - Standard bus vehicle | - Artistic in exterior and interior,<br>- Improved ride and comfort,<br>- Low floor vehicle<br>- Low emissions vehicle technologies<br>- Brand and logo for identity marketing | - Information on-board (time and location)<br>- Higher bus capacity<br>- Several doors for boarding and alighting | | - The bus has the same level with shelter<br>- Several doors for boarding and alighting<br>- Strong brand and logo for identity marketing<br>- High capacity vehicle<br>- Pleasant interior conveniences<br>- Zero or low-emission vehicle (Euro III or higher); |
| **Infrastructure (road and shelter)** | - No special infrastructure | - Basic bus shelter<br>- Run in mixed traffic | - Shared lanes in mixed traffic, some preferential treatments, peak-hour dedicated or HOV lanes<br>- Improved shelter, special signage, transfer centers | - Dedicated lanes or HOV lanes for a majority of the corridor length (with direct access ramps to stations where located along freeways), queue jump segments in congested areas<br>- Additional passenger information, fare vending machines, other amenities | | - Dedicated runways,<br>- Distinctive pavement treatment<br>- Precise disembarking, level bus-to-platform loading<br>- Weather protection |
| **Technology** | - No special technology | - No special technology | - Automated vehicle location (AVL), bus priority at traffic signals, real-time passenger information at stations | - Adaptive traffic signal priority to minimize traffic impacts and manage headways | | - Automated guidance features, precision docking<br>- Technology in ticketing system : Pre-board fare collection and fare verification |
| **Management** | - Non-regulated operator | - On board fare collector | - Improved frequency, integrated regional coordination, extended station/stop spacing, faster travel | - High frequency all day, speed enhancements | | - High frequency all day, speed enhancements |

*Source: Gray et al.,2006; Caltrans, 2007; ITDP, 2007*

It is impossible to achieve BRT goal only by single actor, the government or BRT operator only. BRT is a huge public project and involves huge financial and time in its development. In order to be succeeded, a public project should be supported by the public itself. Filipe and Macario (2013) argue that public acceptance should be measured in BRT development. As an attempt to extend the public acceptance is by making the BRT development process transparent, so the public could know the problem being addressed and then together with other stakeholders they are involved in arranging the best solution for the BRT development problems (Stave, 2002). Furthermore, the decision making process should be spread and discussed firstly by explaining the advantages and disadvantages of solution to decrease potential conflict that may happen. Finally, in implementing BRT system monitoring and accountability need to be considered because, as a public project, BRT has to keep in good levels of public accountability.

## III.4 Conclusion

By definition, BRT is a public transport mode with bus-tired based operating on special infrastructure and has technology to maintain its usage and operational works frequently and rapidly. The definition brings four categories of elements in BRT concept: vehicle, tools to transport its passengers which is a bus-tired; infrastructure, relates to the BRT's running ways and bus stop/shelter; technology, the software making BRT runs which we could find in intelligent transport and fare system; and the last, management, all about marketing and customer service provision.

BRT develops all around the world BRT and each of them has its own perspective and takes its own window of opportunities for BRT development. Latin America and Asia, as developing countries, take BRT as public transport improvement and urban growth reaction. European countries operate BRT (BHLS) to cope their urban models presenting relatively dense cities with narrow streets. In Africa particularly in Johannesburg- South Africa BRT is operated to serve the international event world cup 2010.

In order to accomplish the development of BRT, the main elements of BRT should be integrated and the supporting aspects should be noticed to improve the positive influences of systems and to reduce its possible negative side effects of BRT. The flexibility of BRT concept is needed to ease its adaptation to the current local situation. BRT is a huge public project and involves huge financial and time in its development. It should be supported by the public itself. It needs cooperation between government, public, and stakeholder.

Cooperation between both institutions and other parties is the important key to make BRT development successful, acceptable and valuable to the community. In the next chapter, how stakeholders involve in the BRT decision making process is going to be discussed.

# CHAPTER IV
# STAKEHOLDER INVOLVEMENT

This chapter will discuss the implementation of Bus Rapid Transit (BRT), particularly concerning with stakeholder involvement in BRT implementation. Open actors involved in many stakeholders to improve BRT nowadays increase to deal with the BRT development problems.

This chapter will start with the importance of stakeholder involvement and its basic definition. Then it defines who should take a part in stakeholder involvement, how their position, and how stakeholder involve in the process. The last part will be ended by conclusion of this chapter.

## IV.1 The importance of stakeholder involvement

As mentioned in Chapter III, BRT development is flexible and adaptable to the current local situation. BRT could be developed incrementally following the urban transport system situation. Although the BRT development is influenced by local situation, it can also influence the urban development. The BRT development could change the urban shape (Cervero, 2011; Munoz-Raskin, 2010) and urban transportation pattern (Delmelle and Casas, 2012). The BRT development could affect many people. In addition, developing BRT could generate the economic growth. BRT development and its construction should be discipline to focus on the process of planning and involves the management of a complex group of activities, traffic flow and people moving, as well as the development issue. As a result, the professionals need to be capable in organizing relationships with diversified stakeholders, especially dealing with stakeholder's concerns and needs. Support from multi-dimensional process (multi-agent, multi-sector and multi-modal) is needed (Gill et al, 2011; Susniene and Jurkauskas, 2008).

Although principally transportation has a simple meaning which is moving people or good from one place to another place safely, quickly, and in affordable condition (El-Gohary et al., 2006; Tamin, 2000), transportation has huge problems in its implementation. In order to solve the transportation complex problems, nowadays the stakeholder involvement has become an integral part of infrastructure projects (El-Gohary et al., 2006) and together with public, they are involved in finding solutions for the BRT development problems (Stave, 2002). It is important to count stakeholder's opinion and concerns to better facilitate the development of a project that will meet the needs of stakeholders.

## IV.2 Mapping the stakeholder

The goal of this research is to improve TransJogja operations and services by emphasizing on studying the stakeholder involvement from other cities. However, before discussing the role of stakeholder in BRT implementation, it is necessary to know the definition of stakeholder.

Kyj and Kyj (2009) mention some definitions of stakeholder in their research, they are:

> *"Stakeholders are those who bear some form of risk as a result of having invested some form of capital, human or financial, something of value, in a firm (taken from by Clarkson (1994);*
> *Stakeholders is any group or individual who can affect or is affected by the achievement of the firm's objectives (taken from Freeman, 1984); and last,*
> *A stakeholder is might be influenced by or potential as influencers (taken from Starik, 1994)"*

From those meanings, in general, the actor has an ability to influence or be influenced by its delivery or outputs of other subject. An actor or stakeholder has bargain power that corporations need to respond (Clement, 2005).

In order to make an efficiency in managing stakeholder, it is important for the decision maker in mapping the stakeholder that may arise to know and understand the stakeholders' expectations, so the decision maker knows how the stakeholders' support and contribute in BRT implementation. Two sources of literature are used to find guidance to determine which stakeholders that should be involved in the BRT implementation. The first is taken from Sohail et al. (2005) research. They took three stakeholders' opinions in BRT planning process by interviewing stakeholders included user, regulator, and provider. Because these actors are too general and did not enclose the business perspective of the group, another literature is needed to look for other groups. Then, National Bus Rapid Transit Institute (2013) gives other groups of stakeholder in the BRT strategic plan. They mention that the technical knowledge of BRT should be shared to other stakeholders to be used because stakeholders may vary based on the location of BRT development. Groups of stakeholder that may arise are for example politicians, public sector professionals, private BRT consultants, civic organization, and general public communities.

From those literatures, several major groups of BRT stakeholder are categorized or classified based on the form of organization and their interest orientation. The lists inside the groups may change and differ based on the characteristics of BRT location. Those groups are as follows:

1. Governmental agencies. Governmental agency is the decision maker in the executive area positioned at national and municipal level. They plan, fund, and involve mainly in regulatory aspect.
2. Professional groups. This group contains people who have interest in profit or business. This group comprises private sector professionals, BRT expert consultants, economic development agencies, business associations, and existing public transport providers.

3. Civil society organizations. This group includes local and national civil services who are influential and have powerful effects on community and political opinion. This group comprises non-profit organizations, resident associations, and news media.
4. Providers. This group covers BRT management, worker associations, and other organizations being involved in BRT development.
5. Users or costumers. This group consists of present transport public users, potential transport public users (people who do not use public transport), car owners, non-motorized users, and people with physical disabilities.
6. Others. This group contains other stakeholders that may arise and cannot be categorized from those lists above.

In achieving the goal, the decision making process invite various actors to listen to their opinions and to share ideas and suggestions as a part of seeking solution. However, working with stakeholders whose goals are different initially needs knowledge about their position in the BRT implementation. In this case, position means a place where they are standing by taking stakeholder's opinion about BRT development within two significant sides ; accept-reject or support-oppose. The stakeholder's opinion are gathered in order to make a balanced decision making, because to have a good analysis would need much necessary information (Sijtsma, 2012). Various opinions provide an opportunity to build consensus decision and resolve the distinction between various groups of stakeholders. Valuing the stakeholder position depends upon the local context.

ITDP (2007) mentions there are five positions of stakeholder in BRT planning; Support, Moderate Support, Neutral, Moderate Opposition, and Opposition. However, because it is difficult to describe the "moderate" due to vagueness on its description, the stakeholder positions are defined in three definite positions, **Support, Neutral,** and **Opposition**. This position is based upon stakeholder's historical action from literature and from their statement in local media (such as newspaper, electronic news, etc.).

### IV.3 Stakeholder involvement process

Kamann (2007) stress that there are several stakeholder characteristics that should be considered in dealing with stakeholder approach: (1) unstable or flexible; (2) social/communal oriented; (3) unpredictable result. Therefore stakeholder approach is a dynamic system that obtains the repetition and reverseable process. In order to make it efficient in managing stakeholder, it is important for the project manager's job to know and understand the stakeholders' expectations, so the decision maker knows how their stakeholders' support and contribute in BRT implementation.

Nowadays, due to the technical complexity and social uncertainty, BRT becomes stakeholder dependent. BRT presence affect and are affected by the community activities. In order to get

successful effort, public involvement needs to conduct in the whole process or step in the decision making process. The decision making process cannot only use the *after event* data, it need the latest data (Booth and Richardson, 2001). The stakeholder involvement process has several purposes, there are as follows (Economic and Social Commission for Asia and the Pacific-ESCAP, 2003):

1) Giving information to stakeholders;
2) Gathering ideas from stakeholders;
3) Negotiation with stakeholders;
4) Resolving a problem/plan preparation;
5) Supporting people's initiatives

ESCAP (2003) gives direction on planning and policy development process. As can be seen at **Figure IV.1** the process is divided into four steps, which are information collection; analysis; synthesis of finding and plan preparation; and last, implementation. Stakeholder opinion, willingness, and ideas gather in every step in decision making. The following section will explain the four steps in stakeholder involvement:

1) Information collection

   This step aims is gathering preliminary information and data from relevant stakeholder, which is comes from the balanced position stakeholder. The information collection methods are public workshops, informational meetings, surveys. Another method is gathering information from literature, such as existing planning studies and regulation.

   The practical process of discussion is designed and agreeing by all stakeholders. Discuss and sharing opinion is conduct with all stakeholders. All of statement, opinion, and information are collected and reported to all stakeholders through news media, so public and stakeholder could give feedback and further information.

2) Analysis

   In this step, the discussion focuses on analyzing information and opinion from stakeholder, such as on cause effect analysis, identification issue, and upcoming stakeholder expectation. This step continues on synthesis step.

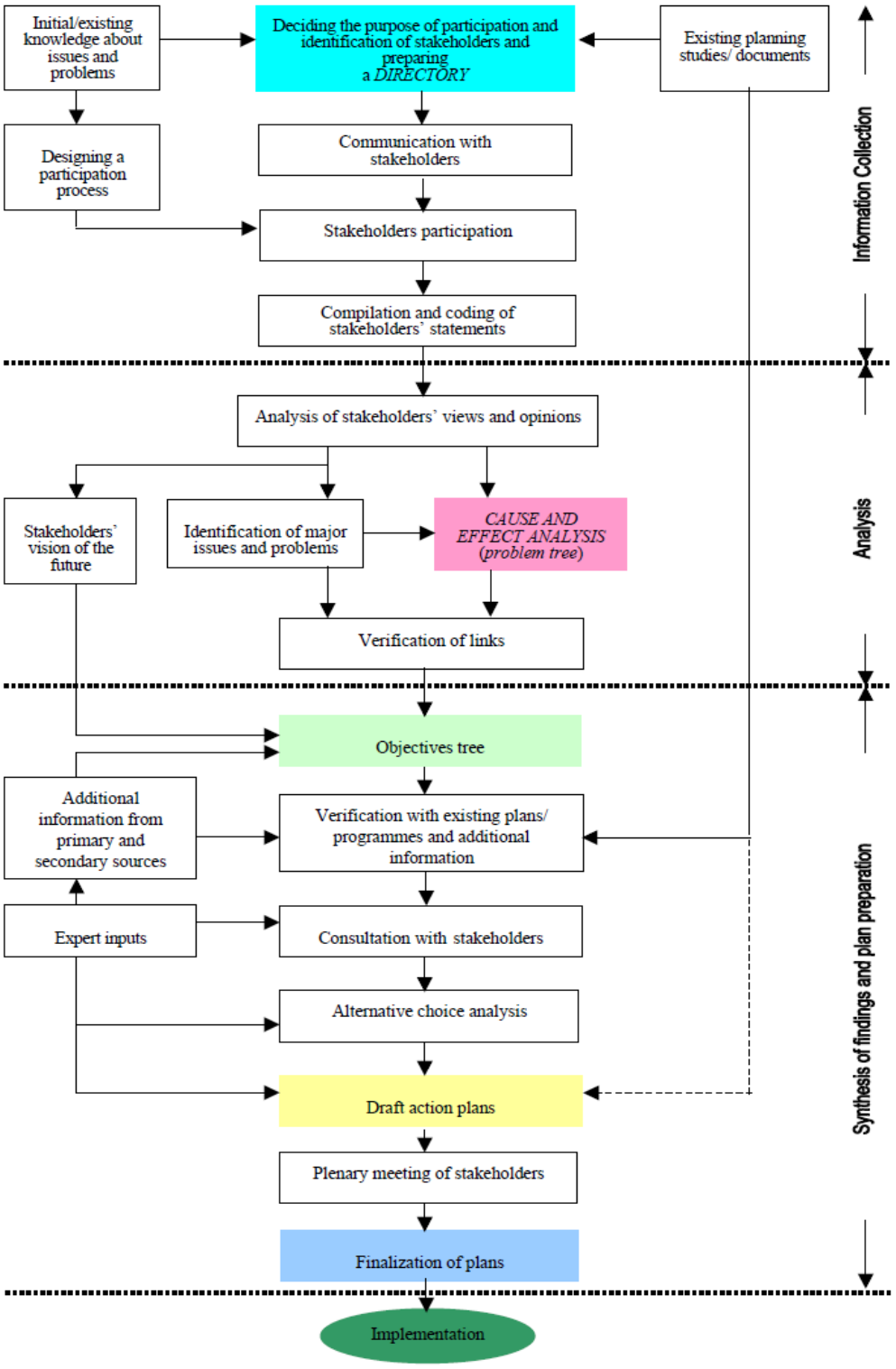
3) Synthesis of finding and plan preparation

   The result of analysis step is recheck to get verification with existing plans and additional information based on stakeholder agreement. This synthesis step also conducts negotiation and preparing invents alternative options for a common goal. After that, the discussion makes draft agreement, to be understood and agreed among stakeholder to be the final decision.

4) Implementation and monitoring action

Finally, taking action and open monitoring from all entities.

**Figure IV.1** Planning and policy development process

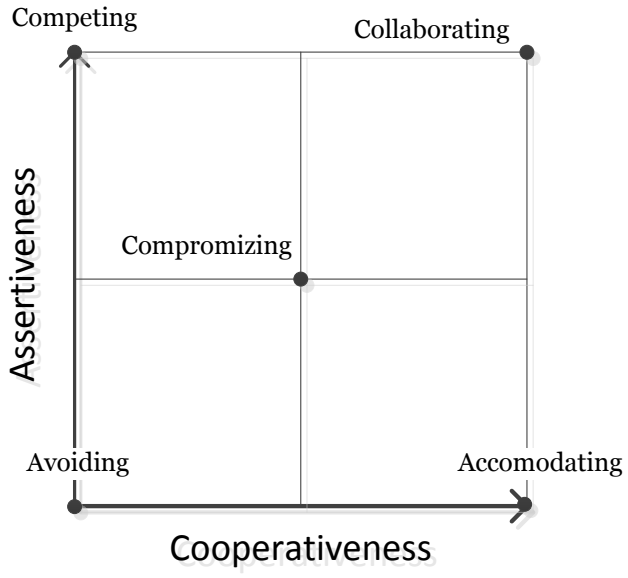



*Source: ESCAP- Economic and Social Commission for Asia and the Pacific (2003)*

BRT development by involving many stakeholders is potentially generating conflict, because they bring their own opinion and interest. In order to manage the conflict, negotiation is needed to conduct in gathering consensus. In the 1970s Kenneth Thomas and Ralph Kilmann identified five main styles of dealing with conflict based on cooperativeness and assertiveness (See **Figure IV.2**). Cooperativeness means degree of personal work to satisfy the other person's concerns and assertiveness means degree of personal work to satisfy his or her own concerns (Jane Trainer Acme, Inc, 2010). Those five styles explained as follows:

1. Competing
   In this style the conflict is handled by one-sided decision making. This style is also called dominating style because the decision chosen by higher position than affected person and the cause could be its rank, position of power, expertise, etc. The decision process that made with this style is fast and the opposing party is uncooperative or unable to make a decision. Fast because the dominating party is pushing one party's interests on the other party. This style proper when dominating party is not concerned with risking the relationship with other stakeholder or opposing party.
2. Collaborative
   In this style the conflict resolution is made by all parties in the conflict and they are unable to agree on what the resolution should be. Negotiation is conducted to meet all party's interest. This style uses the different opinion as an opportunity to get the best solution. This style proper when no-one party can resolve the conflict by their self because the problem is complex and interdependent, so requires both parties engage in finding a solution. Collaborative style needs time to work because of gathering general conclusion of stakeholder interest.

**Figure IV. 2** Five style gathering consensus




*Source: Adopting from Jane Trainer Acme, Inc (2010)*

3. Compromising:
   In this style the conflict resolution is made by splitting the interest. It requires both assertiveness and cooperation, in one hand the one stakeholder hold its important interest, and the other hand it releases the less important interest. This style is proper when all stakeholders have equal strength and strong commitment to achieving resolution. The time of discussion is less than collaborative style because this is needed at least partial satisfaction of all involved stakeholders.
4. Accommodating
   In this style the conflict resolution is made by giving other person needs and sacrifice own interest. This appropriate when the issues are more important to opposing party and could avoid conflict. This is a quick way to resolve a conflict because it does not need discussion or negotiation. This style could keep relationships calm and avoid the conflict.
5. Avoiding
   In this style the conflict resolution is postponed. This style conducted when victory is impossible, controversy is trivial, or someone else is in a better position to solve the problem, so stakeholder is waiting for a more appropriate time to deal with the conflict. The style appropriate when conflict is cannot resolve or may lose other stakeholder feeling, whereas relations among stakeholders are important.

## IV.4 Conclusion

Implementing BRT is challenging because it deals with complex problems. To reduce those problems, decision makers need involved various actors to listen to their opinions and to share ideas and suggestions as a part of seeking solution in decision making process. Involved stakeholder are persons or actors who are influential or because their knowledge need to be considered in the BRT implementation. It is important for the decision maker to mapping the stakeholder so can know who are the stakeholder and knowing their position. The stakeholder comes from governmental agencies, professional groups, civil society organization, provider, user, and other group. Each of them has their own opinion in support, neutral, or opposing the BRT. The stakeholder involvement action consists by four phases, starts from information collection, analysis, synthesis of finding and plan preparation, and ends with implementation and monitoring action. In the way to know the decision process pattern which is result on consensus solution, there are five negotiations types to conduct resolution, which are competing, collaborative, compromising, accommodating, and avoiding.

The comparison among Bogota, Jakarta, and Yogyakarta would be described in next chapter. The comparative research will start with the explanation of their historical transportation development, then continue describing stakeholder and studying their approach in gathering decision making.

# CHAPTER V
# Stakeholder Involvement in the implementation of TransMilenio, Bogota

Bogota is the first city to be compared. This city is has long experience in implementing Bus Rapid Transit (BRT). Bogota BRT emerged in order to cope the Bogota transport problems. Transportation has been the sensitive issue in Bogota since Bogota is the center of national economic growth and the biggest city in Colombia. Bogota BRT development faced political, financial, and social issue. Therefore, it is difficult to realize BRT only by relying on government. It should involve other actor to support government.

This chapter explains the Bogota BRT and its implementation process. In the first part, it describes the Bogota transport history and the emergence of the Bogota BRT. Then, it discusses about stakeholder participation in Bogota BRT development (the actors, their position, and the participation process). The last part is taking conclusion of this chapter.

## V.1 Bogota Public Transport Development

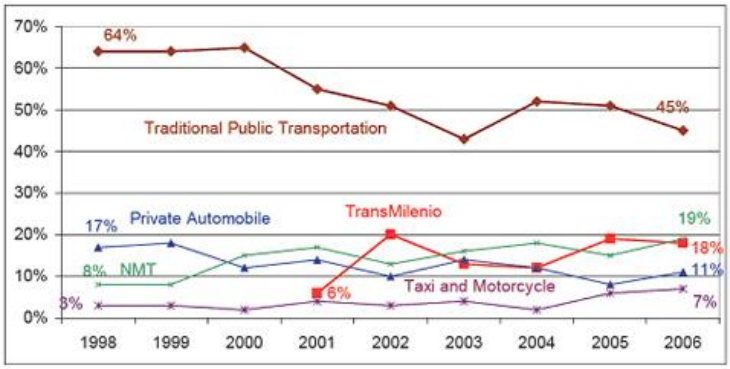
There are several transport modes that government ever developed in Bogota: Tram, Conventional Buses, and BRT. The description of each transport mode will be discussed as follows based on the time order of development:

The first public transport system in Bogota was Tram. It was developed and operated from 1884 to 1952 with cooperation between Bogota municipalities and US private company (Savendra, undated). The tram was operated under Municipal Railway Company Bogota management and each tram had capacity of 20 seats. Bogota trams connected city center to Chapinero and continued to AV. Chille (6km) (Savendra,undated). The setback of tram development happened when the government made open competition between the Bogota Tram Company with private bus companies in 1923. Many trams were burned and destroyed as part of revolution in the downtown, making trams cease to operate and buses started dominate the Bogota transport system.

At the first time of its development, buses used conventional system. Then, Bogota municipality developed electric bus, known as The Municipal Electric Bus Service "Trolleybuses" (tramz.com), operated under the electric wire and laid on certain routes. The government kept developing their bus system by adding gasoline bus types with various bus capacities (70-40 passenger capacity). Gradually, the municipal transport authority lost their dominant position and gave it to private companies. This privatization resulted in competition among those private

companies. They raced to get passengers to increase the revenue. This competition was called *penny war,* resulting in bad habits of the driver because they fought for getting prospective passengers (Ardila, 2007). However, the conventional bus took major part in Bogota citizen mobility **(see Figure V.1)**.

**Figure V.1** Trip mode distribution in Bogota 1998 – 2006




*Source: http://thecityfix.com/blog/why-is-transmilenio-still-so-special/*

In order to improve their public transport, Bogota municipality began to regulate, organize, and manage public transportation by BRT, called TransMilenio. **Figure V.1** shows TransMilenio presence is causing a decrease of traditional public transport and private automobile usage.

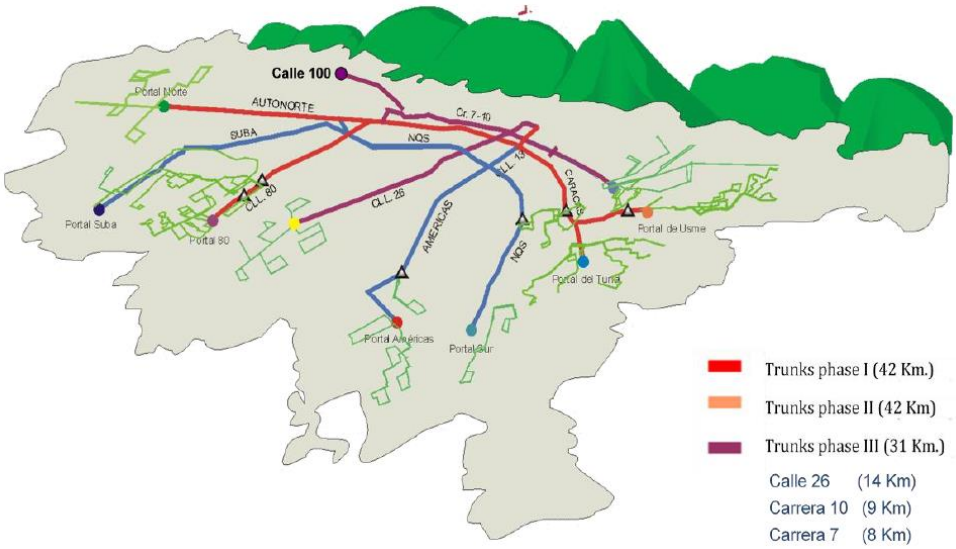
## V.2 Bogota TransMilenio

The name of TransMilenio was first came from the abbreviation of Mass Transit System of the Third Millennium. Implemented in 1997 and started to operate in 2000, Transmilenio was developed by the Bogota Mayor Enrique Penalosa (1998-2001). The TransMilenio's aims are to increase the Bogota's life quality and its productivity with faster, safer, affordable, and environmentally friendly transportation system (Pienaar et al., 2005). TransMilenio operate under single and professional public transport agency called TransMilenio S.A. The Bogota transport authority allows TransMilenio S.A. to design, implement, and regulate the new bus system.

TransMilenio was developed in three phases (two has been completed and one is still in planning). Phase I started in 1998 and operated partially in 2000 and continued to develop until 2002. The Second Phase started in design 2000 and finished in 2006 (NBRTI, 2006). In the first, TransMilenio projected 170 kilometers of lanes in 2011, but in 2012 Bogota has 84 km completed lanes and other 20km ongoing progress (The Atlantic Cities, 2012). **Figure V.2** shows how TransMilenio gradually connected Bogota. The delay of BRT development (within phases) is because of the changing visions of new mayors. Changing political-will from new mayor makes a great effect on Transmilenio development. The other reason is that

Transmilenio faced resistance from another competitor and debates whether to develop new transport modes due to TransMilenio's capacity (IFHP, 2013).

**Figure V.2** Development Phases on TransMilenio




*Source: Saaverda (undated)*

The postponement of TransMilenio development correspondingly impacts on TransMilenio quality of service. TransMilenio failed to cope with the user growth. In March 2012, there was a protest over service on Bogota's BRT system. The protests complaint about low bus capacity (that became overcrowded), major operational delay, and overpriced service compared with its quality (BBC, 2012; The atlantic cities, 2012).

Currently, TransMilenio has 11 corridors across Bogota city since it operated on 2000. **Table V.1** below shows the current condition of Bogota TransMilenio. As a BRT system, TransMilenio comprised of four elements as mentioned in Chapter III. Below each element will be explained in detail.

**Table V.1** Bogota TransMilenio current data

| | |
|---|---|
| Passengers per day | 1,800,000 |
| Population | 10,763,453 |
| Total length | 106 km |
| Peak throughput (passengers/hr/direction) | 37,700 |
| City center peak hour speeds | 16-30 km/hr |
| Operational mode: | Trunk-feeder |
| Number of cars | 1.071 buses |
| Number of BRT stations: | 142 stations |
| Peak city center buses/hr/direction: | 295 pax |

*Source: brtdata.org, 2013; chinabrt.org, 2013*

1. Vehicles

TransMilenio uses articulated buses or formed with two buses, painted with red color. The bus operated under qualification of transport authority's regulation and environmental standard. In regulation, the bus at least has to fulfill EURO II environmental standard, and most of Transmilenio buses are using EURO III standard (UNFCCC, 2004). Each bus could carry 160 passengers (43 seated and 114 standing) and has 4 doors for boarding and alighting their passengers (Hook, 2008). This bus uses elevated floor, that the level of its floor is the same as station's level for passenger's safety and convenience in boarding or alighting. The bus rides on segregated road and could run 20 km/hour for commercial speed, and 32 km/hour for express services.

**Figure V.3** TransMilenio's bus and its infrastructure


Source: http://www.transportphoto.net/photo.aspx?id=603916101&c=Bogota

2. Infrastructure

As mentioned in point 1, the Transmilenio runs in segregated way. It uses one or two lanes in each direction and located on center of roadway (chinabrt.org, 2013). The single-lane has 3.5 m in width and dual-lane has 7 m in width (Hidalgo and Graftieaux). Speed and safety could be maintained well with this separated way and dual-lane buslane enables TransMilenio to run overpassing the others.

The shelter is used for passengers' board and alight, built every 790m on average (chinabrt.org, 2013). They are built as high as bus floor, not only for safety and convenience reasons, but also for giving easiness in accessibility for disabled passengers.

Other important infrastructures are terminal stations, transfer stations, and standard stations. Besides developing the bus infrastructure, Bogota municipalities built pedestrian way through overpasses, tunnels, or signalized intersections. Park and ride were also developed in several places to support the TransMilenio development.

3. Management

TransMilenio is managed and operated by TransMilenio S.A. They control operation, manage employees, and regulate TransMilenio operation. TransMilenio S.A. acts as manager to manage the third parties who operate TransMilenio directly.

TransMilenio is using the fixed fare pricing system. The single price system enables people from long distance to use TransMilenio fairly the same with people who live in the downtown area. This ticket is collected before passengers are aboard to the bus. The money are collected by special company and distributed to the TransMilenio operator. By this system, the operator could work professional by focus on the customer satisfactions.

4. Technology

TransMilenio transport system uses several technologies, which can be see in ticket system, shelter, and vehicle controlling system. The ticket system uses smart card for validation to open the shelter door. Shelters are equipped with vehicle locator (bus arrival info) and several passenger entertainment facilities. The vehicle locator is not only used for passenger info, but also for controlling in the control center. TransMilenio has one control center that manages the operation of the buses and the number of passengers. In the control center, they can know the field condition and manage the contingencies in real time. The other technology is network system in road intersection. TransMilenio bus will get priority in using this way.

## V.3 TransMilenio stakeholders mapping

As mention before, stakeholder is important key in developing BRT. In this section, the research continues in defining the stakeholder that arises from a TransMilenio development. In the determining of the actors involved, this research is using list of stakeholder based on historical process and elaborate with the ideal list of stakeholder involvement. Those stakeholders are as follows:

1. Governmental agencies. This group contains the transit regulatory agencies in Bogota.
    1) Bogota Major. As the head of municipalities, he is the highest decision maker of TransMilenio development. The Bogota Mayor when TransMilenio commencing was Enrique Penalosa (1998-200) (Ardila, 2007).
    2) Ministry of transportation. Responsible to create general framework and national transportation regulation (Ardila, 2007).
    3) Municipal transport authority, namely Secretariat of Traffic and Transit (STT), has responsibility to arrange transport regulation in municipal territories (Ardila, 2007) and control public transport planning in Bogota (UNFCCC, 2004)
    4) Ministry of environmental, responsible for national environmental regulation and impact assessment. They have interest in emission reduction in motorized vehicle for health and fossil energy usage (Bettelli and Lozano, 2007).

5) Municipal public infrastructure agency, called *Instituto de Desarrollo Urbano(IDU)*, has responsibility to constructs and maintains the municipal and TransMilenio infrastructure (Ardila-Gómez, 2004).
6) Cultural and Tourism Local Institute – IDCT, a government agency that gives advice on citizen culture (Castro, undated).
7) Metrovivienda. A government agency that has responsibility to provide a new place for people affected by TransMilenio development (Castro, undated).

Position: The government commenced TransMilenio in order to improve their public transport service, encourage economic development, and improve environmental conditions. There is a positive coordination between national authorities and local municipality and they receive positive support from the legislature. Therefore, this group position is supporting the BRT development.

2. Professionals groups. This group contains of people who have interests in profit or businesses that are related BRT
   1) Land and housing developer. Bogota develops suburban area follows with the TransMilenio development (see **Figure II.2**). Lefevre (2006) mentions that TransMilenio acts as urban development catalyzer. In the urban development, city center tends to be working location and suburban area tends to be a residential district.
   2) BRT consultant. In order to get various knowledge, Bogota Mayor hire several consultants to conduct several studies in TransMilenio planning (Ardila-Gómez, 2004)
   3) Opposing transport provider and association, in this case they are the conventional bus provider. They operate certain routes which were issued by STT. The conventional bus providers are formed from the bus company or single private owners which should in bus affiliation (Ardila-Gómez, 2004)

   Position: Land and housing developers support BRT development in increasing accessibility in order to increase value of housing and properties. BRT development develop new neighborhood and is followed by city revitalization. Therefore they support BRT development. As BRT planner, BRT consultant provides technical information to decision makers (Ardila-Gómez, 2004). In order to give an objective input for decision making, their opinion should be neutral. Opposing transport providers and association reject BRT development because they fear that BRT will replace their jobs, negatively affecting on their income (Porter, 2010).

3. Civil society organizations. This group comprises of non-profit organization which can make effects on community and political opinion
   1) Academics and researcher. TransMilenio presence could reduce traffic congestion and air pollution in Bogota. Traffic problem has long been an academic concern. They have knowledge and could give academic advice about BRT development.

2) Resident associations. TransMilenio development affected the land use value along its routes (Rodríguez and Mojica, 2008). Moreover, BRT development has direct impact on resident activities, consequently their opinion should be heard by decision maker
3) News media (television, radio, newspapers, etc.). They take role in informing TransMilenio decision making process to public. Transparency era makes news media and social media important to develop.

Position: Academics, researchers, and resident association support on BRT project. Academics and researchers believe that TransMilenio could improve the Bogota condition. Resident associations support TransMilenio because it followed by rebuilding neighborhood, slump areas will be relocated to better areas with better facilities. News media is in neutral position because they have to inform objective situation to public.

4. BRT Company Provider
1) TransMilenio S.A. public sector agency that plans, manages, and controls the BRT operation. It supervises all of BRT operator providers (Castro, undated)
2) Trunk Lane Operator. Trunk operator comes from the private sector and work under TransMilenio S.A. supervision based on regulation and contract (Castro, undated)
3) Feeder Lane Operator. Feeder operator is private company and serve feeder route that connects the suburban area to trunk lane route. Feeder buses operate under concession contracts and chosen by competition (Castro, undated)
4) Fare Collector Company. They are in charge in sale ticket, maintenance, and other potential income. The collection company conducts corporation with banks, finance agency, and top-up vendor agencies (Castro, undated).
5) Trust Fund. They have responsibility in getting and distributing the money among the Trunk Lane Operators, Feeder Lane Operators, Fare Collector Company, or other agency and pay their expenses (Castro, undated).
6) Bus driver association. As w0rker association, they aims to protect the bus driver's obligations balanced with their rights (Porter, 2010)

Position: As the BRT operators, they work under Government supervision and regulation. The companies were chosen from an open bidding selection, and selected from the conventional bus providers. In order to continue their job and obtain profit from passenger, this groups support the BRT development. However, the bus driver association position is neutral, because they have two interests: working under company obligation and defend the drivers' right.

5. Users. In the decision process, the BRT costumer opinions are taken by survey.
1) Car owners. In Bogota there are 1,000,000 private cars with 1,394,301 trips/day (Bettelli and Lozano, 2007). BRT presence with its segregated way will affect the road capacity.

2) Public transport users. As shown on **Figure V.1** most of Bogota citizens rely their mobility on public transport modes. This show the citizens remain hopeful for public transport improvement.
3) Pedestrian and cyclist. As the non-motorized transport users, their presence should be supported by adequate facility.
4) Physically disabled user. They need to board and alight with easily and safely. TransMilenio should fulfill their interests.

Position: All of them are giving positive reactions because TransMilenio fulfill the passenger basic needs in mobility, which are safe, quick, and affordable (El-Gohary et al., 2006). Since TransMilenio operated, there has been 20% of private car users shifted to TransMilenio (Bettelli and Lozano, 2007). **Figure V.1** shows that there is a declining trend in private vehicle usage since TransMilenio operated faster, safer, and more reliable than private vehicles. Therefore their position is supporting BRT development. **Figure V.1** also shows public transport users give positive reaction in TransMilenio presence by shifting their transport mode to TransMilenio. In that figure, it is shown there is upward trend of non-motorized vehicles, TransMilenio presence result in non-motorized infrastructure improvement. For physically disabled user, TransMilenio gives reliable condition for them as they can travel easily. Therefore their position is supporting BRT development.

6. Other stakeholder.

There is no stakeholder in this group.

Remark:

Bogota government played principal role in policy planning. Bogota had a plan to improve their public transport by replacing their old bus service. This transformation was led by Bogota Mayor and was supported by his municipal authority. Transportation transformation will affect many parts in society, such as land use, culture, and economic. In order to cope with the issues, the government hired consultant to get professional advice on technical and social issue. Another recommendation to decision maker comes from the civil society organization, acting as balancing opinion of professional advisor.

TransMilenio would give positive impacts on economic development. However, from the list above, there is minimum support from business entities. Only the land developer that exist in that list. As the center of Colombia economic growth, business entities should consider TransMilenio as opportunities to boost economic growth. The economic center could be located on TransMilenio route.

Costumers have critical opinion, especially regarding to price and service quality. Academic and news media from civil society organization group are neutral, they should give objectives opinion due their knowledge and function. News media have a role in informing TransMilenio decision making process to public.

## V.4 TransMilenio stakeholder participation process

The next section is putting the stakeholders that are already defined in stakeholder participation process and taking concern of their position. In Chapter III, there are four steps that are needed to be taken in the stakeholder participation process, starting from information collection, analysis, synthesis, and eventually implementing. The TransMilenio stakeholder participation process will be explained and elaborated on its historical process as follows:

1) Information collection. In this step, the discussion involved relevant stakeholder that are already defined, that comes from several groups and come with their opinion.
   In Bogota most of all journeys are made by public transport (see **Figure V.3**), thus the public transport is a sensitive problem for political issue. Bogota faced traffic congestion and low quality of public transport. Mayor Bogota attempted to solve that problem by enacting new transport modes within government financial ability. Therefore, government commenced BRT.
   Bogota Mayor chooses a political planner as the head of the BRT planning team as he believed that politics and negotiation have an important role in BRT development due to dealing with stakeholders (Ardila-Gómez, 2004). They informed the planning process to all stakeholders. Meeting, discussion, and other decision making development were reported by news media to public to receive feedback and gather further information.

2) Analysis. In this step, the discussion focuses on analyzing information and opinion from stakeholder, such as on identification issue, cause effect analysis and upcoming stakeholder expectation.
   Firstly, BRT presence will change the public transport condition in Bogota, particularly the penny war of the conventional bus providers. BRT will improve the public transport by regulating and organizing public transport. However, BRT presence will replace conventional bus provider that result in elimination of the driver's job. This issue is needed to be considered.
   Next, Bogota as the capital city of Colombia is the centre of state economic development. BRT was expected to generate economic growth. Industry, business, and worker location are needed to be connected.
   Moreover, in order to make effective public transportation it should be followed by changing urban land use and by 'force and support' the public to reduce private vehicle usage.

3) Synthesis of finding and plan preparation. In this step, issues from analysis step are negotiated in discussion to prepare alternative solutions.
   The employment issue arises following the BRT rejection from the small bus providers. In order to minimize friction, the government invited conventional bus operators to be BRT operator and to empower local knowledge as infrastructure developer under governmental

regulation. The penny war will be eliminated by buy the service concept. In this concept, BRT driver does not have the ambition to get more passengers as he will be paid by government after serving passengers with kilometer service method. In order to make this new public transportation work professionally it should be managed by independent and professional company.

The BRT network issue arises following the Bogota urban land use planning. Most of the worker populations are located in the suburban area, and the working location is on downtown CBD and in industrial corridor. Bogota main transportation activity is to mobilize worker every day. BRT was projected to connect those areas.

In addition, Bogota government makes arrangement in land use planning. TransMilenio development was followed by replacing slump and area which affected to TransMilenio to other places in order to improve the Bogota quality of life.

4) Implementation and monitoring action

In governmental, National government supported by planning and guidance and funding. The local government responded with an interest and commitment to develop TransMilenio, along with their share of financing. Funding for development are shared between national and municipality.

In BRT provider management, the transportation authority allowed opposition from existing operators, especially bus owners are as TransMilenio operator bus, as long they fit with TransMilenio and Transportation Authority regulatory. For the other conventional bus, buses that do not meet regulation are relocated to other remote areas that do not TransMilenio routes. The trunk bus provider and feeder buses are organized through concession contracts as a result of bidding competition. The local participants shown in 62 from 66 local transportation companies are involved in the trunk companies' resources and for the infrastructure BRT involve local contractor under IDU supervision (Godard and Fatonzoun, 2002).

In public mobility infrastructure, the government pushed people to change their private vehicle usage to transit and non-motorist orientation, by public transportation and bicycle. It also followed by rearrange the land use by relocating the slump/poor and affected area caused by TransMilenio development to new place that has better condition and facilities. This new place will connected or located near TransMilenio's and feeder routes (Cervero, 2005). The land use rearrangement conducted by government agency, called Metrovivienda. In this rearrangement will result on legalized and serviced housing for poor area, and better access to the city's economic hubs for all citizens. The potential rejection from resident association could be reduced with providing people needs of better settlement and facilities.

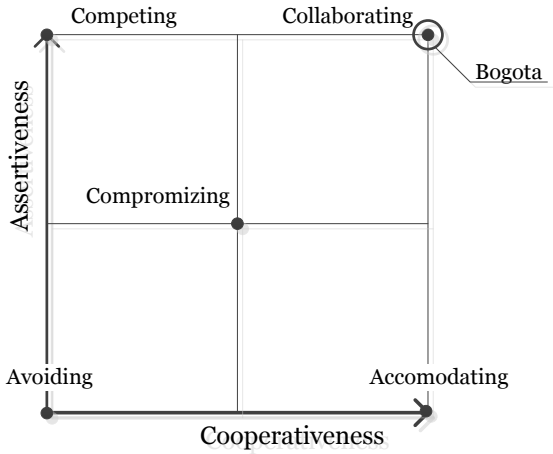
Government and experts give education and campaign to public about transit system through the news media. This campaign makes public aware to transit and non-motorized as travel mode options. Government builds bus line, shelter, pedestrian pathway, and bike lines integrated with land use planning.

Remark:

The TransMilenio decision maker process shows that government gives opportunities to other stakeholders in solving problems. In order to reduce friction, the Government invited opposition in the decision making process and taking part in finding solutions. The unfair competition in public transport is eliminated by open bidding process as BRT operator. All operators work under municipal authority regulation. Therefore, it is shown that there is a collaborative approach in gathering consensus (see **Figure V.4**). Collaborative approach in gathering consensus has value as decisive and cooperatives approach (Jane Trainer Acme, Inc, 2010).

Moreover, TransMilenio presence creates formal jobs for unorganized public transport. Private firm from current public transport are replaced by structural public transport. Government as the main actor in BRT development gives authority to TransMilenio companies to operate and maintain the BRT. In order to serve a huge number of Bogota citizens, TransMilenio is supported by specific companies.

**Figure V.4** Bogota conflict handling modes




*Source: Author analysis based figure from Jane Trainer Acme, Inc (2010)*

## V.5 Conclusion

Bogota as the capital city of Colombia becomes the center of national economic development. In Bogota, most of people mobility are serve by public transportation. Based on its public transport history, Bogota has tram, conventional buses, and BRT to mobilize their citizen.

Bogota BRT is categorized in full BRT service based on its facilities. At most it has special characteristics on high capacity vehicles, runs on segregate way, advanced equipment, and high frequency operation.

Because of its effect on most of citizen mobility, public transport is becoming a sensitive issue in politics. Politicians can use the transportation issue to boost popularity for Mayor election.

Mayor Penalosa was elected because of his ideas to improve the service quality of public transportation by developing BRT. Bogota BRT development faced not only technical issue but also political, financial, and social issue. In order to cope with those problems, discussion is made by gathering consensus among stakeholders. Government implements TransMilenio collaboratively with other stakeholder (See **Figure V.5**). The list of stakeholders is shown on **Table V.2**. During the decision making process many negotiations have been used. Government reduces their domination power in the planning process and gives a big portion for private parties.

**Figure V.5** Stakeholder in TransMilenio discussion process diagram

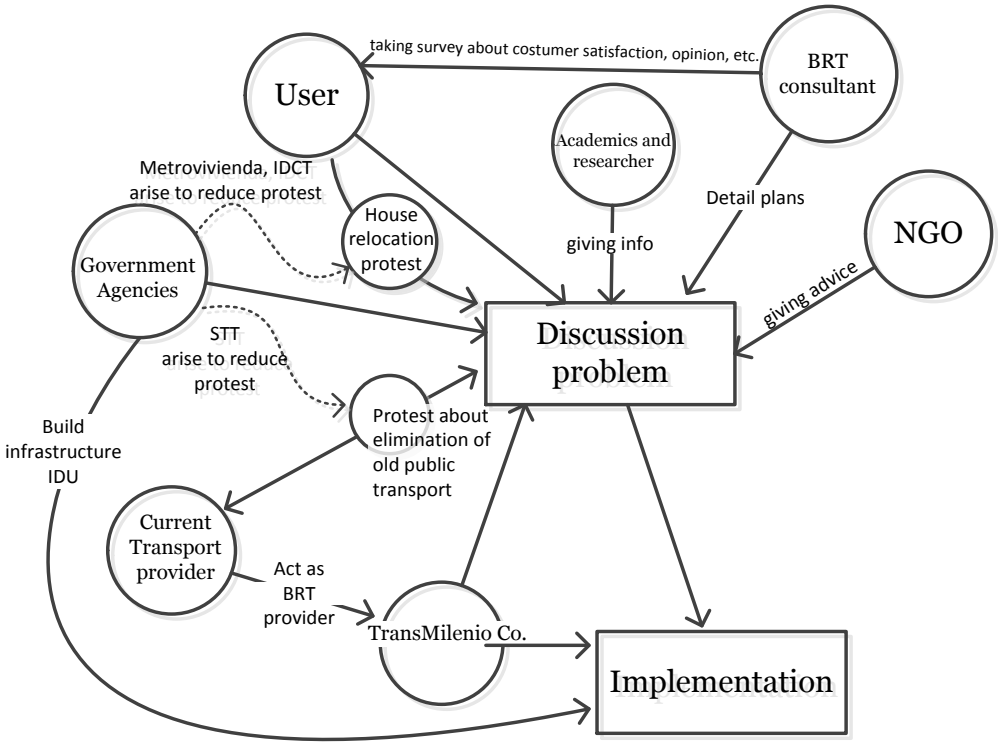


**Table V.2** TransMilenio stakeholders mapping

| Stakeholder | Area of interest | Contribution | Position | | |
|---|---|---|---|---|---|
| | | | S | N | O |
| **Governmental agencies** | | | | | |
| Bogota major | Managing city | Leader and final decision maker | X | | |
| Ministry Transport departments; | Transport standard and regulation | Advisor, supervisor, and regulator | X | | |
| Secretariat Traffic and Transport | Controlling bus company | Manager of bus company and BRT operation | X | | |
| Urban development | Brt infrastructure and maintenance | Constructor and controller infrastructure | X | | |
| IDU (Instituto de Desarrollo Urbano) | Municipalities infrastructure | Constructs and maintains the infrastructure | X | | |
| Cultural and Tourism Local Institute – IDCT | Citizen culture development | Guidance on Citizen Culture | X | | |
| Metrovivienda | Housing and citizen facilities | Replacing poor and affected area caused by TransMilenio development | X | | |
| **Professionals groups** | | | | | |
| Opposing transport provider and association | Current public transport provider | Providing bus service outside transmilenio | | | X |
| Land and housing developer | Suburban development | Suburban area develops follow transmilenio | X | | |
| BRT Consultant | BRT planning and designing | Providing planning and technical BRT design | | X | |
| **Civil society organizations** | | | | | |
| Academics and researcher | Research and knowledge development | Gives advice about BRT development | | X | |
| Resident associations | Resident right protection | Neighborhood protection | | X | |
| News media (television, radio, newspapers, etc.). | Providing info and news | Informing public about BRT development | | X | |
| **BRT Company Provider** | | | | | |
| Transmilenio S.A. | Managing BRT operator | Manager of BRT | X | | |
| Trunk Line operator | Servicing primary route | Operator and serve passenger | X | | |
| Feeder operator | Servicing secondary route | Operator and serve passenger | X | | |
| Bus and driver association | Worker right protection | Work for bus owner | | X | |
| Trust Fund | Money and other treasury | Gathering and distributing money | X | | |
| Fare Collector Company | Money and other treasury | Selling ticket and other income | X | | |
| **User** | | | | | |
| Car owner and user | Fast, safe, independent, choice user | Giving road space for BRT development | X | | |
| Public transport user | Cheap, captive user | Definite bus user | X | | |
| Pedestrian and cyclist | Safety and comfort in usage | Supporting non-vehicle road user | X | | |
| Physically disabled user | High accessibility transportation | Board and alight with easily and safely | X | | |

*(Source: Author) Note: S=Support; N=Neutral; O =Opposite*

# CHAPTER VI
# Stakeholder Involvement in the implementation of TransJakarta - Jakarta

Jakarta is the second city to be compared. Jakarta is the capital city of Indonesia. Jakarta faces poor public transport quality and traffic congestion. Bus Rapid Transit (BRT) arises in order to cope with the problems. In Jakarta BRT is called TransJakarta, known as the longest BRT in the world. TransJakarta is the pilot project for BRT development in Indonesia. Jakarta implemented the BRT concept after imitatingBogota's BRT. Government faces political, financial, and social issue in implementing BRT. Therefore it is difficult to realize BRT only by government efforts. It should involve other actor.

This chapter starts with explaining Jakarta public transportation development. It then continues by discussing TransJakarta BRT, the implementation process particularly in stakeholder participation: who are the actors, where is their position, and how their participation in the process. The last part of this chapter is conclusion.

## VI.1 Jakarta Public Transport Development

Currently, Jakarta has several public transportation modes based on the vehicle types. They are as follows: paratransit transport (bajaj, ojek, becak), conventional buses, commuter rail, and BRT. Below, every transport type is described in detail.

1. Paratransit transport. Paratransit is a transport mode that provides door-to-door service collectors by the passenger request (Tangphaisankun et al, 2009). In Jakarta, this type can be seen on *Ojek* (motorbike), *Bajaj* (three-wheeled car), and in some remotes area *becak* (pedicab). Most of them are privately organized or run individually by the drivers. Having independent and indefinite route, paratransit operated illegally according to government regulation. Some of them formed an informal association in order to protect their existence from other competitors. Paratransit services often do not give good quality service but have important roles in feeder function to their passenger (Tangphaisankun et al, 2009).

2. Conventional Bus. It operates on routes that are designed by the Jakarta Transport Authority (*Dinas Perhubungan*). The conventional buses are divided in some types based on their capacity, as follows: *Angkot/Mikrolet* (10-12 seats), *Metromini/Kopaja* (20-30 seats), *Bus/Patas bus* (50 seats) (Wentzel, 2010; Nippon Kei, 2006). *Angkot/mikrolet* operates in

remote areas which have small width of roads, including in some residential areas. *Metromini/kopaja* operates on the bigger road than *angkot* operation, they connect within region inner Jakarta province and from the Jakarta border to suburban area (outer Jakarta). *Bus/Patas Bus* operates at main road of Jakarta and connects bus terminal in inner region and other regions of Jakarta.

3. Commuter rail, known as KRL Commuter Jabodetabek (*Kereta Rel Listric*-Electric Trains). It is rail based mass transit that connects Jakarta with its suburban areas (Bogor, Depok, Tangerang, and Bekasi- BODETABEK). Commuter rail operated since 1976 and operated under PT KAI Commuter Jabodetabek management, which is a PT KERETA API (Persero) subsidiary (krl.co.id, 2013). There are 6 main routes in commuter rail. For ticket pricing, commuter trains still rely on government subsidy. PT. Kereta Api as the owner of commuter rail, cannot enforce the economic pricing ticket because it will burden the passenger.

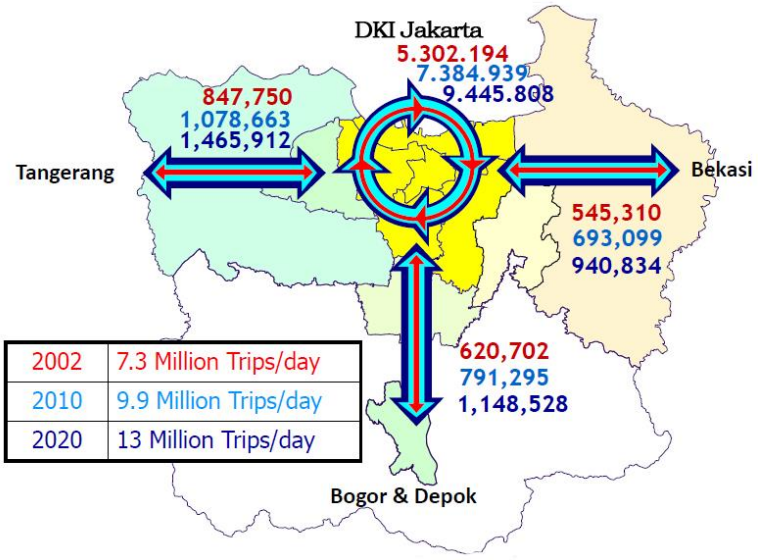
4. BRT. Jakarta Transport Authority named this BRT as TransJakarta. It began operations in early 2004 by connecting Jakarta Kota station to Blok M terminal bus (12.9 km). People of Jakarta usually called it as Busway, due this BRT runs on special bus runway. TransJakarta is the pioneer of BRT implementation in Indonesia and in the South East Asia (globalmasstransit, 2012). Presently, TransJakarta has 220 km in its 12 corridors. The TransJakarta development will be explained detail in the next section

## VI.2 Jakarta TransJakarta

Transjakarta history began as a result of Jakarta development. The Jakarta's development spread to suburban areas, presumably due to the high price of land for housing in the inner city. Jakarta development led to increased citizen mobility. **Figure VI.1** shows the number of trips in Jakarta and suburban region. This number of trips continues to grow year after year.

Due to lack of road capacity and the minimum public transport quantity and quality, most of Jakarta citizens prefer to choose private vehicles for making their trips. This makes Jakarta is congested every day (Susilo et.al, 2007). In order to face the traffic congestion, the Jakarta Government has a scheme of the transport system, called Macro Transportation Scheme (MTS). One of MTS approach is developing mass public transportation by improving their public transport, such as Mass Rapid Transit and Light Rail Transit (rail based), BRT (bus based), and waterway (boat based). In the MTS development, only BRT and LRT (commuter rail) are well developed, the waterway is unsuccessful in its development and operation, and Mass Rapid Transit is still in planning development.

**Figure VI.1** Numbers of Trips in JABODETABEK




Source: Akbar *(undated)*

In its nine years of service (2004-2013), TransJakarta has 12 corridors that connect every part in Jakarta. Jakarta Transport Authority commenced the TransJakarta Feeder in 2008 and linked TransJakarta shelter in downtown to the suburban area. **Table VI.1** shows the current data of TransJakarta.

**Table VI.1** Jakarta TransJakarta current data

| | |
|---|---|
| Passengers per day | 301,325 |
| Population | 10.187.595* |
| Total length | 220 km |
| Peak throughput (passengers/hr/direction) | 3,400 |
| City center peak hour speeds | 15-25 km/hr |
| Operational mode: | trunk-feeder |
| Number of cars | 599 |
| Number of BRT stations: | 241 |
| Peak city center buses/hr/direction: | 40 |

* data from November 2011

Source: chinabrt.org, 2013; 2012 transjakarta.co.id; disdukcapil dki jakarta

TransJakarta as BRT comprise BRT elements as mentioned in Chapter III. Below, every BRT element of TransJakarta will be explained in detail.

1. Vehicles

   TransJakarta has two types of vehicles, single car and articulated bus (called *Komodo*). The single car TransJakarta has capacity of 83 passengers (31 seats and 52 standing) (ITDP,2003) and the Komodo has capacity of 150 passengers (44 seats and 106 standing) (finance.detik, 2008). Almost all of TransJakarta car are powered by Compressed Natural Gas (CNG), except for buses on corridor 1 (the first period corridor) that are diesel powered bus. The CNG powered buses complies with Euro II emission standard.

   Moreover, the entire vehicles have large double doors in the middle of the bus to accommodate right-side platforms. For the single car, it has two doors and for the Komodo it has four doors. Those doors are controlled manually by the driver and opened with folding automatically.

   The car has high level floor. The shelter has same floor height as the bus floor, designed for safety and allowing short time for boarding and alighting.

2. Infrastructure

   The TransJakarta shelters provide elevated platforms and have same level height as TransJakarta vehicle for quick boarding and alighting. Bridge and ramps connect shelter with pedestrian way.

   TransJakarta operates over segregated way and located in the middle of road to reduce potential conflict with side frictions (such street vendors, on-street parking, and turning left vehicle). The segregated way was made by concrete separators and higher than normal road. At the intersection, the segregated way is red painted to separate TransJakarta from mixed traffic lines. Some parts of TransJakarta route runs mixed with other vehicles due to location characteristics.

**Figure VI.2** TransJakarta bus and its infrastructure


Source: http://www.transportphoto.net/photo.aspx?id=735905505&c=Jakarta

3. Management

   TransJakarta works under TransJakarta Busway Management Unit (*Unit Pengelola Transjakarta Busway*), a combined government agency and private company. TransJakarta operated by trunk bus operators to serve 12 corridors and feeder bus operator. Operators are paid by government per bus kilometer travelled and selected from general open bidding for seven year contract.

   TransJakarta use pre-boarding ticket system to make the boarding process fast and secure. Tickets are collected on shelter. Currently, Government and TransJakarta Management Unit develop an integrated ticket between Transjakarta, commuter train, and feeder bus. This ticket system involves the transport operator and banks. TransJakarta is enacting single fixed price to their passengers. This fare system was defined as social policy and subsidized by government (WRI-EMBARQ, 2010). This type of ticket system was developed in order to help low-income citizen, to obtain public transportation service and increase bus usage from car users.

4. Technology

   There are two types of technology in TransJakarta; off-board and on-board technology. The off-board technology are located off the vehicle (on shelter or station), such as CCTV, display announcer (bus locator), and a passenger entertainment system. The on-board technologies are located on the bus, such as CCTV, GPS, and display announcer. Every bus is equipped with radio, to help the bus driver to contact the central office to know the road information. TransJakarta is equipped with bilingual announcer and information (in Indonesian and English) to serve foreigner due to its location as the capital city.

### VI.3 TransJakarta stakeholders mapping

As defined in Chapter IV, there are several stakeholders in BRT development. This section is focusing on defining the stakeholder and their position that arises from Jakarta BRT transport system. In the determining of the actors involved, this research uses list of stakeholders in the historical process. Those stakeholders are as follows:

1) Politics - Governmental agencies. This group contains the transit regulatory agencies in Jakarta.
   1. Governor of Jakarta. As the top of Jakarta agencies, Governor has power to give mandate and decision making.
   2. Minister of Transportation, has responsibility to give advice and technical guidance to municipal transport problem and solution (Arif, 2010).
   3. Municipal/regional Planning Agencies (*Badan Perencanaan Pembangunan Daerah-BAPPEDA*), has responsibility in making plan and economic investment in regional area (Arif, 2010).

4. Municipal City Planning Department (*Dinas Tata Kota*), has responsibility in city planning and land use control (Arif, 2010).
5. Municipal Public Works Department (*Dinas Pekerjaan Umum*), which has responsibility in road planning, developing, and its maintenance (Arif, 2010).
6. Municipal Transport Authority (*Dinas Perhubungan*), has responsibility in traffic flow, regulate public transport, and assessing public transport operator (Arif, 2010).

Position : The government commenced TransJakarta in order build the image of public transport and improve non-motorized transport (NYC, 2012). There is coordination between national authorities and local municipality and positive support from the legislature in implementing BRT. Therefore, this group support the BRT development.

2) Professionals groups. This group contains of people who have interests in profit or business related BRT
   1. Land and housing developer. The housing developer uses TransJakarta as land value added to attract people. TransJakarta gives easiness to gather. In fact, many housing developer in suburban area provides feeder of TransJakarta to connect their location to nearest TransJakarta shelter, for example developer in Cibubur, Bekasi, and Tangerang region.
   2. Opposing transport providers and association (ORGANDA). In this case, they are the conventional bus provider. There was rejection from them in TransJakarta implementation, because they fear that TransJakarta presence will reduce their income (http://www.beritasatu.com, publish 28 March 2012). This is organization of the transport provider. Their mission is to protect their members' interest in transport problem.
   3. BRT consultant. Government of Jakarta hires transportation consultants for the technical plans BRT in detail (ITDP, 2003)
   4. Banks. They collect money from TransJakarta passengers by supplying electronic ticket and the integrated ticket for TransJakarta and commuter rail (http://www.transjakarta.co.id).

   Position: Land and housing developer gives positive reaction as it can be indicated by feeder bus that they gave to their people. Opposing transport provider takes the opposite position and ORGANDA presence to defend their member's right and interest. Bank is in neutral position, because they do not have economic interest in TransJakarta development.

3) Civil society organizations;
   1. Environmental Association. They have an interest in environmental protection. They give advice and share their knowledge to the decision maker about the environmental impact of BRT development.
   2. Municipal Transport Board, this is a multi-stakeholder institutions, such as representatives of Universities, Transport Expert, Transport company, Transport Users, Non-Governmental Organizations, Transportation Crew, Department of Transportation and the

Police department, which aim to give advice the governor on transportation policy in Jakarta.

3. Independent Technical Advisors. They are the individual advisor due their knowledge. They are from transportation practitioners, social analyst, financial advisor, and community leader (ITDP, 2003)
4. Academics and researcher. TransJakarta development has plenty of advisors from national and international researchers, such as from ITDP, University of Indonesia's Center for Transportation Studies Social, World Bank, etc.
5. TransJakarta Communities, this is the TransJakarta users association. Although this organization is informal, they often give advice and are invited in various official meetings regarding TransJakarta improvement.
6. Resident Association. Most of them support BRT development because TransJakarta offer easiness on public mobility.
7. News media (television, radio, newspapers, etc.). News media are important because they could drive their viewers' opinions and emotion. Media informs the BRT progress with balanced and objective.

Position: Environmental associations support TransJakarta, because it offers better environmental condition by reducing private vehicle usage. Meanwhile, there are some rejection from them because TransJakarta operates along greenline (on median road), but this rejection was only found on certain locations (http://news.okezone.com/). Municipal Transport Board, Independent Technical Advisor, academics, and TransJakarta communities share supporting position in BRT development because it aims to improve Jakarta public transport condition. Resident associations support in BRT development. However, although TransJakarta is accepted, some Jakarta citizen rejected because they argue that TransJakarta development will make new traffic congestion and potentially will damage the environment. News media are in neutral position, because they do not have any interest and only give objective information to public.

4) BRT Company Provider

1. TransJakarta Busway Management Unit (*Unit Pengelola Transjakarta Busway*). It is a combination of government agency and private company, and work as manager of BRT operator
2. Trunk Operator, they work under the head of the TransJakarta Management Unit and operate their fleet in one certain corridor (based on contract).
3. Feeder operator. They connected TransJakarta shelter with suburban area. They generate with neighbor transport authority and housing developer

4. Supporting services operators. The specific company to manage the TransJakarta operational, such as ticket collector, shelter security services, and infrastructure maintenance (Dirgahayani, 2012)
5. Busway Transport Worker Union (*Serikat Pekerja Transportasi Busway*). Their aim is bringing up the worker aspiration to gain their rights and duties in a balanced and measured way. Nowadays the popular demand of this union is eliminating the outsourcing workers (making them as permanent employees), law protection for driver in their activity, and defending their salary.

Position: As BRT operator, the company provider groups work under Government supervision and regulation. They are chosen from an open bidding selection, and selected from the conventional bus company provider (see **Table VI.3**). Because of their responsibility for business and service customers, indeed this group position support the BRT development. However, the Busway Transport Worker position is neutral, because they have two attentions: working under company obligation and defend the driver's right.

5) User

1. Car owners. TransJakarta infrastructure development will reduce road space road for their car. The segregated way affect on road capacity.
2. Public transport users. TransJakarta provides convenience in transfer and connects long-length route. Affordable price and faster operation in reaching to downtown (or other destination) make TransJakarta popular for workers and other public transport users.
3. Pedestrian and cyclist. Although there is no special road for cycling, TransJakarta operate in median side of road, it does not bother cyclist.
4. Physically disabled user. TransJakarta gives services for passengers who have special needs. They need board and alight with easily and safely.
5. Indonesian Consumers Organization (*Yayasan Lembaga Konsumen Indonesia*-YLKI). It has interests on giving protection to community rights in obtaining proper service quality and suitable price for all TransJakarta costumers. YLKI represent BRT user in meetings.

Position: Car owner are in neutral position. TransJakarta has lack of supporting infrastructure such as park-and-ride and policy in travel demand management. It does not bring significant change in travel time and consequently result on no shift on transportation mode (Gunawan and Kusnandar, 2011), private cars are still used frequently. Public transport user, pedestrian and cyclist, and physically disabled user share their opinion in support BRT development. TransJakarta presence will reduce traffic and it meant more space for cyclist. TransJakarta is friendly and accessible for physically disabled user. Indonesian Consumers Organization is in neutral position, because they have attention in customers' right.

6) Other

1. Street vendors and parking attendants. On several roads in Jakarta there are people that use the road and its curb side as working place. Their presence sometimes burden BRT development due they used pedestrian or road way to work.

Position: the street vendors and parking attendants oppose side on BRT development, because BRT development will take their place for business. The BRT development should consider their future

Remark:

BRT development issues are very complex and include various social, economic and cultural aspects. Government of Jakarta manages it by exploring their relevant internal agencies. There are several opinions from the professional group, because their aim is gathering profit. Housing developer catch BRT development as land value added, so they provide feeder transport to connect their places with TransJakarta route. The conventional bus providers reject it because it could threaten their jobs. Unfortunately, TransJakarta decision process does not involve business association. TransJakarta route could generate economic benefit because TransJakarta could offer their passengers as the business market.

Moreover, civil society organization group support the BRT development. They come from individual and institution that have relation in BRT. News media is in neutral position. In provider group, TransJakarta decision process only invites their trunk and feeder company. Meanwhile, since most of its fleets are CNG-powered, it is necessary to involve the gas station invite in discussion. Public transport user, cyclist, pedestrian, and physically disabled user support TransJakarta because it helps their mobility. Their opinions are taken in survey by consultant. In the decision process users' opinion are represented by costumer association. In addition, Jakarta has street vendors and parking attendants that burden TransJakarta development. Although they are not involved in decision process, they give direct opinion by making protest. They fear that TransJakarta potentially could make them lose their job. This protest could be categorized as negative reaction of BRT development.

## VI.4 Jakarta BRT Stakeholder participation process

In Chapter III, there are four steps that needs to be taken for the stakeholder participation pocess for implementing BRT. The following steps start from information collection, analysis, synthesis, and last implementing. The stakeholder participation process will be explained and elaborated on its historical process as follows:

1) Information collection. In this step, the discussion involved relevant stakeholders that are already defined, that come from several groups and come with their position or opinion.

Jakarta faces poor public transport quality system (unpredicted time travel and comfort is far from minimum service level). Increasing car ownership effect on traffic congestion and pollution. Consequently, Jakarta Provincial Government conducts new transport modes.

Jakarta Governor invited stakeholder by set-up team from relevant municipal authorities and independent non-governmental organization to discuss the problem. This committee was led by Governor Assistant for Urban development Jakarta Province.

Based on SITRAMP (Study on Integrated Transportation Master Plan) in 2004, there are several factors in passengers' needs in transport mobility: security, comfort, cost, and convenience, and speed.

Then, Bogota Mayor Enrique Penalosa came to Jakarta and asked Jakarta Governor Sutiyoso to use same transport modes like in Bogota.

Meeting, discussion, and other decision making development were reported to public by the news media to get feedback and gathering further information.

2) Analysis. In this step, the discussion focuses on analyzing information and opinion from stakeholder, such as on identification issue, cause effect analysis and upcoming stakeholder expectation.

   The TransJakarta discussion faced changing political situation, such as Jakarta Governor succession period and transition to decentralization democracy. Financial, technical, and social issues were sensitive issues at that time.

   In financial issue, Indonesia at that time was in the transformation to decentralize. Local projects should be under local government financial responsibility. The government also faced economic crisis, thus all projects must be scrutinized more.

   The next challenge comes from the existing public transport providers. Jakarta also faced rejection like Bogota did, because the existing bus operators feared to lose their income.

   As can be seen in **Figure VI.1,** mobility within inner city is the highest number of Jakarta's transportation, and then followed by transportation to and from outside Jakarta. These traffic forms should be managed by TransJakarta developer. Integration between land-use and transport development is fundamental in BRT development.

3) Synthesis of finding and plan preparation. In this step, issue from analysis step is negotiating in discussion and preparing alternative solution.

   To support the operation of the Jakarta BRT, Transjakarta, the Governor of Jakarta signed a new local regulation in 2004. Transjakarta has some privileges to be built exclusively in the center of the road to improve public transport services. In this regulation generated coordination among several public offices. Governor sets up the special unit for managing BRT to manage TransJakarta called TransJakarta Busway Management Unit (*Unit Pengelola*

*Transjakarta Busway*), a combination of government agency and private company. However, TransJakarta Management Unit has limited power. They have restricted action in its operational and financial activities. The procurement process should be under municipal transport authority supervision.

TransJakarta technical and operational planning was designed by professional consultant. The principal concept and technical design were made by ITDP and other detail designs are made by the local transportation consultant. Transjakarta route develops connecting within the economic growth center.

Jakarta is served by plenty of bus operators. In order to minimize friction with the bus operators, in the discussion there was opinion that TransJakarta operator should involve local operator, as Bogota did.

4) Implementation and monitoring action

In spite of TransJakarta decentralized development, the national government still help on general planning, guidance, and small percentage of fund. The detail of development is under provincial authorities.

Government attracts private investors to involve in on TransJakarta provider by tender. In attempt to reduce the potential friction, the Government is using the present conventional transport provider company or its consortium. As can be seen in **Table VI.3** the TransJakarta operator could be a single company or group of companies. They work under TransJakarta Management Unit supervision.

**Table VI.3** TransJakarta Operator

| Corridor | Consortium | Operator |
|---|---|---|
| **I** | PT. Jakarta Express Trans (JET) | Perum PPD, Ratax, Bianglala, Steady Safe, Pahala Kencana |
| **II – III** | PT. Transbatavia (TB) | Mayasari Bakti, Steady Safe, Perum PPD, PT Metromini |
| **IV, VI** | PT. Jakarta Trans Metropolitan (JTM) | Mayasari Bakti, Steady Safe, Perum PPD, Bianglala |
| | PT. Ekasari Lorena Transport | |
| **V, VII** | PT. Jakarta Mega Trans (JMT) | Mayasari Bakti, Steady Safe, Perum PPD, Pahala Kencana |
| | PT. Primajasa Perdanarayautama | |
| **VIII** | PT. Primajasa Perdanarayautama | |
| | PT. Ekasari Lorena Transport | |
| **IX,X** | PT. Trans Mayapada (TMP) | Mayasari Bakti, Perum PPD, |
| | PT. Bianglala Metropolitan | |

*Source: ITDP, 2011*

In the first of development, TransJakarta connected Jakarta CBD with Jakarta's transport node (Kota Station and Blok-M Terminal), from north to south direction. Government build TransJakata infrastructure, such as segregated way, shelter, and terminal. In the next phase, TransJakarta connected within West-East part of Jakarta.

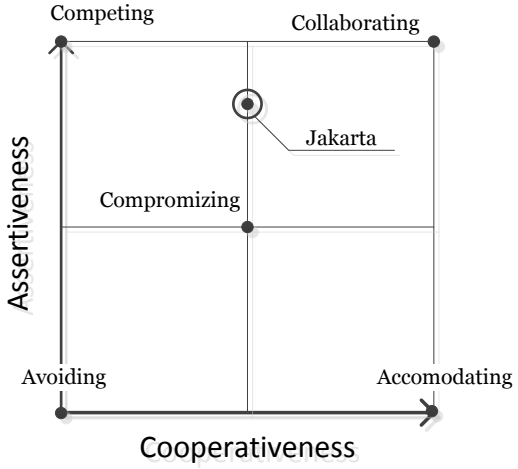
For ticket, Government decides TransJakarta based on a flat price and gives subsidy on it in order to attract people and make it affordable.

Remark:

The TransJakarta decision making process shows that there is a collaborative approach in gathering consensus. Jakarta provincial government involves private companies to take part in the decision making process. Political, financial, and social issues are as the public transport problems besides technical problem. The collaborative approach has value in decisive and corporation (Jane Trainer Acme, Inc, 2010). Government invited opposition in the decision making process and taking role as BRT operator under government supervision. However, to maintain their BRT operation, TransJakarta Busway Management Unit as the BRT coordinator does not have full authority in planning and managing the Jakarta public transportation. The municipal transport authority has main role in TransJakarta plans and implements BRT infrastructure. In order to accommodate all citizens in achieving public transportation, the Government gives subsidy in BRT expense. Therefore the ticket price is affordable.

Moreover, the municipal transport authority still gives space to current public transport to work on their route although it shares with TransJakarta route. This compromise makes the Jakarta transport condition become more crowded than before, because there is no effort on adding road width. The Jakarta conflict handling position could be seen on **Figure VI.3**, it is between competing and collaborating with tends to compromizing.

**Figure VI.3** Jakarta conflict handling modes




*Source: Author analysis based figure from Jane Trainer Acme, Inc (2010)*

## VI.5 Conclusion

Jakarta is the capital city of Indonesia. Jakarta urban mobility is generated by connection between the inner city and outer cities. Jakarta public transportation faced its indiscipline drivers and passengers, TransJakarta with its BRT characteristic comes to answer that problems.

Based on its facility, TransJakarta can be categorized as intermediate stage of BRT. TransJakarta has several characteristics. Its vehicle has high capacity and it is environmental friendly because it is CNG-powered. Although it runs on segregated way, the line are used by other vehicle. TransJakarta route network connected within Jakarta area.

TransJakarta development faces not only in technical issue but also in political, financial, social, and environmental issues. The TransJakarta decision maker process shows that there is a collaborative approach in gathering consensus by generating discussion among stakeholders, between transport authority, public transportation expert, and current public transport association (see **Figure VI.4**). The list of stakeholders is shown on **Table VI.2**. Despite TransJakarta operation is managed by a professional company, it does not have full authority in plans and manage the Jakarta public transportation. Thus TransJakarta development does not give significant changes (compared to its network length and passenger per day).

**Figure VI.4** Stakeholder in TransJakarta discussion process diagram

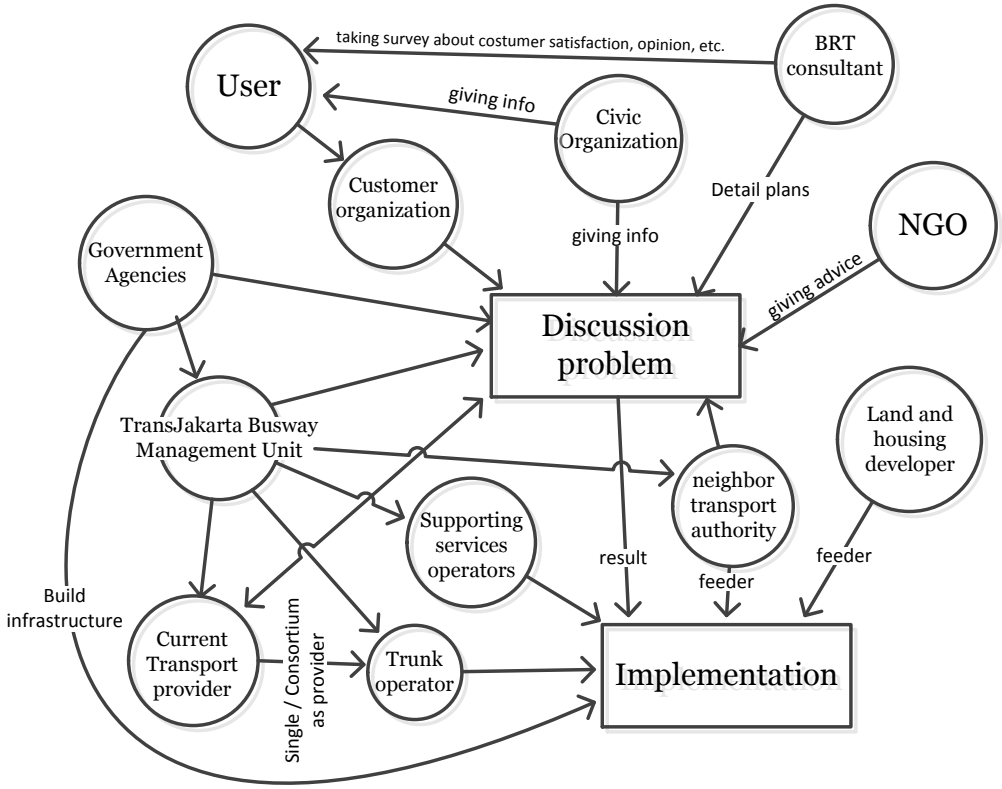


**Table VI.2** TransJakarta stakeholders mapping *(Source: Author) Note: S=Support; N=Neutral; O =Opposite*

| Stakeholder | Area of interest | Contribution | Position | | |
|---|---|---|---|---|---|
| | | | S | N | O |
| **Governmental agencies** | | | | | |
| Jakarta Governor | Managing city | Leader and final decision maker | X | | |
| Ministry Transport departments; | Transport standard and regulation | Advisor, supervisor, and regulator | | X | |
| Regional Planning Agencies (Bappeda) | Regional economic urban planning | Planning investment in regional area | X | | |
| Municipal City Planning Department | Urban planning and land use | City planning and land use control | X | | |
| Municipal Public Works Department | Infrastructure planning and developing | Road planning, developing, and maintaining | X | | |
| Municipal Transport Authority | Urban public transport | Planning and assessing public transport | X | | |
| **Professionals groups** | | | | | |
| Opposing transport provider and organization | Own business interest | Negative effect for their income | | | X |
| Land and housing developer | Own business interest | Creating feeder bus connected BRT shelter | X | | |
| Banks | Ticketing and money | Money collector from passenger | X | | |
| BRT Consultant | BRT planning and designing | Providing planning and technical BRT design | | X | |
| **Civil society organizations** | | | | | |
| Municipal Transport Board | Governor and urban transport | Gives advice about transportation | X | | |
| Environmental association | Environmental neighborhood | Gives advice about environmental | | X | |
| Independent techinical advisor | Financial, social, and transport issue | Gives advice about urban transportation | | X | |
| Academics and researcher | Research and knowledge development | Gives advice about transportation | | X | |
| Resident associations | Resident right protection | Neighborhood protection | | X | |
| Transjakarta Communities | Transjakarta user association | Advice to decision makers from user side | X | | |
| News media (television, radio, newspapers, etc.). | Info and news about decision process | Providing info and news | | X | |
| **BRT Company Provider** | | | | | |
| TransJakarta Management Unit | TransJakarta operator | Managing BRT operation and maintenance | X | | |
| Trunk Operator | Servicing main route | Operator and serve passenger | X | | |
| Feeder operator | Servicing suburban area | Operator and serve passenger from suburban | X | | |
| Supporting services operators | TransJakarta operation | Supporting on collecting ticket, security, etc | X | | |
| Busway Transport Worker Union | Worker aspiration | Law protection for driver in their activity | | X | |
| **User** | | | | | |
| Car owner and user | The room for their car in the road | Could act as potential user | | X | |
| Public transport user | Safety and comfort in usage | As definite bus user | X | | |
| Physically disabled user | High accessibility transportation | Board and alight with easily and safely | X | | |
| Pedestrian and cyclist | More space for cyclist | Supporting non-vehicle road user | X | | |
| Ylki - indonesian consumers organization | User service quality and suitable price | Give protection community rights | | X | |
| **Other** | | | | | |
| Street vendor and parking attendant | Road and curb side as working place | Negative effect for their income | | | X |

# CHAPTER VII
# Stakeholder Involvement in the implementation of TransJogja - Yogyakarta

Yogyakarta is the third and the last city to be compared. Yogyakarta is the capital city of Daerah Istimewa Yogyakarta Province (DIY) and known as cultural and student city. Yogyakarta faces problems in public transport, such as poor public transport quality and social dilemma. TransYogya arise to deal with that problem. Yogyakarta BRT imitates Jakarta BRT system and makes adjustment according to Yogyakarta geographical characteristics. However, TransJogja faces difficulties in its implementation. Therefore, it needs cooperation from Yogyakarta government and other stakeholders.

This chapter starts by explaining Yogyakarta public transport history. After that, it discusses about TransJogja BRT development, particularly in stakeholder participation of BRT development: who are the stakeholder that get involved, where is their position (are they support or not), and how their participation in the process. Finally, the last part of this chapter is conclusion.

## VII.1 Yogyakarta Public Transport Development

Yogyakarta is served by a range of motorized and non-motorized public transport services, which provide services to local and regional destinations (CDIA, 2011). In its history of public transport development, Yogyakarta has several types of public transport. In the 60's and 70's decade, Yogyakarta was called as the bike city. Bikes were popular as transport mode at that time. However, due to the Yogyakarta urban development and increased income, bike has been abandoned by people.

The first organized public transport was conducted by Gajah Mada University (UGM). In the 70's UGM started to conduct student transportation called *Colt Kampus*. Having a huge number of students, UGM needed to have a proper student transportation. In the 80's Government conducted a public transportation, set up from the public transport union called *KOPATA* (*Koperasi Angkutan Kota*-Urban Transportation Cooperatives), and followed by other unions such as *ASPADA, PUSKOPKAR,* and *KOBUTRI*. These types still operate on the present day.

Other transport modes are traditional, non-motorized ones such as human powered called *becak* (cycle rickshaws) and horse powered called *andongs* (traditional horse-drawn carriages). Most of them are privately organized or run individually by the driver. They are categorized as

paratransit, providing door-to-door service collectors by the passenger request (Tangphaisankun et al, 2009).

**Figure VII.1** Yogyakarta Conventional City Transport,
From left clockwise: City Bus, Colt Suburb Transport (Angkutan Desa), Suburb Transport (Angkutan Desa), Horse Carrier (Andong), Rickshaw (Becak), Minibus Taxi

Lack of government control such as old vehicles, untransparent transport cost, and unreliable schedule makes people try to get the alternative way of transport mode. Nowadays, private vehicle is the popular transport modes in Yogyakarta, particularly motorcycle.

In order to improve its transport modes, Yogyakarta government initiates the new type of public transportation by conducting the 'buy the service' concept in which the government buys services provided by the transport operator and then sells that service to the community. This concept arises with bus rapid transit, TransJogja. TransJogja concept was based on the earlier success on the TransJakarta system in Jakarta. TransJogja development will be explained in detail on the next section.

## VII.2 Yogyakarta TransJogja

TransJogja development was conducted by DIY province and supported by Central government with their grant program for the start-up phase. TransJogja currently has 8 corridors, linked within Yogyakarta area with their 74 units of buses. **Table VII.1** shows the current data of TransJogja.

**Table VII.1** Yogyakarta TransJogja current data

| | |
|---|---|
| Population | 3.457.491 |
| Passengers per day | 13.888 (Nov 2008) |
| Year system commenced | 2008 |
| Total length | 50 km |
| Peak throughput (passengers/hr/direction) | No info |
| City center peak hour speeds | No info |
| Number of corridor | 8 |
| Operational mode: | Trunk only |
| Number of cars | 74 buses |
| Number of BRT stations: | 76 stations |

TransJogja as BRT consists of BRT elements as mentioned in Chapter III. Below, every BRT element of TransJogja will explain in detail.

1. Vehicles

   TransJogja operates single car type bus with single door in the middle of the bus. In order to anticipate the Yogyakarta's road width that mostly only have 9-12meters for two lanes. Government chooses to use medium sized bus with capacity of 40 passengers (20 seats and 20 standing. The bus has elevated floor same level with shelter's floor, designed not only for safety and has short time for boarding and alighting but also for helping the disabled person. TransJogja buses use diesel engines and complying the Euro II environmental standard.

2. Infrastructure

   As mentioned before, the shelter has elevated platforms same level with TransJogja level to ensure quick boarding and alighting. Shelters are located on the left side of the road and eqquipped with the information about the route, stopping shelter, and the additional commercial advertisement.

   TransJogja operates on regular public streets and mix with other vehicle, thus TransJogja operation is unscheduled and has unpredictable speed and time arrival. TransJogja does not have special buslane likes TransMilenio-Bogota or TransJakarta-Jakarta (GTZ, 2004) and does not follow the bus rapid transit regulation. Based on article 158 of Law No. 22/2009 BRT should followed by special lines. In an attempt to improve the service quality TransJogja, in early 2011 discussions to reform TransJogja operation started. One of them is the development of dedicated lines. With the dedicated lines, it is expected that speed and time of arrival are definite to increase the number of public transport users (Zheng and Jiaqing, 2007).

3. Management

   In order to manage all management and technical matters, TransJogja is under supervision of the Technical Service Unit (*Unit Pelayanan Teknis*) of Yogyakarta Municipal Transport Authorities. TransJogja operation is runs by new corporation, namely Jogja Tugu Trans Co., owned by a consortium consisting of the Sleman Youth Cooperatives, Kopata, Aspada and Puskopkar and state-owned transportation company Perum Damri. Operators are paid by government per bus kilometer travelled and subsidized by government in order to make the service affordable for the citizens and encourage the improvement of the service.

   TransJogja use pre-board fare collection system and collect the fare on its shelter. Based on DIY Governor Degree number 5/2008, there are three types of ticketing price, they are flat tariff, subscribed ticket (e-ticket), and time-based ticket (weekly or monthly). There is also an integrated ticket, which is combines TransJogja ticket into student ID card (http://ugm.ac.id, publish 6 September 2012). This is a cooperation between government and university to reduce the traffic congestion and to be more environmentally friendly by reducing vehicle usage. The integrated ticket could be recharged from bank, special outlet, and supermarket.

4. Technology

   BRT technologies are used in fare system, area traffic control system (ATCS), and bus tracking system (http://27.123.222.103/, publish 20 December 2012). According to the development plan, TransJogja will be provided with Central Control Room (CCR) at the Provincial Transport Authority office (CDIA, 2012). This development plan will be implemented following the availability of funds.

## VII.3 TransJogja stakeholders mapping

As defined in Chapter III, there are five groups of stakeholders in Bus Rapid Transit development. In this section, the research will define the TransJogja stakeholder that arises from the Yogyakarta BRT transport system and their position. The lists below are taken from TransJogja meeting report and pre-feasibilities studies. Those stakeholders are as follows:

1. Governmental agencies. This group contains the transit regulatory agencies in Yogyakarta.
   1) Governor of Yogyakarta, as the top of DI Yogyakarta province bureaucratic, Governor has power to give mandate and decision to lower decision maker such as city mayor.
   2) Yogyakarta and neighbors Mayor, are the highest municipal decision maker (GIZ, 2012)
   3) Ministry of Transportation, has responsibility to give advice and technical guidance to municipal transport problem and solution (CDIA-a, 2011)
   4) Municipal Planning Agencies (*Badan Perencanaan Daerah*), has responsibility in making plans and economic investment in regional areas (URDI and YIPD, 2012)

5) Municipal Public Works Department (*Dinas Permukiman dan Prasarana Wilayah*), which has responsibility in urban planning and road developing (URDI and YIPD, 2012).
6) Municipal Transport Authority (*Dinas Perhubungan*), has responsibility in traffic flow, regulate public transport, and assessing public transport operator (URDI and YIPD, 2012). It has big portion on TransJogja management. All TransJogja revenues (tickets and publicity) are collected by them and then paid to the TransJogja operator (CDIA-a, 2011)
7) Municipal Treasury Agency (*Dinas Pendapatan, Pengelolaan Keuangan dan Aset Daerah*), has responsibility in managing financial governance and regional wealth (URDI and YIPD, 2012)

Position : The government commenced TransJogja in order to make improvement on public transportation services, such as poor facilities, bus conditions, lack of route coverage, waiting time, and travel costs (URDI and YIPD, 2012. The discussion involves regional government agency within Yogyakarta province and all of them give positive opinion and support BRT development.

2. Professionals groups. This group contains of people who have interest in profit or business related BRT
   1) Opposing transport provider and organization. In this case is the old transportation provider from organized and unorganized transport institution. TransYogyakarta could be seen as having negative effect on their income and reducing their income (URDI and YIPD, 2012).
   2) Universities and schools, with numerous student that they have, university and schools are potential users of TransJogja and could help to reduce traffic congestion.
   3) Banks, they help TransJogja as the money collected from passenger and helps TransJogja with integrated ticketing.

   Position : Opposing transport provider and *ORGANDA* gave negative opinion on TransJogja development, because they were afraid it will give negative impact on their revenue (http://www.harianjogja.com/, publish 25 April 2013; http://gaul.solopos.com/, publish 20 April 2009). Universities and banks supported TransJogja development. They gave positive reaction on integrate student ID card with TransJogja e-ticket.

3. Civil society organization. This group consists of non-profit which can make effects on community and political opinion
   1) Academics and researchers, help government by giving academic advice about the impact of the TransJogja development.
   2) Environmental Association, they have an interest in environmental protection. They give advice and sharing their knowledge the decision maker about BRT development environmental impact.

3) Indonesian Transport Society (*Masyarakat Transportasi Indonesia*). (URDI and YIPD, 2012). This is an independent policy advisor which comes from experts, academics, practitioners and officials. They have interest on giving advice of transport quality improvement.
4) News media (television, radio, newspapers, etc.), is independent entities that has responsibility in informs TransJogja development condition.

Position: Academic and researcher put their position in neutral position, due to their knowledge in giving objective opinion to decision maker. Environmental association and Indonesian transport society share their opinion on support TransJogja because it provides sustainable transportation and improves the poor public transport condition. News media is in neutral position, because they don't have any tendency and only gives objective information to public.

4. BRT Company Provider
   1) Yogyakarta Tugu Trans. This is TransJogja operator, which is the consortium of the current transport provider. They serve eight corridors in TransJogja operating area.
   2) TransJogja Worker Union (*Serikat Pekerja TransJogja*) - their aims are bringing up the worker aspiration to gain their rights and duties in a balanced and measured way. Nowadays the popular demand of this union is eliminating the outsourcing workers (making them as permanent employee), law protection for the driver in their activity, and defend their salary.

   Position: As BRT operator, the company provider group work under Government supervision and regulation. They were chosen from an open bidding selection, and selected from the conventional bus company provider. Because of their responsibility for business and serve customers, indeed this group position is supported the BRT development. However, the TransJogja Worker Union position is in neutral, due they have two attentions: working under company obligation and defend the worker's right.

5. User. The user opinions are taken with survey by consultant and meeting are attended by their representative in customer association.
   1) Car owner. This is one of the TransJogja target market. One of TransJogja aim is reducing traffic congestion by reducing private car usage. Knowing car owner opinion is important to know their expectation for TransJogja quality service.
   2) Public transport user, TransJogja gives positive points for improving public transport quality service, because it provided reliable bus condition, weather shield shelter, and fixed affordable price.
   3) Pedestrian and cyclist. TransJogja development should be followed by improving pedestrian and cyclist infrastructure.
   4) Physically disabled user, TransJogja is helpful for Physically disabled user because they easy to boarding and alighting.

5) YLKI- Indonesian Consumers Organization, one of their interests is given protection community rights in gathering proper and equitable public transport. In TransJogja, they give attention in user service quality and suitable price for costumers.

Position: Car owner take position in neutral, because TransJogja presence doesn't bring significant change in travel time due TransJogja does not have special road. The public transport user, pedestrian and cyclist, and physically disabled user supported BRT development. TransJogja presence will reduce traffic and it means more space for cyclist. It also followed by bike to work (in Yogyakarta called as *SEGO SEGAWE* program) encouraged to support non-motorized user (www.antaranews.com, publish 3 February 2011). For physically disabled user, TransJogja is helpful because it easy and accessible for wheelchair. Indonesian Consumers Organization is in neutral position, because they have attention in customers' right.

6. Other

1) Traditional transport provider. As tourism city, the traditional transport provider (*andong and becak*) could generate tourism attraction. They are demand responsive and mostly suitable for shorter distances and often serve within a local area.
2) Street vendor and parking attendant, they are sometimes as social obstacle in TransJogja development. They are using the road and pavement to work. Government chooses to minimize conflict rather than to remove or replace this informal street worker.

Position: Despite there is no rejection from those stakeholders, but their existence need to be considered by decision maker. Traditional transport provider could be conducted as TransJogja feeder service (Shafiq-Ur Rahman et al., 2012) and provide short distance transport or reach remote area. Their opinions remain neutral with tendency to opposite when TransJogja development will threaten their work place.

Remark:

Based on its geographical situation, Yogyakarta is located close to other municipality. TransJogja discussion involves government agencies within Yogyakarta and its neighbor municipalities. All of them support BRT development. Yogyakarta municipal transport authority has big portion on TransJogja operation. TranJogja development faced rejection from opposing transit provider and their organization, although they were invited into discussion. Government is set-up a company as TransJogja operator. That company is combination from government agencies and consortium of present transport providers. This consortium is government's attempt to reduce social rejection from present transport provider.

Moreover, TransJogja receive support from university. University catches TransJogja development to support government in reducing private vehicle for their student. In user groups, there is no negative position on TransJogja development, because TransJogja presence improves current public transportation. TransJogja development gets support from the non-motorized transportation

program. In Yogyakarta, there is unique social issue, which is traditional transport provider, street vendor, and parking attendant. They presence should considered as TransJogja supporting facilities, such as feeder TransJogja.

### VII.4 Yogyakarta BRT Stakeholder participation process

In Chapter III, there are four steps that are needed to be taken for the BRT stakeholder participation process implementing BRT. The following steps start from designing planning discussion, discussing process, synthesis analyzing, and last, the implementing and monitoring action. The Yogyakarta BRT stakeholder participation process explains in detail as follows:

1) Information collection. In this step, the discussion involved relevant stakeholders that are already defined, that comes from several groups and comes with their position or opinion.

   Yogyakarta faces poor public transport such as old vehicles, untransparent transport cost, and unreliable schedule. In order to face those problems, Yogyakarta government has a strong will to redevelop their public transport. Then, they start the discussion by involving government agencies in KARTAMANTUL region (Yogyakarta, Sleman, and Bantul) and communities (ORGANDA, Universities, and independent transport advisor), and make them as team of planning development. Government also conducts discussion with non-governmental agencies from Cities Development Initiative for Asia (CDIA) and other international agencies (CDIA, 2011).

   In gathering information for discussion, they conduct community based home interview survey and workshops between government and consultant. In result, the team formulates the Term of References (ToR) of public transportation improvement scheme (URDI and YIPD, 2012).

2) Analysis. In this step, the discussion focuses on analyzing information and opinion from stakeholder, such as on identification issue, cause effect analysis and upcoming stakeholder expectation.

   From gathering preliminary information, the team discovered that Yogyakarta has several characteristics that must be considered. In transportation, Yogyakarta faces indiscipline driver and passenger, they stop the bus not at the proper place. The conventional public transport providers are racing to get many passengers so they could raise their income. This habit sometimes causes traffic congestion and accident. The other issue is from tourism and education. The large part of Yogyakarta GDP counts on tourism and education. Yogyakarta is known as a city of culture and student city. For students, ticket price is playing an important

role in public transportation. As the tourism city, Yogyakarta has various of traditional transportation provider, such as becak (pedicab), and andong (horse cart). Eliminating them will generate labor issue and potentially reduce the Yogyakarta's income from tourism. In addition, Yogyakarta has limited road width with parking on street attendant and street vendor along Yogyakarta road, making limited options for road widening.

3) Synthesis of finding and plan preparation. In this step, issue from analysis step is negotiate in discussion and preparing alternative solution.

In order to change the bad habit of indiscipline driver and passenger, the team offer 'buy the service' concept for improving its public transportation. This concept arises with BRT. Team is aware that this concept will generate rejection from the current public transport provider. So, the Government set-up the BRT operator by involving local in order to reduce that friction operator, similar to Bogota and Jakarta.

Another plan preparation is reaction for tourism and education issue. TransJogja development should consider in the connected tourism area and educational center. This network design should be informed and discussed with other public transport providers to minimize friction both of them.

In order to cope with the technical issue (road width), TransJogja implement the basic BRT concept. The transformation of BRT is conducted by changing the vehicle and management of public transport to cope with the bad habit of driver and passenger.

4) Implementation and monitoring action

In order to make it professional and organized, TransJogja is managed by the technical service unit (Unit Pelayanan Teknis) under the Municipal Transportation Authority and involve local operator as TransJogja operator in consortium called Jogja Tugu Trans Co. TransJogja still relies on Government funding. The fleet ownership is shared between the private company and the Municipal Government.

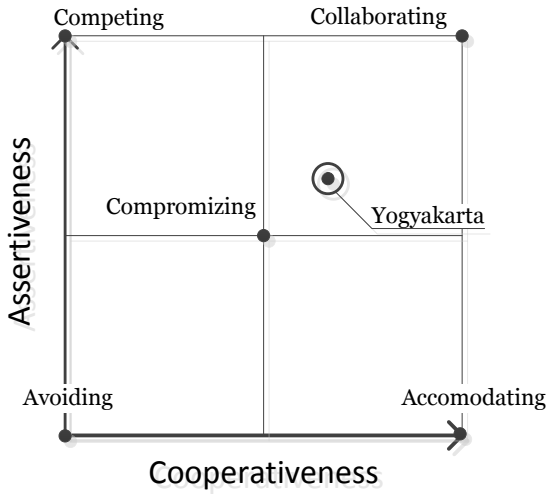
Traditional transport provider (*Becak drivers, ojek, and andong*) are directed to be a mutual partner in TransJogja development. They have been part of Yogyakarta transportation culture. Although they are informal, they have advantages in serving passenger personally and connected in certain remote area.

Because of limitation of road width of Yogyakarta, it is difficult for TransJogja to fulfill BRT standard. TransJogja implement partial element of BRT in order to reduce conflict with street vendors and street parking attendants. The government gives attention in improving the pedestrian pathway and revitalizes the non-motorized vehicles line.

Remark:

In its way to get consensus, the TransJogja decision process shows there is a collaborative approach and tends to compromising between municipal authority, transportation expert, and current public transport provider. Technical, financial, and social issues are the major concerns in TransJogja development. Government invited the opposition into the decision making process and gave them role as BRT operator under supervision and management by municipal transport authority. Government compromises the current public transport providers and traditional public transport existence. Street vendors and parking attendants are still maintained by government to reduce potential friction that may come. Those compromises make government implement TransJogja with partial facilities of BRT. **Figure VII.2** shows that TransJogja development position is on middle of collaborating and compromising box.

**Figure VII.2** Yogyakarta conflict handling modes




*Source: Author analysis based figure from Jane Trainer Acme, Inc (2010)*

## VII.5 Conclusion

Yogyakarta is the capital city of Daerah Istimewa Yogyakarta province, known as cultural and student city. Because its public transport quality is poor, Yogyakarta citizens use private vehicles. There are two modes of public transportation in Yogyakarta, bus and traditional transportation. TransJogja arise in order to improve the Yogyakarta public transport.

TransJogja, based on its facility, is identified as basic busway with initial BRT stage. TransJogja has several BRT elements, which are medium capacity bus size, runs on mixed traffic, elevated shelter, involves technology on its operation, and organized management.

Physical and social problems play an important role in TransJogja development problem. TransJogja development process combines technical and communicative approach. Collaborative

action among stakeholders is conducted to gather information and share opinion within actors. Government gives other stakeholders to take part (see **Figure. VII.3**)

**Figure VII.3** Stakeholder in TransJogja discussion process diagram

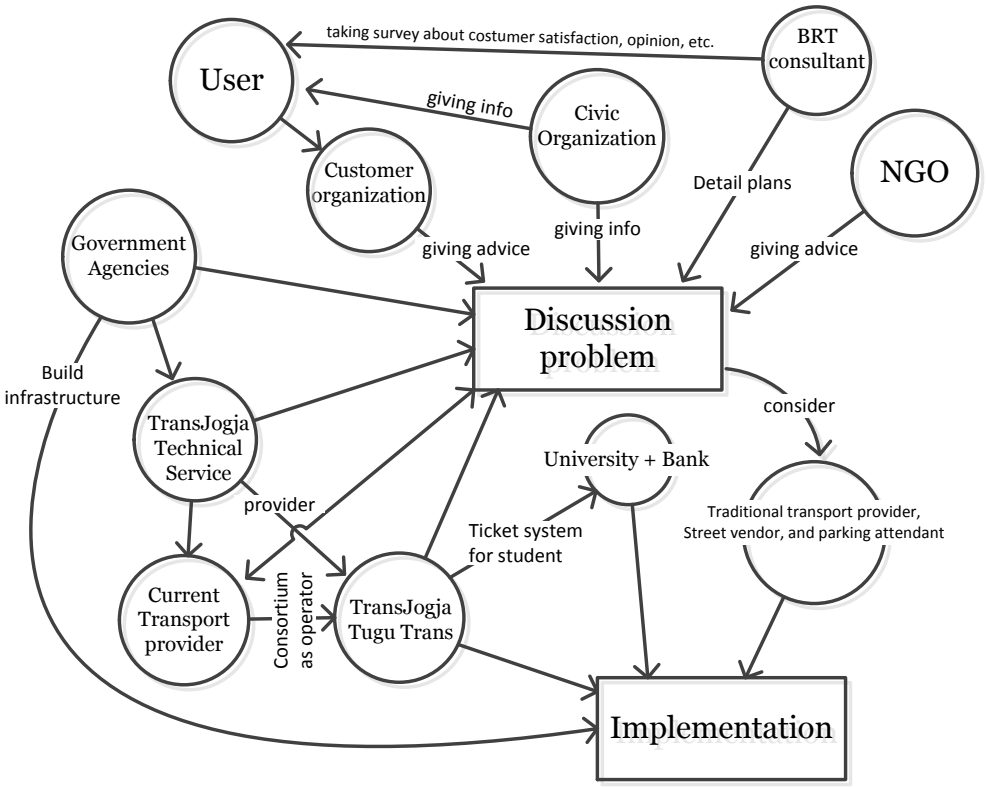


**Table VII.2** TransJogja stakeholders mapping

| Stakeholder | Area of interest | Contribution | Position | | |
|---|---|---|---|---|---|
| | | | S | N | O |
| **Governmental agencies** | | | | | |
| Yogyakarta Governor | Yogyakarta province | Leader and final decision maker at provincial | X | | |
| Yogyakarta and neighbors Mayor | Municipal managerial | Leader and final decision maker at municipal | X | | |
| Ministry Transport departments; | Transport standard and regulation | Advisor, supervisor, and regulator | X | | |
| Regional Planning Agencies (Bappeda) | Regional economic urban planning | Planning investment in regional area | X | | |
| Municipal Public Works Department | Infrastructure planning and developing | Road planning, developing, and maintaining | X | | |
| Municipal Transport Authority | Urban public transport | Planning and assessing public transport | X | | |
| Municipal Treasury Agency | Municipal wealth | Managing municipal fund and wealth | X | | |
| **Professionals groups** | | | | | |
| Opposing transport provider and organization | Own business interest | Negative effect for their income | | | X |
| Banks | Ticketing and money | Money collector from passenger | X | | |
| Universities and schools; | Student | Student as user, reducing traffic congestion | X | | |
| **Civil society organizations** | | | | | |
| Academics and researcher; | Research and knowledge development | Gives advice about transportation | | X | |
| Environmental Association | Enviromental protection | Giving advice to desion maker | X | | |
| Indonesian Transport Society | Financial, social, and transport issue | Gives advice about urban transportation | X | | |
| News media (television, radio, newspapers, etc.). | Info and news about decision process | Providing info and news | | X | |
| **BRT Company Provider** | | | | | |
| TransJogja Tugu Trans | TransJogja operation | Managing TransJogja operation and maintain | X | | |
| Trunk line operator | Servicing main route | Operator and serve passenger | X | | |
| TransJogja Worker Union | Worker right protection | law protection for the worker in their activity | X | | |
| **User** | | | | | |
| Car owner and user | The room for their car in the road | Could act as a potential user | | X | |
| Public transport user | Safety and comfort in usage | As definite bus user | X | | |
| Physically disabled user | High accessibility transportation | Board and alight with easily and safely | X | | |
| Pedestrian and cyclist | More space for cyclist | Supporting non-vehicle road user | X | | |
| YLKI-Indonesian consumer organization | User service quality and suitable price | Give protection community rights | | X | |
| **Other** | | | | | |
| Street vendor and parking attendant | Road and curb side as working place | Negative effect for their income | | X | |
| Traditional transport provider | Tourist place and remote area | Connecting to tourism place and remote area | | X | |

*(Source: Author)* Note: S=Support; N=Neutral; O =Opposite

# CHAPTER VIII
# Comparison and lessons learned of stakeholder involvement in Bogota, Jakarta, and Yogyakarta

After exploring stakeholder involvement in implementation BRT in Bogota, Jakarta, and Yogyakarta the research continues on making comparison among those cities. In this comparison, the research starts with analyze the similarities and differences characteristics in BRT implementation approach. Then, base on it, the research continues in taking lesson learned by finding strength of BRT implementation in Bogota and Jakarta in order to improve Yogyakarta BRT weakness.

## VIII.1 Similarities

Based on research of BRT implementation in Bogota, Jakarta, and Yogyakarta, there are some similarities found in stakeholder involvement in those cases, as follows:

1. The government began to implement BRT as the reaction of their poor quality public transport, such as old vehicles, drivers' bad habit, and unreliable bus operation frequency. The current public transports were operated by private firms. The drivers compete to each other to get more passengers to increase the revenue. BRT presence will eliminate this competition, since the driver will be paid by company and their operation will be controlled by BRT operator company. The personal competition is replaced by company competition to meet government BRT regulation.

2. In the implementation of BRT, Bogota, Jakarta, and Yogyakarta faced rejection from the association of public transport provider. The most common reason is fearing of losing job.

3. In order to find solution in implementing BRT, government as main actor invited various stakeholder to discuss he solution for the problem. Government reduces their domination in the decision making process by inviting all stakeholder from all position (support, neutral, and opposition) to take part in the decision making process. The stakeholders comprise from the relevant government agencies in transportation and urban planning, business entities, transportation experts, public transport providers, and users.

4. Bogota, Jakarta, and Yogyakarta implement their BRT by incremental process. Bogota and Jakarta built their BRT network by extending the geographic development, started

from the major area according to the transport development plan, then it continued to other part of cities or other corridors. Yogyakarta built their BRT network by extending of elements and characteristics, starting from basic elements and then improving it to complex element.

## VIII.2 Differences

Based on research of BRT implementation in Bogota, Jakarta, and Yogyakarta, there are some differences found in stakeholder involvement in those cases, as follows:

1. Bogota, Jakarta, and Yogyakarta implement BRT in different stages to cope with their local characteristics (see **Table VIII.1**).

   Bogota implements BRT in full BRT stage. Bogota TransMilenio is supported with fully segregated way. Thus TransMilenio is able to maintain its speed, resulting in huge number of passengers per day. Jakarta faces technical problem in implementing BRT. Therefore, Jakarta does not implement full segregate way, in order to accommodate the U-turn and intersection. Consequently, TransJakarta cannot maintain its speed and headway, indirectly causing TransJakarta to have less passenger. Yogyakarta cannot implement segregate way because of its road infrastructure situation. These infrastructure conditions give effect on BRT capacities. TransMilenio is able to serves 16,72% of Bogota population, TransJakarta 2,9% of Jakarta population, and TransJogja only 0,4% of Yogyakarta's population.

   The differences of BRT implementation based on elements explained as follows:
   Vehicle element: TransMilenio in Bogota uses bus with a capacity of 160 passengers; TransJakarta uses two types of bus, those with capacity of 83 passengers and 150 passengers; and TransJogja uses 40 passenger bus capacity type
   Infrastructure element: Bogota implements segregated bus line on all of TransMilenio route; Jakarta partially implements segregated bus line, some of TransJakarta's lines use the regular road; Yogyakarta does not implement segregated way
   Management element: TransMilenio is managed by private company namely TransMilenio Co.; Jakarta and Yogyakarta BRT are managed by municipal transport agency, namely Transjakarta Busway Management Unit (Jakarta) and TransJogja Technical Service Unit (Yogyakarta)
   Technology element: TransMilenio has a control room to manage their bus operation, while Jakarta and Yogyakarta do not.

**Table VIII.1** BRT facilities in Bogota, Jakarta, and Yogyakarta

| | | Bogota | Jakarta | Yogyakarta |
|---|---|---|---|---|
| **BRT DATA** | Year commenced | 2000 | 2004 | 2008 |
| | Passengers per day | 1,800,000 | 301,325 | 13.888 (Nov 2008) |
| | Population | 10,763,453 | 10.187.595 | 3,457,491 |
| | Total length | 106 km | 220 km | 50 km |
| | Peak throughput (passengers/hr/direction) | 37,700 | 3,400 | No info |
| | City center peak hour speeds | 16-30 km/hr | 15-25 km/hr | No info |
| | Operational mode: | Trunk-feeder | Trunk-feeder | Trunk only |
| | Number of cars | 1.071 buses | 599 | 74 buses |
| | Number of BRT stations: | 142 stations | 241 | 76 stations |
| **BRT ELEMENT** | Vehicle | - Articulated bus type<br>- Capacity 160 passengers<br>- EURO III standard<br>- 4 doors<br>- Elevated floor vehicle | - Single and articulated bus types<br>- Capacity 83 passengers (single bus) and 150 passengers (articulated bus)<br>- CNG powered buses<br>- Double doors<br>- Elevated floor vehicle | - Single car type<br>- Single door<br>- Capacity 40 passengers<br>- Diesel engines bus<br>- Elevated floor vehicle |
| | Infrastructure | - Segregated way on the middle of the road<br>- Elevated shelter, build every 790m<br>- Station terminal, transfer stations, and standard stations<br>- Pedestrian way<br>- Park and ride | - Segregated way on the middle of the road, but some lines are in-exclusive (mixed traffic)<br>- Elevated shelter<br>- Some lane is red painted on intersection<br>- Station terminal, transfer stations, and standard stations<br>- Pedestrian way<br>- Park and ride | - No segregated way<br>- Mixed traffic<br>- Elevated shelter |
| | Management | - Manage by private company namely Transmilenio Co<br>- Operates by private company<br>- Single price – non subsidy<br>- Pre-board fare collection system | - Manage by municipal transport agency, namely Transjakarta Busway Management Unit<br>- Single price – subsidized<br>- Pre-board fare collection system | - Manage by municipal transport agency, namely TransJogja Technical Service Unit<br>- Operate by private company, namely Jogja Tugu Trans Co.<br>- Single price – subsidized<br>- Pre-board fare collection system |
| | Technology | - Electronic ticketing system<br>- Vehicle controlling system<br>- Vehicle locator<br>- Passenger entertainment<br>- Control center<br>- Road signalized intersections | - Electronic ticketing system<br>- CCTV<br>- Vehicle locator<br>- Passenger entertainment<br>- Bi-lingual announcer and information | - Electronic ticketing system<br>- Vehicle locator<br>- Area Traffic Control System (ATCS) |

*(Source: Analysis)*

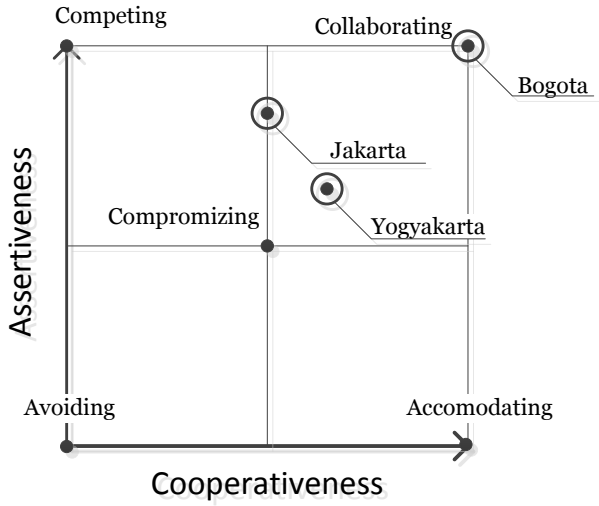
2. Although Bogota, Jakarta, and Yogyakarta share the same way of decision making process in collaborating stakeholder, but the degree of collaboration is different in each city (see **Figure VIII.1**)

Bogota government implements collaborative approach in BRT development. They operate BRT collectively with the current public transport providers as TransMilenio operators. In order to control the operators, the government gives definite regulation. In addition, Government relocates the rest of the current public transport provider to another place with no TransMilenio route. Therefore, in **Figure VIII.1** the Bogota conflict handling position is on collaborating point.

The Jakarta's position on **Figure VIII.1** located partly collaborative and competing approach and tends to compromise. The government invites current public transport provider to part as BRT operator and give regulation to control TransJakarta operation. However, government of Jakarta accommodates the rest of current public transport operator in TransJakarta route, in order to reduce potential rejection from the current public transport provider.

Yogyakarta implements its BRT as collaboration between municipal transport authority and current public transport provider as TransJogja operator. However, Yogyakarta government compromise on the rest of current transport providers, parking attendant and street vendors, making TransJogja does not have segregate way. Therefore, on **Figure VIII.1** TransJogja development position is on middle of collaborating and compromising box which tends to compromising point.

**Figure VIII.1** Bogota, Jakarta, and Yogyakarta conflict handling mode position




*Source: Author analysis based figure from Jane Trainer Acme, Inc (2010)*

3. In the decision making process Bogota, Jakarta, and Yogyakarta have different list of stakeholder (see **Table VIII.2**). This research finds stakeholders in those cities have significant differences on BRT implementation, as follows:

   In Bogota, TransMilenio arose in order to change bad habits of driver and people. In the early implementation TransMilenio, government faced rejection from current public transport providers. In order to reduce the rejection and to make change in people habit, government of Bogota involves cultural agency (IDCT) besides other governmental group, such as transportation, infrastructure, and urban development agencies. Metrovivienda conducted land use rearrangement by relocating the slump/poor and affected area caused by TransMilenio development. This replacement aim is get better quality of life by giving legalized and serviced housing for poor area and better access to the city's economic hubs for all citizens.

   In order to serve their huge number of citizen, government invited various companies to manage BRT operation: trunk and feeder operator, fare collector, fund distributor, and worker association. TransMilenio work professionally with these companies and focus on each company description of function.

   After learning from Bogota, government of Jakarta invited several agencies from neighbor municipalities to implement BRT. The bus association (ORGANDA) was invited into the decision making process and became BRT operator to reduce potential rejection from the current bus providers. Communities and Indonesian consumer organization (YLKI) was invited in decision making to know the people expectation in BRT. Another stakeholder comes from housing developers who gives support by providing feeder bus.

   Due to its geographical, Yogyakarta is located closely to other municipalities. Therefore government invites other municipalities' stakeholder in TransJogja implementation. Yogyakarta government invites transportation agencies from neighboring municipal (Sleman and Bantul municipality). Additionally, Government invites university because they have huge number of student. Those students cause traffic congestion in Yogyakarta, because they use private vehicles. By inviting universities of student the target market of TransJogja, it is expected that students will shift to public transport. Moreover, Yogyakarta has plenty of street vendors, parking attendants, and traditional public transportation. BRT presence will not eliminate their existence.

### VIII.3 Lesson learned

After exploring BRT implementation in Bogota, Jakarta, and Yogyakarta, and identifying the similarities and differences in stakeholder involvement in those cases, the research suggested lessons learned and possibilities to be transferred in Yogyakarta. They are as follows:

1. BRT development requires long term vision of decision makers for long-time planning. Governor or Mayor as the highest administrative rank in municipalities plays an important role as the BRT development activator. In the one hand, Governor and Mayor have limited term of office as municipality leader. On the other hand, it needs longer time in implementing BRT than an election cycle. The delayed process happened in Bogota and Jakarta BRT development, due to governor election. This delay resulted on changing plan. Therefore BRT development needs long term planning.

2. The Bogota government provides good example of releasing the governmental domination in public transport planning and management. They supported private companies and gave them authority to plan and manage TransMilenio operation. TransMilenio recovered its costs through passenger fares and financially sustainable. In Indonesia, BRT operator is part of the government agency and relies on government subsidy. Privatization of the public transport company is constrained by regulation and sharing public-private treasure.

3. In the BRT decision making process it is shown that it is necessary to involve existing public transport providers and know their expectations to reduce conflicts. The government gives the opportunity for the existing public provider to be part of the solution. In order to control them, the government gives assertive regulation and increased competition for-the-market. The competition shown by bidding process in choosing BRT operator, infrastructure, procurement vehicle and human resources.

4. In order to make it success, the BRT development should be followed by development of other supporting facilities and policies. Bogota implements TransMilenio followed by relocating the current public transport to other routes that are not served by TransMillenio route and develop supporting facilities such as park-and-ride and bike-lane. Jakarta implements TransJakarta followed by traffic demand management, such as park-and-ride, parking restriction, and traffic restriction (3-in-1 policy). In addition, TransMilenio development also followed by land use rearrangement by relocating the poor area to other area with better facility and connects them with TransMilenio route.

5. The effectiveness of BRT operations needs to be supported by feeder system. Feeder connects BRT main route of with remote area to capture passenger demand. Bogota has feeder of which they worked under contracts and were chosen by competition. Jakarta has feeder that comes from house developer in suburban Jakarta.

6. BRT development needs supports by socialization. All stakeholders, especially to the community and opposite groups, need to know the BRT decision making progress and be aware to the BRT aims. People need to know the progress to make them feel owning the BRT. The rejections from opposite stakeholder exist because there is a lack of communication with the authority. Information and feedback from all stakeholders are needed to make the BRT successful. The news media plays important role in providing transparent information.

**Table VIII.2** Bogota, Jakarta, and Yogyakarta BRT stakeholder mapping

| BOGOTA-TRANSMILENIO | Position | | | JAKARTA-TRANSJAKARTA | Position | | | YOGYAKARTA-TRANSJOGJA | Position | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | S | N | O | | S | N | O | | S | N | O |
| **Governmental agencies** | | | | **Governmental agencies** | | | | **Governmental agencies** | | | |
| Bogota major | X | | | Jakarta Governor | X | | | Yogyakarta Governor | X | | |
| | | | | | | | | Yogyakarta and neighbors Mayor | X | | |
| Ministry Transport departments | X | | | Ministry Transport departments | X | | | Ministry Transport departments | X | | |
| Secretariat Traffic and Transport | X | | | Municipal Transport Authority | X | | | Municipal Transport Authority | X | | |
| Urban development | X | | | Regional Planning Agencies (Bappeda) | X | | | Regional Planning Agencies (Bappeda) | X | | |
| | | | | Municipal City Planning Department | X | | | Municipal City Planning Department | X | | |
| IDU (Instituto de Desarrollo Urbano) | X | | | Municipal Public Works Department | X | | | Municipal Public Works Department | X | | |
| Cultural and Tourism Local Institute – IDCT | X | | | | | | | | | | |
| Metrovivienda | X | | | | | | | | | | |
| **Professionals groups** | | | | **Professionals groups** | | | | **Professionals groups** | | | |
| Opposing transport provider and association | | | X | Opposing transport provider and association | | | X | Opposing transport provider and association | | | X |
| Land and housing developer | X | | | Land and housing developer | X | | | | | | |
| BRT consultant | X | | | BRT consultant | X | | | BRT consultant | X | | |
| | | | | Banks | X | | | Banks | X | | |
| | | | | | | | | Universities and schools | X | | |
| **Civil society organizations** | | | | **Civil society organizations** | | | | **Civil society organizations** | | | |
| News media (television, radio, newspapers). | | X | | News media (television, radio, newspapers) | | X | | News media (television, radio, newspapers) | | X | |
| Academics and researcher | | X | | Academics and researcher | | X | | Academics and researcher | | X | |
| Resident associations | | X | | Resident associations | | X | | | | | |
| | | | | Environmental association | | X | | Environmental Association | X | | |
| | | | | Municipal Transport Board | X | | | | | | |
| | | | | Transjakarta Communities | X | | | | | | |
| | | | | | | | | | | | |

| BOGOTA-TRANSMILENIO | Position | | | JAKARTA-TRANSJAKARTA | Position | | | YOGYAKARTA-TRANSJOGJA | Position | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | S | N | O | | S | N | O | | S | N | O |
| **BRT Company Provider** | | | | **BRT Company Provider** | | | | **BRT Company Provider** | | | |
| Transmilenio Co. | X | | | TransJakarta Management Unit | X | | | TransJogja Tugu Trans | X | | |
| Bus and driver association | | X | | Busway Transport Worker Union | | X | | TransJogja Worker Union | | X | |
| Trunk line operator | X | | | Trunk Operator | X | | | | | | |
| Feeder operator | X | | | Feeder operator | X | | | | | | |
| | | | | Supporting services operators | X | | | | | | |
| Trust Fund | X | | | | | | | | | | |
| Fare Collector Company | X | | | | | | | | | | |
| **User** | | | | **User** | | | | **User** | | | |
| Car owner and user | | X | | Car owner and user | | X | | Car owner and user | | X | |
| Public transport user | X | | | Public transport user | X | | | Public transport user | X | | |
| Pedestrian and cyclist | X | | | Physically disabled user | X | | | Physically disabled user | X | | |
| Physically disabled user | X | | | Pedestrian and cyclist | X | | | Pedestrian and cyclist | X | | |
| | | | | Indonesian consumers organization (YLKI) | | X | | Indonesian consumer organization (YLKI) | | X | |
| **Other** | | | | **Other** | | | | **Other** | | | |
| | | | | Street vendor and parking attendant | | X | | Street vendor and parking attendant | | X | |
| | | | | | | | | Traditional transport provider | | X | |

*(Source: Analysis)* Note: S=Support; N=Neutral; O =Opposite

# CHAPTER IX
# Conclusions, Recommendations, and Reflections

This research has presented information about stakeholder involvement on Bus Rapid Transit (BRT) implementation in Bogota, Jakarta, and Yogyakarta. This research also explored how stakeholder involvement interacts with technical and social aspect of BRT development. It has also examined the stakeholder involvement process by comparing the BRT implementation, resulting in finding similarities, differences, and lesson learned to Yogyakarta.

This chapter discusses conclusions, recommendations, and reflections as the results of this research based on the findings. Conclusions will provide answers for the main research question. Furthermore, recommendations present all the proposed actions to be taken in order to transfer lessons learned from BRT implementation from Bogota and Jakarta. These recommendations aim to improve the practices of TransJogja.

## IX.1 Conclusion

BRT emerges as the response of rapid economic development and motorization. Yet, the pace of motorization is not followed by sufficient quantity and quality of public transit system, thus increasing private car usage and eventually traffic congestion. Basically, BRT can be defined as public transport mode with bus-tiered based, operating on special infrastructure and has technology due to maintain its usage and operational works frequently and rapidly. However, BRT implementation has challenged on its the decision maker situation and demand action. Financial, technical, and social aspects are difficulties and dilemma in implementing BRT. Public transport is government responsibility. However since the challenge is emerged and became complex, government cannot act as single actor. Top-down approach by government regulatory control is no longer proper and needs to be shifted into collaborative action. Stakeholder involvement is important in planning and developing BRT.

The research applied comparative method by Bogota, Jakarta, and Yogyakarta as object research. They are one root BRT history, which Yogyakarta copied BRT practice from Jakarta, while Jakarta imitated the public transportation system of TransMilenio in Bogota. This makes the comparative result did not find significant differences in decision process. In fact, the research found that there is decreased of BRT facilities since Jakarta and Yogyakarta compromise with their development obstacle.

The research is focus on role of stakeholder in the decision process of BRT implementation in Bogota, Jakarta, and Yogyakarta. It is found that there are six groups of stakeholders in the BRT

decision making process. Those groups are Government, Professional, Civil society organization, BRT company providers, Users, and Other groups. Each of them has own role in BRT development.

Government has role in enacting transport regulation. National government by ministry or other national agency has role in national regulation and guidance to local government. Local government as the executor mandate from national government has role in enacting local regulation and BRT operating rules. The collaborative approach which accommodates the current public transport provider as the BRT provider needs to be controlled by certain regulation to keep the BRT operation under quality service. Then, BRT development facing government management changes by decentralization. Local government needs makes coordination over regional government agencies.

The professional entities have caught BRT development in order to raise their revenue. Instead making opposite public transport provider as an enemy or obstacle in planning process, they have opportunities as BRT operator. They experienced in operating public transport is needed in BRT operation. Moreover, lesson from Jakarta found that land developer has roles in supporting feeder system. BRT offers better connectivity from costumer to their business location. Those examples are mutual benefits on BRT planning and development.

As mentioned before, BRT is complex issue dealing with financial, technical, environmental, and social aspects. Civil society organization has roles in providing information and advising BRT planning and development for those aspects. The research found that academic researchers and the news media are the important civil society organization in Bogota, Jakarta, and Yogyakarta BRT case. Other stakeholders in this group are BRT communities, resident and environmental association.

The BRT provider has role as executor the mandate from the government and answer passenger public transport demand by providing bus and quality service under BRT regulation. The Bogota BRT provider have bigger role than Jakarta and Yogyakarta have. In Bogota, they have role not only operating but also planning route and regulating the operator. However, in Jakarta and Yogyakarta BRT provider only has role in operating the bus. Thus, in Indonesia the BRT providers are difficult to get financial sustainability and depend on government subsidy.

Next, the customer or user group. They are no longer just impacted by transport policies, collaborative approach by the government gives costumer opportunities to take part in decision making. Opinion, advice, and costumer expectation are used in the decision process. In Indonesia, Jakarta and Yogyakarta case, costumer organization (YLKI) has role in as representation in meetings and decision making process.

Lastly, the Other groups. This group only found in Jakarta and Yogyakarta. In these cities, BRT development is dealing with street vendor and parking attendant. Particularly in Yogyakarta, their presence and due technical situation (road width) are burdening Yogyakarta BRT development. Yogyakarta only implements the initial BRT stage. Other stakeholder that found in Yogyakarta is traditional transportation. Despite their presence does not maximize yet, but as

paratransit mode they have potential roles as feeder. They have ability to connect BRT shelter to remote area by door-to-door.

## IX.2 Recommendation

Below are recommendations that can contributed in order to improve of the urban transport system in Yogyakarta after taking practice on lesson learn from Bogota and Jakarta. The recommendations follow:

1. TransJogja development should be supported with urban traffic policies. Nowadays, TransJogja presence did not follow by traffic policy change. Instead, TransJogja presence becomes traffic congestion addition. Learn from Bogota and Jakarta, Yogyakarta government could conduct traffic restriction or relocating current public transport to another route and connects with TransJogja. Compromising approach by Yogyakarta government should be shift to more collaborative. In order to reduce the conflict, TransJogja could conduct traditional public transport as TransJogja feeder, or learning from Bogota, Yogyakarta government could conduct current public transport as feeder transport. Yogyakarta urban public transport route should be rearranged, TransJogja operate on main route Yogyakarta (as trunk route), current public transport operates on secondary route (as feeder route) connecting Yogyakarta with other municipalities. So that, TransJogja not only as urban network public transport, but also as regional network transport system
2. In order to make it independent and profitable, TransJogja management should be privatized. Being under government management, BRT cannot take profit from communities. TransJogja and TransJakarta still dependent on government subsidy for their business operation, this relates on public transport regulation that public transport is government obligation. Bogota gives learn that the Bogota government releases the domination in public transport management and give to private companies. Yogyakarta government could support TransJogja with cross funding subsidy by road restriction tax (such as road pricing policy) or added tax for owning second vehicle. The money from tax will be used for adding TransJogja vehicle and improving other support facilities. Therefore, TransJogja income will be increased follows the increase of its capacity of passengers and result on financial sustainable. Meanwhile, in order to get profit and reducing dependency from government TransJogja need to increasing efficiency, improving service, and gathering funds from advertising.
3. Government should optimize the socialization about public transport, which it could conduct by reducing motor vehicle usage and promoting transit transport and non-motorized vehicle. All stakeholders need to be aware about urban transport changes program. Campaign about this change provided information and feedback from all stakeholders.

4. In order to improve TransJogja's punctuality, TransJogja could learn from Bogota. The Bogota government provides good example in implementing technology on BRT. Although in Yogyakarta has challenges and obstacle in implementing TransJogja due to technical and social issue, the government could improve the technology of transportation. BRT development need followed by urban traffic policies by facilitated TransJogja with signalized system on road intersection.
5. In order to cope with social problems dealing with street vendor and parking attendant, Yogyakarta government could learn from Bogota. Bogota government relocates the slump area to better facilities area. In Yogyakarta, the street vendor and parking attendant which burdening TransJogja development could be relocated to legal area and placed off the road. Street vendor placed on accessible place with Yogyakarta citizens or by TransJogja route. Government need develops off-street parking and uses current parking attendant to work on it or they could be empowered as TransJogja worker or other supporting worker. The replacement is followed by solution, so TransJogja presence will bring quality of life improvement.

## IX.3 Reflection

The choice of research methods used in this thesis is appropriate since it can explain the differences and similarities of stakeholder involvement on BRT development in Bogota, Jakarta, and Yogyakarta by applying comparative analysis and case study research. By knowing the Bogota and Jakarta approach in developing BRT system, Yogyakarta could learn the significant key factors in managing BRT to improve TransJogja service.

Systematic structure in this study is conducted as guidance to answer the research questions. In order to know the differences and similarities of BRT implementation in comparative study, the research starts with exploring the BRT concept and its implementation. Then, it continues on stakeholder involvement in BRT development. The further research is undertaking the comparative analysis in Bogota, Jakarta, and Yogyakarta.

Despite the appropriateness of the research method, there are some weaknesses found in a case study selection. In the analysis, this research used opinion from stakeholders. The research found difficulties in defining the position of the stakeholder. Lack of further information about opinion and sources makes the opinion side selection could tend to be subjective. In order to deal with it, this research suggest in further research using quantitative measure in define stakeholder side selection. This study has also identified the role of stakeholder involvement and its process in decision making. The future research could evaluate the stakeholder involvement techniques and potential new techniques that could be applied, especially on BRT implementation.

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