Improving Public Transport Policy through Social Impact Assessment (SIA)
A Case Study: Bus Rapid Transit (BRT) Transjakarta, Indonesia

Thesis

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ABSTRACT

Public Transport plays a critical role in the social and economic development of cities. Urban travel is a means for people to access different places for social and economic activities, such as work, education, medical care, and family and friends. The vast majority of people in the cities of developing countries travel on foot and by public transport. Low-income people depend more heavily on public transport systems, often have longer journeys to work (time poverty), pay a higher percentage of their income for fares (economic poverty), and are exposed to more risks (traffic fatalities, injuries, polluted air, noise, harassment and theft) than the wealthier people. At the same time, private vehicle ownership is rising rapidly in the Jakarta city, and is thereby competing for space with public transport vehicles and foot- and bike paths. For these reasons, the social impact of transport infrastructure projects needs to be assessed to ensure that adverse impacts can be avoided, and preferably that such projects are able to provide access and improve mobility.

This research aims to explore the social impacts resulting from a local government project in the implementation of public transport service, Bus Rapid Transit (BRT), in Jakarta City. Since early 2004, the operation of BRT, namely Transjakarta, has triggered many social conflicts and tensions between local government and some interest groups. The fears of a decrease in daily income and loss of livelihoods become their main concerns, which induce protests even when the project has not been started. Based on this experience, this research tries to indicate social impacts by using variables commonly used in social impact assessment (SIA). It is expected that there will be some lessons learned about the potential impact in the case new similar project will be established in other places.

Key words: Social Impact Assessment, Bus Rapid Transit Transjakarta

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CHAPTER 1
INTRODUCTION

1.1 Background

Sustainable development is an essential topic in planning, and it has various definitions. One of the accepted definitions is achieving the needs in the present without sacrificing the chance of future generations to fulfill their own needs within the limit of a natural system (World Commission on Environment and Development in, 1987). Another definition of sustainable development is that it is a concept that aims to create a balance between three dimensions of development: economic, ecological and social dimension (Sathaye *et al.*, 2007). Consequently, due to a multiple meaning of sustainable development, its definition has to be defined based on the context and circumstances, whereby it will defined differently according to the given contexts. Thus, it might have different definition in other sectors, such as industry, trade, transportation, etc. Moreover, sustainable development has to be put in a balanced condition between economic, environment and social, in which each sectors have to consider those dimensions and put them together when making policy.

In transportation planning sector, the term of sustainable development also includes economic, ecological and social dimensions. In the economic dimension, the aim of transportation planning is to pursue the economic development in order to maximize the benefits and minimize the costs, particularly in project development either in government project or private project. Besides, in the ecological dimension, transportation planning refers to the consideration of the ecology term reflected on considering the environmental objectives that leads to the environmental impact assessment (EIA). Meanwhile, in the social dimension transportation planning still overlooks the social aspects (less consideration) particularly in the project development.

Regarding the previous explanation, in Indonesia, the implementation of sustainable transportation is assessed still weak, whereby all of dimensions cannot be considered when making policy. Consequently, the economic and environmental dimensions are always considered and social dimension is still ignored. In association with this, sustainable transportation cannot be pursued because there is still another dimension that has not been attained. For example, the emergence of environmental impact assessment (EIA) in the transportation sector that is characterized by the presence of traffic impact analysis (TIA) regulation in 2011. However, the existence of TIA has not included the social impacts of transportation project development. In relation to this, the EIA in the transportation sector has not really focused on making social impact assessment.

In order to achieve sustainable development, the needs of social impact assessment in the policy making processes are required. Nevertheless, this task is not easy because it embraces all impacts on human life (community), such as job issues, financial impact, and security impact (Gars et al., 2009). Besides, the impacts will influence transportation project development as the indirect impact and even

the impacts for the area itself as a whole (cumulative impacts). According to Vanclay (2003) and Vanclay (2012), social impact assessment (SIA) is the processes of analyzing, monitoring and managing all impact of the planned intervention on individuals and communities and it also impacts on both their surroundings by incorporating stakeholder analysis, public participation and community engagement. The aim of social impact assessment is to develop an effective adaptive management and to enhance the strategies to create a more sustainable and equitable biophysical and human environment. Thus, the social impacts emerged have to be managed and mitigated with some strategies and measures because it deals with the social conflict.

In relation to the social impacts in transportation planning, particularly in Jakarta as the metropolitan city and the capital city of Indonesia, the emergence of mass public transport or bus rapid transit (BRT) namely *Transjakarta*, has caused the impacts. Transjakarta started to operate in 2004 with two corridors, which are *Blok M - Kota* and *Dukuh Atas - Pulo Gadung*. Since the implementation of Transjakarta, the study of social impact assessment has not been conducted by the local government, in which the local government only focuses on the economic and environmental dimensions and they ignore to take the social issues into account in policy making. One of the impacts emerging from the implementation of Transjakarta is the operational impact, whereby there is an overlapping route among public transport that also operate in the same route, namely AKAP/*Angkutan Antar Kota Antar Provinsi*. This, consequently, decreases the income of AKAP operators, because the passengers are more interested in using Transjakarta rather than AKAP. Besides, safety impacts with regard to the accident events also occur. This is evident in the fact that the number of accidents reached 461 casualties in 2010 (Source: Polda Metro Jaya DKI Jakarta, Indonesia 2012). Compared to the data from 2009 (303 persons), this number showed a considerable increase. Additionally, in relation to this impact, the implementation of Transjakarta merely encourages the motorcyclists to enter the Transjakarta lane and this often causes the accident caused by the behavior of motorcyclists. Consequently, the Transjakarta party is responsible to bear the accident risks.

From the explanation above, this research will explore the issues and the impacts, particularly the social impacts of the implementation of Transjakarta. This research will also elaborate the social impact assessment of the implementation of Transjakarta, in which this assessment will improve the current policy implementation of Transjakarta.

1.2 Description of Transjakarta Project

BRT Transjakarta is an initial idea to improve the transportation system in Jakarta, which has led to the policy priorities to accomplish public transport use. In doing soit is necessary to build a public transportation system that can accommodate users from various segments of society. TransJakarta project began its operation on January 15, 2004 and is the flagship program of the Government of Jakarta for the development of bus-based public transport. The regional government formulates a macro transportation pattern established by the Governor of DKI (Daerah Khusus Ibukota) Jakarta. The project

is legally supported by the Regulation number 103 of 2007 as an early stage of development of a network of mass transit system using buses on a special lane (BLU Transjakarta, 2014: ITDP, 2012).

Public Service Agency (PSA) of BRT Transjakarta was originally a non-structural institution of the Government of Jakarta, namely the Management Board of BRT Transjakarta/*Badan Layanan Umum Transjakarta (BLU Transjakarta)*, as stipulated in Jakarta Governor Decree No. 110 of 2003. In accordance with Jakarta Governor Regulation No. 48 year 2006, the Management Board of Transjakarta Bus was converted into a structural organization and became a Technical Implementation Unit (TIU) of the Department of Transportation that has an authority based financial management, which main activity is providing services to the user community of Transjakarta Bus (BLU Transjakarta, 2014). The vision of Transjakarta as a public transport is "capable of providing a public service that is fast, safe, comfortable, humane, efficient, cultured, and internationally"(BLU Transjakarta, 2014).

BRT TransJakarta facilities and its infrastructure are designed as a transportation system capable of carrying passengers in a large enough quantity. The infrastructure, management, control and planning system of TransJakarta is provided by the local government of Jakarta, while the bus operations and the receipt of ticketing payment and other supporting activities are carried out in cooperation with many operators serving different corridors of Transjakarta, such as PT. Jakarta Express Trans, PT. Trans Batavia, PT. Jakarta Trans Metropolitan, PT. Jakarta Mega Trans, PT. Prima Jasa Perdana Raya Utama PT. Eka Sari Lorena Transport and etc. (see Table 1.1).

Table 1.1 BRT Transjakarta Operators

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) PT. Ekasari Lorena Transport	Mayasari Bakti, Steady Safe, Perum PPD, Bianglala.
V, VII	PT. Jakarta Mega Trans (JMT)	Mayasari Bakti, Steady Safe, Perum PPD, Pahala Kencana
VIII	PT. Primajasa Perdanarayautama PT. Ekasari Lorena Transport	
IX, X	PT. Trans Mayapada (TMP)	Mayasari Bakti, Perum PPD,
	PT. Bianglala Metropolitan	

Source: ITDP, 2011

At the start of the operation, Transjakarta corridor 1 (Blok M-Kota), the number of passengers was 40,000 per day in 2005 and increased to an average of 60,000 people per day (see Figure 1.1). On January 15th, 2006, the corridor 2 (Pulogadung-Harmoni) and corridor 3 (Kalideres-Harmoni) were opened and the number of passengers reached 70,000 passengers per day. On January 27th, 2007, corridor 4 (Pulogadung-Dukuh Atas), corridor 5 (Ancol-Kp.Melayu), corridor 6 (Ragunan-Dukuh Atas), corridor 7 (Kp. rambutan-Kp. Malaya) began to operate, and on February 21, 2009, the corridor 8 (Lebak Bulus-Harmoni) was opened with an average of 190,000 passengers per day up to October 2010. At the end of December 2010, corridor 9 (Pinang Ranti-Pluit) and corridor 10 (Tanjung Periuk-PGC) started to operate (BLU Tranjakarta, 2011). The Transjakarta Bus lane has the total path length of 123.35 km, which is the longest track in the world in the current BRT system (Dit.BSTP, 2010).

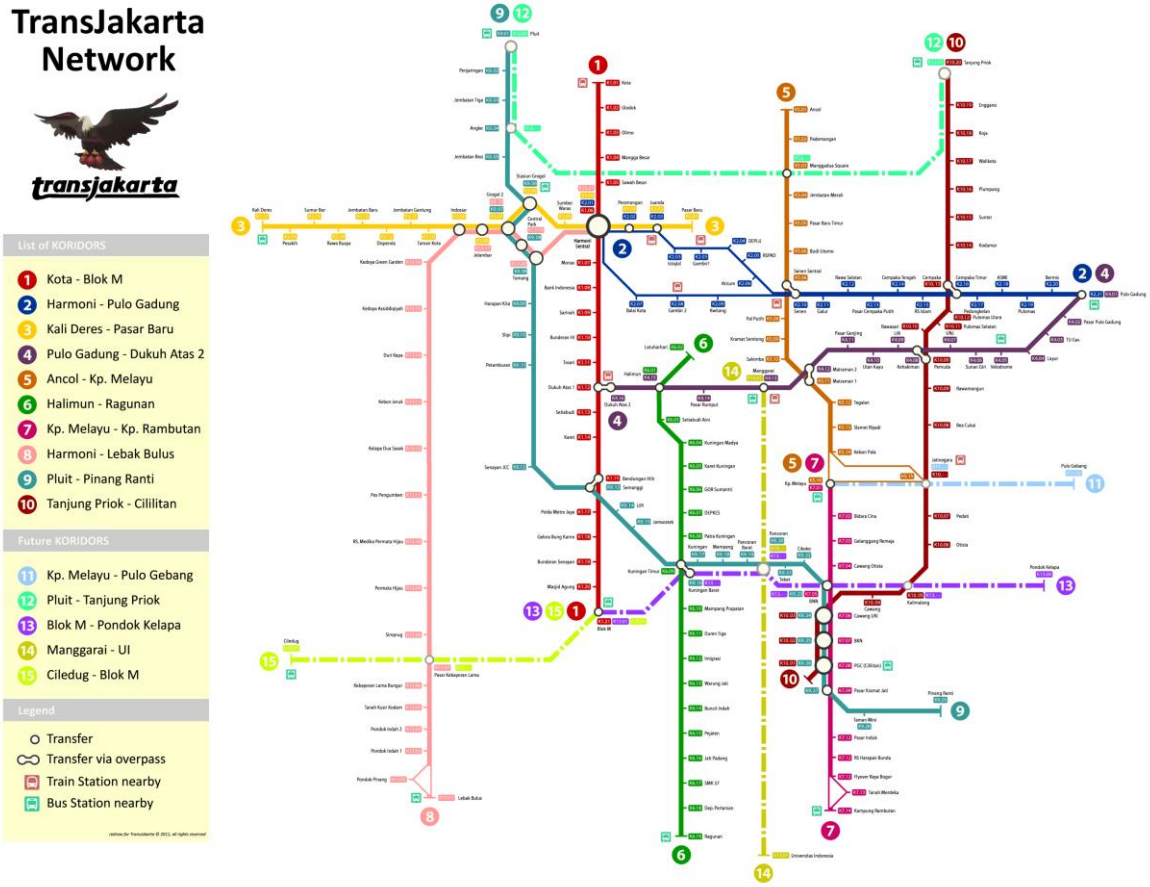

Figure 1.1 Transjakarta Network

Source: BLU Transjakarta, 2014

Caliskan (2006) distinguishes two main groups of stakeholders in the urban transportation system: local authorities and other users of the system. In addition, J. Zak (1999) and Zak & Thiel (2001) specify the passengers, operator/ operators of the transportation system and local authorities as the major entities interested in efficient operations of the urban transportation system. The interests of these groups are often contradictory. Thus, it becomes necessary to search for compromised solutions that would (at least partially) satisfy all the parties interested in the integration of urban transportation systems.

In relation to the case study, the stakeholders of Transjakarta are the local government of Province DKI Jakarta and the local authorities of buffer cities (Depok, Bekasi, Tanggerang, Bogor and Karawang), operators (operator under BLU Tansjakarta), bus operator existing before Transjakarta operates, the transport council, passengers and people who live in Jakarta Metropolitan area. Furthermore, taking into account the covered areas, stakeholders, and the purpose of implementing of BRT Transjakarta, will help to understand the social characteristics and lead to assessing actual social impact.

1.3 Research Objectives

This research aims to identify the potential impacts through social impact assessment and to develop the mitigation actions to manage those the implementation impacts of Transjakarta. This research also aims to provide policy recommendations to improve the current policy enacted in Transjakarta management.

1.4 Research Questions

To fulfill the research objectives, this research will elaborate several research questions as follows:

1. How are the social impact issues considered in Public Transport Policy?
2. How is the Social Impact Assessment implemented in the BRT Transjakarta Project?
3. What are the actual social impacts of the implementation of Transjakarta Project?
4. What are the planned mitigation actions to address the social impacts of Transjakarta Project?

1.5 Research Framework

The theoretical framework (see Figure 1.2) sets the basic analysis to create key development factors as guidelines and becomes the foundation to build a conceptual framework. The objective of the framework is to provide a basic argument from "ideal" theoretical perspectives about possible strategies to manage the social problem emerging from the public transport development project. This research will focus on the Social Impact Assessment theoretical process. Furthermore, the theoretical framework of SIA will be divided into two subparts. The first is the Social Impact Assessment process, and the

second is the mitigation strategies of social impacts. Both theoretical areas will be the basis to identify key factors that are going to be analyzed from case studies in order to design the potential policy recommendations.

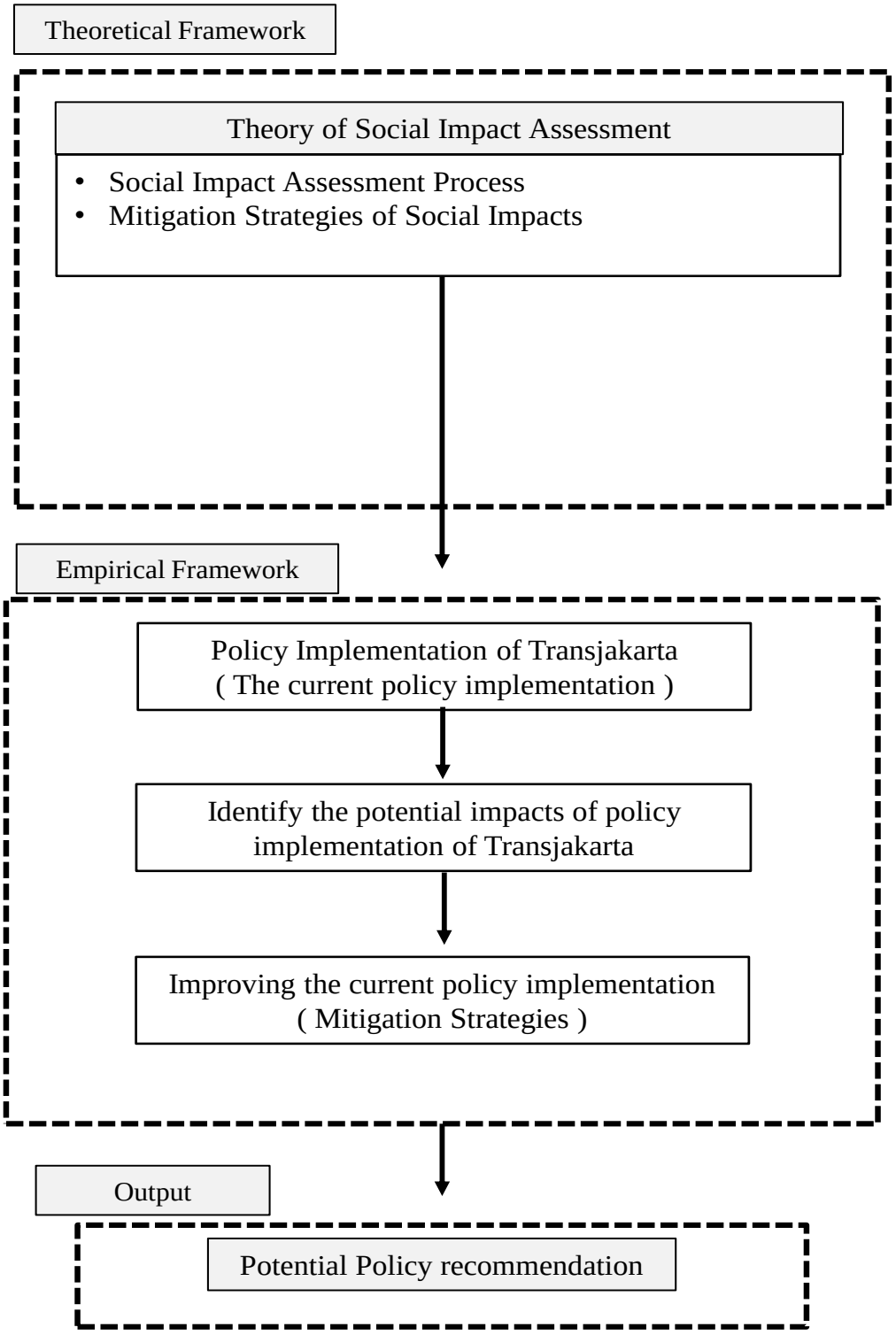

Figure 1.2 Research Framework

Source: Author, 2015

1.6 Research Methodology

This research focuses on a qualitative content analysis approach, where the data collection conducted to answer the research questions is derived from a literature review (e.g. books, articles, journals, document reports, local newspapers, internet publications). In addition, pertinent literatures regarding with the theoretical framework about social impact assessment are reviewed. Furthermore, the literature review can be used to identify the current policy implementation of Transjakarta, and the current practice of public transport in other places as benchmarking to improve the current policy of Transjakarta. Each objective of the research can be mapped to a specific line of data enquiring (see Table 1.2).

A descriptive content qualitative analysis is conducted in this research. According to Neuman (2000), a qualitative analysis refers to a method whereby the data are commonly in the form of text, written words, or symbols as the representation of people's action, ideas, thoughts, and other social phenomena. Furthermore, a content analysis is a method of analyzing based on the texts, documents and written language that aims to distill the words from a wide definition to a specific meaning that focuses on the categories and concepts (Elo and Kyngäs, 2007).

Table 1.2 Research Methodology

Objectives	Data Requirement	Data Sources	Method of Collection Data	Method of Analysis	Output
To identify the social impacts of the implementation of Transjakarta	Operational data of the implementation of Transjakarta	Articles, books, journals, document report and internet publications	Document and literature review	Descriptive content analysis	Social impacts of the implementation of Transjakarta
To develop the mitigation strategies to manage the social impacts of the implementation of Transjakarta	Benchmarking from other country	Articles, books, journals.	Document and literature review	Descriptive content analysis	Mitigation strategies to maximize and minimize the impacts
To improve the current policy implementation of Transjakarta	The current law, regulation and policy of the implementation of Transjakarta	Law, regulation and guideline.	Literature and document review	Descriptive content analysis	Potential policy recommendation

Source: Author, 2015

1.7 Thesis Structures

This thesis consists of six chapters. The content of each chapter is described as follows:

Chapter 1: Introduction

This chapter consists of the background of the study, a short description of BRT Transjakarta, research objectives, research questions, theoretical framework, research methodology with a single case study and the outline of thesis structures.

Chapter 2: Theoretical Review

This chapter explores pertinent theoretical concepts of social impact assessment (SIA) that specifically explain the definitions of SIA, SIA tasks, SIA process and SIA activities. This chapter will also provide a short description on the challenges to implement Transjakarta in relation to the social impacts, and subsequently describes the conceptual framework of the research briefly.

Chapter 3: Social impacts of public transport in other places

This chapter will explain a short overview on the social impacts of public transport in Bogota (Colombia) and New Delhi (India) known as the cities which are successful in implementing BRT. The success of both cities can be a benchmarking optimize the social impacts emerging from Transjakarta. This will in turn help improve the current implementation policy of BRT Transjakarta from the social impact perspective.

Chapter 4: Social impact process of BRT Transjakarta

This chapter will elaborate the current practices and implementation of BRT Transjakarta, including the performance of BRT Transjakarta. In addition, the chapter will also describe the current social impacts of BRT Transjakarta.

Chapter 5: Improvement of the policy implementation

This chapter will explore the potential impacts of BRT Transjakarta implementation by encompassing the direct, indirect and cumulative impacts. Additionally, this chapter will elaborate the mitigation strategies to minimize the impacts emerging from the implementation in order to improve the implementation of BRT Transjakarta policy.

Chapter 6: Conclusion and Recommendation

This chapter will explain conclusions to answer the research questions, and will subsequently provide the policy recommendations based on the research findings.

CHAPTER 2
THEORETICAL REVIEW

This literature review will examine the pertinent theories of planning processes in public transport policy. The first section will discuss the definition of Social Impact Assessment with focus on approaches to decision making in order to provide understanding about the concept and the process. The next section will explain about the social change and social impact. Furthermore, the different terms between social change and social impact related to changes in the society will be elaborated.

The third section will discuss the Social Impact Assessment process that explores the steps to assess the social impacts of the planned intervention (policies, programs, plans and projects). Through the SIA process, the steps of SIA can be easily identified. In addition, the steps lead to the identification of issues and impacts, the mitigation strategies development and the monitoring programs (Vanclay et al., 2015). The fourth section will discuss the development activities through SIA approach that contribute to the development of the policy making process.

Subsequently, the fifth section will explain the challenges to implement the Bus Rapid Transport Transjakarta from the social impact perspective. The last section will present the important aspects represented by the key factors of conceptual framework of this research as the baseline to analyze the study case. The best practice in public transport policy refers to the ideal condition and circumstances of the key factors derived from the theories.

2.1 Defining and Describing Social Impact Assessment (SIA)

Generally, the Social Impact Assessment (SIA) is the process of analyzing, monitoring and managing the intended and unintended social consequences of development, both in the positive and negative directions. The main purpose of the SIA is to bring about a more sustainable and equitable biophysical and human environment. However, there are different levels by which to understand the term 'SIA'. SIA is a field of research and practice, or a paradigm consisting of a body of knowledge, techniques, and values (Vanclay, 2003, 2006). SIA is similar with any social changes processes that invoked by planned interventions (policies, plan, programs and projects). The planned interventions refers to:

1. Specific projects, such as the construction, installation, implementation and operation of a new offshore gas platform or wind farm, the hosting of an event or mega-event such as major festival, or the removal/dismantling of a specific feature of the landscape;
2. Policies, such as the planned implementation of a new biodiversity policy or habitat directive;
3. Plans, such as to increase tourism in a region; and
4. Programs (i.e. collections of various change actions), which might be the implementation of a policy or plan, and would likely involve a series of projects. An example might be a series of management

actions relating to Natura-2000 (the Birds and Habitats Directive) which could involve: changing the zoning of and access to a number of locations; the changing of fishing and shooting provisions; the closure of various walkways and roads and the corresponding opening-up or expansion of others; and the relocation of various facilities or installations.

The aim of the emergence of professional practice of SIA in association to social and environmental research is to inform the practice of SIA itself. As a methodology or instrument, SIA is a process followed by the SIA professionals who aim to assess the social impacts of planned interventions and to develop mitigation strategies for an ongoing monitoring and management of the impacts. Policy makers at the city level are the main users of SIA in that they rely on the SIA report to make better decisions regarding the choices of the proceeding planned interventions that should be applied, as well as to develop and implement measures and strategies to minimize the harm and maximize the advantages from a specific planned interventions with considering the society (Vanclay, 2003). Normally, SIA cannot be undertaken by an individual perspective. Instead, it requires a team as the approaches or SIA community to consider all issues and impacts that might be imposed directly and indirectly to people, particularly in relation to the social impacts.

Some conceptualizations of SIA are related to protecting individual property rights. SIA opens opportunities for early stakeholder involvement by giving information, increasing social awareness, and creating change for negotiation and mediation in formal dialogues, so that both potentially conflicted sides can directly address to main problem and collaboratively find the alternative solutions before the project begins. By doing so, the planned project is not only being able to be implemented appropriately, but also will obtain the supports from all stakeholders (Vanclay, 2003a, 2003b).

In relation to know the SIA process of the case study, the tasks of SIA have to be identified. The tasks of SIA mainly include (adopted from Vanclay and Esteves, 2011; Vanclay, 2012):

1. Making participative and deliberative process which results in the public acceptance on the negative impacts and proposed benefits (negotiated agreement).
2. Identifying the stakeholders' interest to get the understanding (profiling the community).
3. Recognizing the needs and aspirations of communities.
4. Scoping the main social issues to mitigate the negative impacts as well as to create and develop the benefits.
5. Identifying key indicators and collecting baseline data to predict the social changes as the result of the planned interventions.
6. Establishing the predicted changes where communities will respond on them.
7. Identifying the means to mitigate the negative impacts and maximize the positive benefits.
8. Developing the monitoring plan to check the implementation, variations from mitigation actions and unanticipated social changes (mainly the negative impacts).

9. Assisting the proponents in making the draft of social impact management plan (SIMP) that incorporate the benefits, mitigation strategies and monitoring agreements.
10. Putting the process that enables proponents to undertake SIMP and IBA and developing the management actions and maintaining them through the monitoring actions.

2.2 Social Change and Social Impact

Vanclay (2002) explained there are distinctions between social impacts and social changes. Although this research concerns with the social impacts of a government project in urban public transport, it is important to first understand the theoretical background on how these two terms differ. To begin with, the logic behind the process of change and impact in the physical environment is also applicable in social fields analysis. Changes occurring in society – which sometimes caused by a new project introduced into a new area –lead to social impacts. Moreover, the term 'social impact' often used as the measurement variable in SIA documents does not exactly refer to the impacts, but it is more as part of the process. The social impact is more on something that are felt or experienced by human either physical or perceptual.

While social change is more as a direct result of a particular (new) activity or project. Social impacts are triggered by social changes in which community might act differently in responding the possible impacts based on their resistance and vulnerability. However, the SIA variables are not in themselves social impacts, but rather are social change processes and can lead to the social impacts under certain conditions, depending on the characteristics of the impacted community and of mitigation measures. There are no clear explanation about the distinction between social impacts and social changes within SIA documents or literature. There is a list of examples of social changes that are commonly used in SIA. In general, there are seven groups of social changes process, which are potential to happen as impacts of a project (Vanclay, 2002):

1. Demographic processes which incorporate changes in the number and composition of people as usually caused by in- and out- migration, presence of newcomers either for permanent or temporary stay;
2. Economic processes, such as inflation, impoverishment and globalization, which relate to the way in which people make a living and economic activity in the society;
3. Geographical processes which often cause changes in land use patterns, like urbanization, urban sprawl, land conversion, and gentrification;
4. Institutional and legal processes that relate to the efficiency and effectiveness of institutional structures, including government and nongovernment organizations, including decentralization and privatization;
5. Emancipation and empowerment processes, such as marginalization and exclusion, which increase influence in decision making processes;

6. Socio-cultural processes that affect the culture of a society, including segregation and disintegration; and;
7. Other processes.

Moreover, according to Vanclay (2002), social impact assessment has been divided into seven groups of impacts: *social well-being, economic and material well-being, institutional, legal, political, and equity impacts, and gender relation impacts* which are considered relevant to the subject that can be affected by the new government project. As the continuation of changes in society, the social impacts can be either positive or negative impacts, and the experience is also different for each individual or group. There are seven groups as the indicative impacts:

1. Health and social well-being in which the worst case would be death;
2. The quality of the living environment (livability) which is often perceived and each individual might have different standards;
3. Economic impacts and material well-being, such as the standard of living and level of affluence;
4. Cultural impacts, such as changes in cultural values;
5. Family and community impacts such as changes in family structure;
6. Institutional, legal, political and equity impacts; and
7. Gender relation impacts, especially for women.

These general groupings help to consider the possible impacts generated from a new activity or project in a particular area. The ways people perceive the social impacts vary depending on the sensitivity in responding social changes, which are difficult to measure.

2.3 Social Impact Assessment Process

According to Vanclay et al. (2015), the social impact assessment process of the planned interventions uses the phases that consist of four steps, as follows:

1. Understanding the issue
   a. Scoping the location of the proposed project that will impact to local communities.
   b. Identifying laws, regulations, guidelines and standards in national and international level on SIA.
   c. Realizing the "social area of influence" (not only based on geographic boundaries or catchment area overall.
   d. Profiling communities through understanding local culture in order to avoid the misinformation, misinterpretation and also the cons on project proposed between proponents (developers) and communities.
   e. Informing the local communities on project proposed overall; how local communities can participate in SIA and how the grievance mechanism. This has to be transparency and openness to local communities in making discussion and trying to make negotiation among them in order to get the project license.

f. Establishing a participatory process and deliberative action to get the acceptance on the impacts felt by local communities, even the vulnerable people.
g. Scoping the social and human rights issues on what their willingness that should be complied by the proponent. It can be conducted through "mind mapping" the impacts comprehensively.

2. Predicting, analyzing and assessing the likely impact pathways
   a. Determining the social changes, impacts and considering alternatives (through scoping process).
   b. Postulating direct and indirect impacts (through mind mapping process).
   c. Taking into account the cumulative impacts from the past activities (through involving the host communities) and predicting the impacts for future activities. In doing so, those impacts can be managed through integrative concepts (page 47).
   d. Understanding the social responses to those impacts "pro and cons" on the project (how people respond to the proposed project and what the compensation for people to the project, for example the host communities is employed on the project as the empowerment action for local people to improve their welfare.
   e. Prioritizing the impacts into making action, including ranking those impacts and assess the risks through multi-criteria analysis that based on the stakeholders' perspectives.
   f. Evaluating the alternatives and discussing the other alternatives and its impacts to the local people.

3. Developing and implementing strategies
   a. Identifying the potential negative impacts through mitigation hierarchy (avoid, reduce, repair, compensate in kind and compensate by other means).
   b. Extending the benefits and opportunities for local community of the planned interventions.
   c. Developing strategies to encourage local community in facing the changes.
   d. Developing the grievance mechanism and/or procedure to get the feedback from local community.
   e. Making IBA (impacts and benefits agreement) between local communities and developers to result the mutual agreement in relation to the planned interventions.
   f. Assisting the proponent (developers) in making a draft of social impact management plan (SIMP) that include the benefits, mitigation measure, monitoring action and governance arrangements that exist in IBA and also prepare the anticipated strategies (alternative strategies) to tackle the unanticipated issues in the future.
   g. Incorporating the process to the proponents, government, authorities and civil society and stakeholders to develop their own strategies and to maintain the monitoring action in their domain (their responsibility) in relation to IBA and SIMP.
   h. Assisting the proponents in developing and implementing the social performance plans that convey obligations in SIMP.

4. Designing and implementing the monitoring programs
    a. Developing the indicators to check the changes over time.
    b. Developing a participatory monitoring plan.
    c. Considering the implementation of adaptive management and social management system.
    d. Conducting the evaluation (ex-ante and ex-post evaluation) and audit regularly.

2.4 Development activities process through SIA

The social impact assessment approach could contribute to the development process (Esteves et al., 2012). It also gives better development outcomes for the communities because they work with development agencies and private sector companies to design better projects and policies of courses with regulatory agencies to provide much information and ongoing regulation of projects. Burdge (1995) also explained SIA as a systematic analysis in advance of the likely impacts a development process by persons and communities. Development activities typically undertaken in an SIA approach are well established and documented (IAIA, 2009). The activities comprising SIA essentially involve (adopted from Vanclay and Esteves (2011, p. 11-12) :

a. Participatory and deliberative processes as design of the planned intervention. These are also to facilitate community discussion about the future circumstance, the acceptability of likely impacts and proposed benefits and community of SIA. The processes can be negotiated agreement based on free and informed concern.
b. Obtaining a good understanding of the communities likely to be affected by the policies, program, plans or projects, including a thorough stakeholder analysis to understand the differing needs and interests of the various sections of the communities.
c. Scoping the key social issues (the significant negative impacts as well as the opportunities for creating advantages).
d. Forecasting the social changes that may result from the policy, program, plan or project.
e. Documents and analyses the local historical setting of the planned intervention so as to able interpret responses to the intervention, and how to assess cumulative impacts.
f. Identifying ways of mitigating potential impacts and maximizing the positive opportunities.
g. Assisting the proponent in the drafting of social impact management of the projects plan that puts into operational benefits, mitigation measure, monitoring arrangements that were agreed to in the benefit of impact.

In the development process of a country, SIA methods are used to assist decision maker in the decision making and prioritization of social investments by project proponents. Applying the SIA methods to social investment can help navigate the contradictory of potential trends and also contributing to local communities while reducing dependency on short-term projects (Esteves et al., 2012). Additionally, SIA is described as a tool to help structure development and it “responds to

people's needs and is compatible with sociological conditions" (Barrow, 2004). Currently, some organizations have implemented ongoing processes in assessment the policies, management and monitoring – to improve the identification of the social impacts that occur during the implementation of the project and to respond proactively towards change (Frank et al., 2009). With the SIA contributing to the determination of best development alternatives more to offer than just being an arbiter between economic and social cost.

2.5 Bus Rapid Transport Transjakarta challenges from the social impact perspective

Transport plays a critical role in the social and economic development in a country. Urban travel is a means for people to access different places for social and economic activities such as work, education, medical care, and visiting family and friends. The vast majority of people in Asian cities travels on foot and by public transport. The existence of public transport is expected to connect medium- and low-income people to their activities, for instance working, education, and other activities' places so that they can improve their quality of life by accessing as much as opportunities available. A person is socially excluded if he or she cannot participate in one or more normal activities of other citizens in their society (Burchardt *et al*., 1999). One of the broadest recent definitions of social impacts has been provided by Geurs et al. (2009, p. 71), who propose the following definition: "changes in transport sources [infrastructure, vehicles and movement] that (might) positively or negatively influence the preferences, well-being, behavior or perception of individuals, groups, social categories and society in general (in the future)". Herein, normal activities include five dimensions:

a. Consumption activity: being able to consume at least up to some minimum level of goods and services which are considered normal for the society;
b. Savings activity: accumulating savings or owning property.
c. Production activity: engaging in an economically or socially valued activity, such as paid work, education or training, retirement if over state pension age, or looking after a family.
d. Political activity: engaging in some collective efforts to improve or protect the immediate or wider social or physical environment.
e. Social activity: engaging in significant social interaction with families or friends and identifying with a cultural group or community.

Combining the operational definition developed by Burchardt *et al.* (1999) and the conceptual framework proposed by Church *et al*. (2000), the ability of an individual to participate in each of these dimensions is affected by at least three factors:

a. Personal characteristics (personal disability) that potentially create physical exclusion;
b. Characteristics of the area in which he or she lives (geographical inaccessibility) that potentially create geographical isolation, and exclusion from facilities;

c. Transportation characteristics (transport disadvantages) that potentially create economic impact, time-based impact, fear-based impact, and space exclusion. The issue is how public transportation contributes to facilitating or accommodating the three factors so that the individual can participate in each of the normal activities' dimensions mentioned above. The public transport plays a role in providing services at the level that is able to reduce the perceived and actual costs related to personal disability, geographical inaccessibility, and other transport disadvantages. In order to play such a role, public transport should ideally fulfil at least the following four criteria: availability; accessibility; affordability; and acceptability (PTEG, 2010). The definition of each criterion is as follows:
    a. Availability means that the public transport network should be within easy reach of the places in which people live and take them to and from the places they want to go at times and frequencies that correspond to patterns of social and working life.
    b. Accessibility means that vehicles, stops and interchanges, and the access/egress routes to and from these, must be designed in such a way that everyone is able to use them without unreasonable difficulty.
    c. Affordability means that the costs of using public transport should be reasonable for the majority of people.
    d. Acceptability associates with the level of convenience, amenity, and safety of public transport.

A lack of public transport systems which fulfil these criteria can leave people stranded and cut off from opportunities and therefore vulnerable to social impact to the society. Groups of people at particular risk of being excluded in this way include: people without cars, people on low incomes, people living in isolated or remote areas, people with physical impairments, older people, as well as children and young people for whom public transport is a prime means of getting around independently. Lucas (2012) summarized the evidences found in the United Kingdom, society showing that the majority of poorer households experience poor access to private vehicles and public transport services. These transport inequalities resulted in difficulties to access work, healthcare, social welfare assistance, and other key facilities, as well as a decline in travel and social activity, including visiting family members.

As one of the consequences of their unfortunate situation, poorer society is faced with a forced car ownership phenomenon (Currie *et al.*, 2009). The concept concerns the involuntary choice low-income families have when owning and operating cars because no other transport options are available, but they 'need' the accessibility which a car brings. In developing countries, rapid growth of motorcycle ownership may be associated with the similar rationalization.

2.6 Conceptual Framework

Summarizing the theoretical review, there are several key factors that are important to improve the policy through Social Impact Assessment in BRT Transjakarta project (see Figure 2.1). The purpose of a research based on SIA is not simply to obtain empirical or descriptive data. Currently, the process of accepted that social assessment should be tied to a theoretical or conceptual framework and, ideally, the theoretical perspectives that are so much a part of the academic social science should be informing and guiding the policies (Rickson *et al.*, 1998; Taylor *et al.*, 1995).

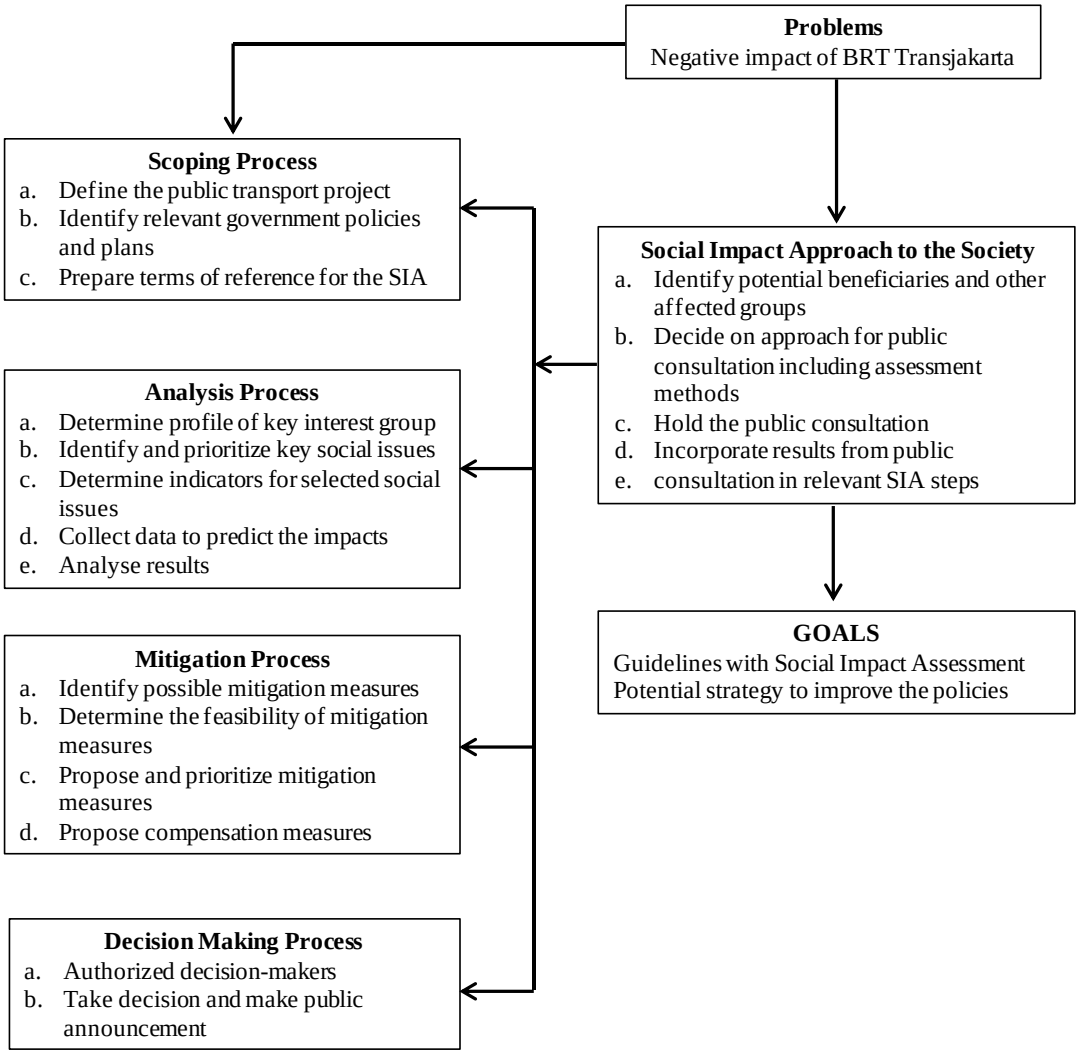

Figure 2.1 Conceptual Framework
Source: Author (2015)

CHAPTER 3
SOCIAL IMPACT PROCESS OF PUBLIC TRANSPORT IN OTHER PLACES

3.1 BRT in Global Review

After being first introduced and successfully operated in Curitiba Brazil in 1974, BRT has been expanding rapidly in all over the world. Curitiba's BRT witnessed a similar increase when initially opened, and was able to increase ridership by 2.36% a year for over two decades, enough to maintain the public transit mode share when every other Brazilian city was witnessing significant declines. 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) (Hidalgo and Gutiérrez, 2013). The reasons why BRT becomes popular are that BRT has a minimum cost in building its infrastructure, high performance and impact, and in the implementation it is faster.

As shown in Table 3.1 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 3.1 BRT development around the world in 2014

Regions	Passengers / day	Number of cities	Length (km)
Africa	262,000 (0.8%)	3 (1.54%)	83 (1.6%)
Asia	8,734,622 (26.94%)	40 (20.61%)	1,380 (26.99%)
Europe	1,969,961(6.07%)	56 (28.86%)	935 (18.28%)
Latin America	19,978,275 (61.64%)	62 (31.95%)	1,740 (34.02%)
Northern America	1,036,057 (3.19%)	27 (13.91%)	880 (17.2%)
Oceania	430,041 (1.32%)	6 (3.09%)	96 (1.87%)
Total	32.410.956 (100%)	194 (100%)	5.114 (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 conditions in public transportation. Jakarta and Seoul adopts their BRT systems 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 growth 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).

3.2 Social Impact Assessment of BRT Trans Milenio in Bogota, Colombia

Bogota is known as a city that successfully implements a bus rapid transit system and Jakarta pioneered the operation of BRT in Indonesia. By knowing the Bogota approach in developing the BRT system, how Bogota reduces the potential conflicts or deals with the social issues in public transport may shed lights on the best way to implement the system in Indonesia. 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 at 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 is led by a Principal Mayor and is assisted by The District Council. They are chosen through a general election, the same way like the presidential election system. They both are in charge for city organization and management. The city is divided into 20 districts and run by an administrative panel of which members are elected by majority voting and consists of more than seven members.

This city has long experienced implementing the Bus Rapid Transit (BRT). Bogota's BRT emerged in order to cope with the Bogota transport problems. Transportation has been a sensitive issue in Bogota since Bogota is the center of national economic growth and the biggest city in Colombia. Bogota's BRT development faced political, financial, and social issue. In order to improve their public transport, Bogota municipality began to regulate, organize, and manage public transportation by BRT, called Trans Milenio. Trans Milenio presence is causing a decrease of traditional public transport and private automobile usage. The name of TransMilenio was first derived 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 have 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 design started in 2000 and finished in 2006 (NBRTI, 2006). Initially, TransMilenio projected 170 kilometers of lanes in 2011, but in 2012 Bogota has 84 km completed lanes and other 20 km was in an ongoing progress (The Atlantic Cities, 2012). **Figure 3.1** 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 on whether or not to develop new transport modes due to TransMilenio's capacity (IFHP, 2013).

The BRT Transmilenio project was designed to reduce rivalry between the "semi-formal" public transports. However, this scheme creates further competition between the formal Transmilenio bus and the association of individual bus owners together with the union of semi-formal bus operators whose businesses are being put out. They protest for the unfair integration of Transmilenio feeder system and for the public transport oligopoly created by this BRT system (Porter, 2010). To relieve the problem of competition between the formal transport modes and the semi-formal operators, a proposal initiated by the Public World Organization as possible intervention to the World Bank – Transmilenio – project cycle can be taken as appropriate strategies. This project is emphasizing on the importance of conducting an early impact assessment (ex-ante evaluation) and stakeholders' participation in every phase of the project plan to implement.

Figure 3.1 Public Transport in Bogota
Source: ITDP (2007)

The overall structure of the TransMilenio system, with a publicly-owned company (TransMilenio SA), has an overall responsibility for system management and quality control. However, TransMilenio SA itself is an organization of only approximately 70 people, with oversight for a system in a city of seven million inhabitants. Private sector concessions are used to deliver all other aspects of

the system, including fare collection and bus operations. The director of TransMilenio reports directly to the Mayor's office. Thus, TransMilenio and the municipal government are able to leverage private sector investments and defer a large portion of the financial risks while retaining overall control on the shape of the system. 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. In the case of TransMilenio, the private sector operators were responsible for purchasing the buses, and thus allowing the public sector to focus its financial resources on the provision of infrastructure.

3.2.1 Implementation problems

The first approach, which is integrating the semi-formal operators into a single provider called BRT, seems to be not quite successful in terms of its failure in creating equal opportunity for all informal/semi-formal transport providers to join the new system. Additionally, there seems to be a miscalculation in the labor analysis so that not all of the semi-formal providers can get the employment compensation. As a result, many non-BRT bus companies still operate in a "traditional" way. Furthermore, the instrument to integrate urban transport system in Colombia results in a further competition because there was an absence of adequate consultation with workers and their representatives in planning and implementation stages of BRT project. There is also a lack of political support for operators outside the BRT system (Ardila, 2005, 2007; Porter, 2010).

As mentioned earlier, there are no particular programs or instruments specially designed to tackle the competition between the formal BRT system and the informal/semi-formal providers. This problem occurs due to the fact that BRT implementation in Colombia becomes the "pride" of the country. BRT practices in Colombia, especially Bogota, often become the reference for many cities of developing countries who want to copy or follow the system. Therefore, BRT operators have a stronger bargaining position in the public transport market. In fact, there is an inequality of political support between the formal and informal providers. Finally, the absence of instruments to relieve the conflict also happened because the Colombian authorities appear to be resistant toward social dialogues with representatives from the worker's groups affected by the public transport reformation (Ardila, 2005; Porter, 2010).

3.2.2 Optimization from the impacts

In order to optimize the BRT service without ignoring the social impact that has been caused, there are several approaches proposed to reduce the social conflict. In general, there are some essential points that are appropriate to manage the problem. The first one is conducting impact analysis in project preparation stage which focusing on social and economic aspects. The second is forming an alliance between trade associations to strengthen the bargaining position. The third is lobbying the regulatory bodies to promote instruments to reduce the existing competition and supporting the making of formal complains through dialogue and negotiation. Finally, the fourth is evaluating and monitoring for the implementation of the project and the selected instruments (Porter, 2010).

Various sources indicate positive impacts from the implementation of this BRT project in Bogota City. The Bogotá's Real Estate Exchange (Lonja de Propiedad Raíz, 2002) reported actual increases in land price in areas less than 1 km from TransMilenio between 2000 and 2001, during a period in which average land prices dropped in the city at large. Studies on the hedonic prices based on panel surveys conducted in 2002 (housing rentals) and time series for 2000-2004 (new real estate developments) reflect positive trends in the land prices in areas that are within walking distance from TransMilenio stations (Barrios, 2002; Muñoz-Raskin, 2010; Rodriguez & Targa, 2004).

There are variations in the results depending on socio-economic class (positive for middle-class, negative for lower income and upper-class categories). In contrast, negative impacts on housing have been seen in the immediate vicinities of stations; possibly due to the greater commercial use and the negative effect of noise and perceived safety (Rodriguez & Targa, 2004). For a more complete list of land use impacts of the TransMilenio system see Estupiñán (2011, pp. 34-43). According to statistics from the Center for Criminal Investigations of the Bogotá Metropolitan Police, the aggregate crime rate in the area around Av. Caracas dropped until 85% between the period prior to (1999-2000) and following (2001-2002) the implementation of TransMilenio (Moreno García, 2005).

While research on the road safety impacts of BRT systems is less developed than the other impact areas, recent studies have shown that BRT corridors can have a positive impact on traffic safety by reducing the frequency of traffic incidents, injuries and fatalities, even when controlling for citywide trends in accidents. Bocarejo et.al, (2012) found that the Bogota's TransMilenio has contributed to reductions in crashes and injuries on two of the system's main corridors. Duduta et.al, (2012) confirmed these findings for Bogota and present additional evidence of positive safety impacts through this implementation of BRT.

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

All of these stakeholder interest react positively 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). BRT in Bogota 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. Transmilenio presence also shows that public transport users give positive reaction by shifting their choice of transport mode to TransMilenio. TransMilenio presence results in a non-motorized infrastructure improvement. For physically disabled users, TransMilenio gives reliable condition for them as they can travel easily. Therefore their position is supporting BRT development.

3.3 Social Impact Assessment of Metro in New Delhi, India

In 2006 the Indian Government launched its National Urban Transport Policy. This policy has an explicit focus on "equitable allocation of road space" and specifically encourages public transit and non-motorized transport. The assessment of equity is thus an important element of any SIA of a public transport project in India. This is important because individual public transport systems are part of a broader transport system, which in turn is defined by broader urban development plans. For this reason, efforts to assess and mitigate adverse social impacts of individual transport projects, and strengthen positive ones, should be placed into this broader context in order to be meaningful and effective. For example, providing better access for pedestrians and cyclists to a newly constructed metro system will only be possible if the city's transport plans or urban plans promote pedestrian and cyclist access to public transport in general. Similarly, poverty alleviation objectives could be translated into fare subsidies or to better access routes for poorer people to commercial areas for employment. This assumes collaboration between different municipal agencies or units. The greater the consistency between government policies and plans on the one hand and the public transport project on the other, the higher the chance of success of the SIA.

For most analyses or assessments, it will be necessary to further analyze some of the key interest groups, such as different groups of passengers. For example, if passengers in wheelchairs or working women were identified as key interest groups, and a survey is the chosen assessment method, then you need to know how many people with wheelchairs and how many working women are in the city and

where they live, work, or travel. This in turn will help determine the sample size of the survey, and how the survey should be carried out. Much existing data can be obtained from the sources listed:

1. Government agencies, for example: census data from the statistics bureau.
2. Public/community groups, for example: an existing survey of disabled people by an NGO, or of working women by an association.
3. Private sector organizations, for example: annual reports from labor unions.
4. Other organizations, for example: past studies carried out by development agencies.

3.3.1 Implementation problems

In the Delhi Metro development, one of main social issues was the impact of public transport projects on the socio-economic well-being of the urban poor. This includes impacts on gender, literacy, living conditions, housing, income, and assets. The indicators were mostly determined for different target groups. For example, selected indicators for socio-economic well-being of households include:

1. Ratio of the number of girls going to school to all children of school-going age;
2. Ratio of literate adults to all adults;
3. Availability and quality of infrastructure as a score (electricity, water, and toilets);
4. Number of years spent in current domicile compared to the number of years spent in the city;
5. Work participation ratio;
6. Per capita income;
7. Per capita vehicle ownership.

The impact of the public transport project can then be understood in terms of the change for the better in these indicators. In the particular example, this impact should be determined for households in the vicinity of the project as well as households relocated due to the project. Secondly, if there is more than one indicator for a social issue, then the measurements for these indicators should be combined into one index. For the example above, an accessibility index would aggregate the four indicators for accessibility: spatial distances per household to education, health care, urban services, and bus stops. Weighting factors are needed to determine the relative importance of each indicator before they are aggregated (Arora, Anvita, and Geetam Tiwari, 2007).

Relocation due to the construction of the Delhi Metro proved to have a significant negative impact on the social well-being of affected households. The reason is that the relocated households were given land (short-term leases) as compensation, but their loss of income, increased cost of mobility, dropping out of school, and asset losses were not accounted for. This compensation measure is therefore not feasible. Relocating households within the vicinity of the metro or providing proper and affordable bus services to areas where relocated households live could significantly reduce these impacts.

3.3.2 Optimization from the impacts

Introducing BRT service becomes an important component within the transformation of public transport system from the fragmented and inefficient system to the integrated rapid transit system. Some of the cities in India have already had the initiatives to improve their public transport system by proposing the integrated system and installing BRT network within their local authorities, aimed to provide transport service for people who are unable to access the private motorized transport modes.

As a part of the explanation, a plan for monitoring and managing the measures to address social impacts is prepared. Such a plan is needed to ensure that approved measures and recommendations are indeed adopted and to determine whether the measures achieve their intended effect of reducing adverse social impacts. Furthermore, monitoring will allow further adjustments to be made during the construction or operation of the public transport system. It is possible to describe how monitoring and management will take place as early. It should also be noted that if the monitoring and managing of social impacts is enhanced, this will have to form a part of an integrated public transport system.

When studying the groups affected by the Delhi BRT, different assessment methods were chosen depending on the target groups:

1. Face-to-face interviews with the commuters of buses and feeder modes as well as the drivers.
2. Interviews as well as a space surveys for hawkers and vendors.
3. Observation surveys for parked vehicles.
4. Public hearings for Resident Welfare Associations.

For an SIA conducted after the opening of Delhi Metro, face-to-face interviews at the household level were conducted. For every question, the questionnaire asked for details before and after the implementation of the metro, although the study was entirely conducted post-metro. Suggestions from the public consultation process resulted in important modifications of the design of the Delhi BRT. For example, the cycle lane was redesigned to include two-way traffic of cycle rickshaws carrying passengers and goods. A disability audit of a short stretch of the BRT corridor was carried out, and the design was amended to address access and safety concerns of people with disabilities.

CHAPTER 4
SOCIAL IMPACT PROCESS OF BRT TRANSJAKARTA

4.1 Role Public Transport in Jakarta

Developing countries like Indonesia experience a rapid population growth, particularly in urban areas. The increase is often faster than the development pace of public infrastructure and facilities including in the transportation sector. In Jakarta, inadequate public transport facilities increase the number of car and motorcycle ownership, which in the end worsens traffic congestion. However, some people who cannot afford to buy private vehicles are still dependent on public transport, and in some cases, those who have car, instead reluctant to use it because of the traffic or accessibility problems also prefer to use public transport facilities. Additionally, the lack of public transport service, especially the formal operators, due to fast increase of population has been mostly replaced by informal operators. This type of service is often become the favorite option for the minority group who cannot afford to pay more for their mobility. In brief, public transport is crucial for personal mobility and access to employment opportunities for low income citizens (Iles, 2005).

4.2 Implementation of BRT Transjakarta

The implementation of a mass transportation system is expected to be able to reduce traffic congestion, reduce pollution, conserve energy and promote social equity. However, practically in developing countries, it often competes with private vehicles and another types of public transport modes 'conventional' regional transport modes, especially in cities developing countries. In the case of Indonesia, private vehicles like car and motorcycle, are currently very easy to get. Boosted by the economic growth, each household is able to own one. The wide-spread structure and pattern of urban areas, which expand until the boundary of central cities causing urban sprawl, and have made the existence of private vehicle become more important for the ease of accessibility. The fact that most local government in Indonesia cannot provide public transport services that are comfortable, affordable, and convenient, also worsen the condition featured by an increased number of private vehicles (Cervero, 1998).

As cities grow, the needs of improving public services are getting higher, including the demand of public transport service. However, many local governments in Indonesia fail to fulfill the public needs. Additionally, most of the public transports services existing in the cities are provided by private owned companies or individual businesses. Moreover, the services they delivered are still far from the expected, as observable in various problems including delays, the absence of clear timetable, uncomfortable facilities and careless drivers. Two points that make this conventional public transport still attractive are because it is affordable and able to 'serve anywhere', which mean the public vehicles can stop anywhere the passenger want to hop on and off the car or bus.

The failure of local government in providing a sufficient public transport services results in an increasing number of private vehicles. Having one or two private vehicles in one family becomes the best solution for time and comfort reasons. However, this trends finally carry its own problem rather than a solution. With the increasing number of private vehicles, the existing roads cannot 'contain' them all at the same time. As a result, traffic jam almost always happens in peak hours. In the end, the recurring demand rises again for the local government to handle the acute traffic jam by serving a better public transport in order to reduce the use of private vehicle. In addition, the similar cases occur in almost all big/metropolitan cities in Jakarta city, Indonesia. To respond the 'national' problem of urban public transport, the central government of Indonesia issued the Act number 22/2009 about Traffic and Road Transport. In this national act, article number 158 stipulated about the responsibility of cities – especially big/metropolitan cities inhabited by more than 500,000 people – to provide mass public transport. One concept proposed as the mass public transport system is using Bus Rapid Transit (BRT). Nowadays, many cities in Indonesia have been adopting the concept of BRT although in a slightly different ways. This idea becomes a common theory used by many local governments to solve their transport problem, and this showed by the mushrooming method of BRT as the promising solution. However, the results of implementation in each places are different. This condition proves that similar recommendation of implementing BRT is not always applicable in all places.

The implementation of BRT in many cities in Indonesia impacts on the decreasing of private vehicle usage that also affects on reducing traffic congestion. Basically, since the first implementation of BRT Transjakarta in 2004, the number of passenger is increasing per year. The percentage of increasing number of passenger of BRT Transjakarta from 2004 until 2013 was 10.54%, in which this persentage is tandem with the presence of an additional corridors (see Table 4.1). However, in line with the increasing number of private vehicles (in 2013 until 11% per year), particularly motorcycle, in 2013 the number of passenger of BRT Transjakarta is decreasing (Directorate of Road and Traffic Management, 2014). The decreasing number of passenger impacts on the declining the public interest to use Transjakarta as a choice public transport mode.

Table 4.1 Total number of passenger of Transjakarta

No.	Year	Total Passenger	%
1.	2004	15,926,428	-
2.	2005	20,799,063	23.4%
3.	2006	38,811,134	46.4%
4.	2007	61,439,961	36.8%
5.	2008	74,619,995	17.7%
6.	2009	82,377,670	9.4%
7.	2010	86,937,488	5.2%
8.	2011	114,783,824	24.3%
9.	2012	111,251,869	-3.2%
10.	2013	71,911,488	-54.7%
Average			**10.54%**

Source: BLU Transjakarta, 2013

4.3 The Performance of Transjakarta: A Review On Previous Studies

An adequate public transport service is a problematic matter in Indonesia. Most cities are facing downward trends in public transport ridership, not only because of the worsening quality of the service but also as the result of rapid growth in motorcycle use (Dirgahayani and Nakamura, 2012). For captive users of public transport, their urban mobility depend on paratransit, a minibus public transport with a capacity of 12-14 seats or known as *angkot*, as well as conventional medium- and large-buses (Susilo *et al*, 2010). Most of the users perceive para-transit in negative ways, particularly in terms of overcrowding, reliability and safety, although they are still willing to use the service if improvement is put in place (Joewono and Kubota, 2007; Susilo *et al*., 2010).

In Jakarta Metropolitan Area, using public transport is more challenging. Based on our survey back in 2009 (Dirgahayani *et al.*, 2009), 42.6% of public transport users in the sample have to make transfer twice, while 36.2% three times. By splitting the data set based on current mode, one access mode tends to be enough to access train as main mode (29.3%), while the remaining 14.9% requires two access modes. To access train almost 30% uses motorcycles and parks them in the parking facilities around the train stations, or else they tend to use motorcycle taxi (22.2%) followed by small/medium buses (18.5%). After alighting from train, 59.2% transfers to small/medium buses to reach their office. While for trips where train as the third mode, the typical trip chain started with small/medium bus, and then take motorcycle taxi or walk to reach the station, followed by small/medium bus as the egress mode. Tendency to require one access mode is also found in large bus trips, of which motorcycle taxi is dominating (30.8%), followed by car (23.1%). Different from the train case, car is used as access mode for kiss-and-ride. Whereas for trips requiring two access modes, the first mode is mostly walking to the bus stop or terminal (80%) and then ride small/medium bus (60%).

It can be underlined that small bus, medium bus, and motorcycle taxi seem to be the most preferable access and egress modes, no matter what the main mode is. It actually makes sense, since their high penetration on narrow streets and vast service coverage deeper into residential areas are their major benefits. In this sample, it is also found that the phenomenon in using private modes as access mode has emerged, especially motorcycle for park-and-ride and car for kiss-and-ride. Such complexity has compromised these travelers' total travel time and has become the most influencing factor for not using public transport, except for those who do not have private vehicle or other alternative modes (Dirgahayani *et al.*, 2009; Susilo *et al.*, 2010). Furthermore, this complexity is intensified by the fact that the time punctuality, reliability, and safety of the services are low (Susilo *et al*., 2010).

As a response to the declining use of public transport and the overwhelming motorization, the Government of Indonesia enacted the new Transportation Law No. 22/2009. The law specifically promotes a pro-public transport policy development in cities. In Article 158, it explicitly states that the government must ensure the availability of land-based mass transit system to meet urban mobility needs. As the implementation of the law, the Ministry of Transportation (MoT) provides technical

assistances to promote smart bus-based urban transport systems in order to gradually replace the old buses and restructure the existing bus routes to create a more efficient city bus network. It was inspired by the success of BRT Transjakarta, a bus rapid transit system that has been serving Jakarta since 2004. Through the scheme, MoT funds several bus vehicles and supports some of the infrastructures.

As the oldest and largest network of BRT in Indonesia, Transjakarta provides better level of services compared to the existing public transportation modes in Jakarta. The study carried out by Joewono *et al.* (2012) showed that most of the existing users ride busway because the service provides faster trip, while the rest use busway because they do not have private vehicles and the fare is cheaper than other modes. Overall, Transjakarta's service was, however, perceived as fair to unsatisfactory. The reason of such perception is caused by the gap between their image of expectation and actual experience. Furthermore, only the first corridor provides a better quality of service, which was the most well-known corridor and was recorded as an example of the success of BRT in Indonesia, while the remaining corridors provide different levels of quality.

After nine years in operation, the shift from private mode users to Transjakarta remained low, about 24.9% from motorcycle and 10.3% from car.[1] Poor service quality is seen as the main cause that hinders people from shifting to Transjakarta. Reliability continued to be a huge problem due to unsterilized lanes as well as shortage of fleet. Another problem is the connectivity from suburb areas in Greater Jakarta to Transjakarta networks. The absence of feeder services that serve passengers in Greater Jakarta Area has presented the opportunity for private companies to operate their own feeder services to the nearest Transjakarta's end terminals. By 2010, there have been 9 (nine) feeder services in operation, provided by real estate companies of suburbs residential areas. More recently, the authority provides 3 (three) feeder services with inner city loop routes (Transjakarta, 2011). Whilst for other commuters, ITDP survey in 2010 revealed that 75% of Transjakarta passengers take medium buses or *angkot* to access Transjakarta system, despite the poor conditions of the buses.[2] There are also many rooms to improve in terms of the convenience of interchange facilities (end terminals, integrated interchange points, and intermediate shelters).

[1]Tambun, L.T. (2013) TransJakarta Falls Short of Expectation, Jakarta Globe, 16 Januari 2013, available online at http://www.thejakartaglobe.com/jakarta/transjakarta-falls-short-of-expectations/565904, accessed on 25 June 2015

[2]____ (2012) Implementing Low Carbon Public Transportation – Direct Service Report, Institute for Transport Policy and Development (ITDP), available online at http://www.itdp-indonesia.org/index.php?option=com_content&task=view&id=1555&Itemid=75, accessed on 25 June 2015.

4.4 Current Social Impact of BRT Transjakarta

The explanation for the existing conditions during the development process of the Transjakarta project is given to bring a better understanding about the issues. Furthermore, the prediction, analysis and assessment about the possible impact pathways conducted to overcome the issue with the possible mitigation strategies. Based on time and space point of view, the social impacts are classified into three following types (Vanclay, 2015):

1. Direct impacts – occur at the same time in the same space as the activity;
2. Indirect impacts – occur later in time, at a different place from the causal activity, or as a result of a complex pathway;
3. Cumulative impacts – determined from the reference point of the receiver, the totality of impacts experienced.

Transjakarta lane construction has been a controversy since 2004. Even some organization societies and people around the city reported BRT Transjakarta to court because of congestion around the site Trasnjakarta track project execution becomes more severe than usual. Transjakarta line construction projects are also considered to be damaging to the environment such a beautiful cottage areas, residents rejected the construction corridor VIII Lebak Bulus-Harmoni route because they will damage hundreds of palm trees that have been around for decades and have been the beauty of the road median metro cottage beautiful (MTI, 2014). The existence of BRT Transjakarta as one kind of the public transportation in Jakarta certainly invites the pros and cons from the people in Jakarta. However, in general, the proportion of people who against the project is higher, so much criticism from the public is leveled against the planning that comes from the government side (Purplenitadyah, 2012).

Since the BRT Transjakarta is a "concept" from the Department of Transportation in Jakarta Government, the BRT Transjakarta plays a role as an "executor" or executing the plan. However, it is not a simple problem that can be dealt with certain approach like technical rationality. It is a complex problem. According to De Roo (2003, 2006, 2010), complex problems should be dealt by a communicative approach, such as participatory planning, collaborative planning, coalition planning etc. In participatory or collaborative planning, social characteristics are really important to understand to lead to a deeper understanding about the social impact from project development.

There are some social characteristic and actual social impact that will discussed in this research which related to social issues of public transportation system through implementation of BRT Transjakarta:

a. Traffic jam was increased by Tranjakarta Bus because the lane is usually able to be used by all vehicles, however, currently can only be passed by bus Transjakarta. It seems as paradox because in one hand the one of the purposes of BRT Transjakarta is reducing traffic jam, but it increases the traffic jam instead. It is caused by the decreasing road capacity for other transport mode along the lane of BRT Transjakarta.

b. One of the public transport which contributes to the number of traffic accidents is BRT Transjakarta. The accidents in BRT Transjakarta lane continuously increased from 2004 until 2010. It can be seen from the table below.

Table 4.2 Number of accident case in BRT Transjakarta's lane

Year	Number of accidents	Number of victims		
		Minor injuries	Serious injuries	Died
2004	5	-	-	-
2005	13	4	8	-
2006	31	5	15	8
2007	66	37	28	7
2008	167	112	42	13
2009	231	220	36	12
2010	81	31	22	8
2011	7	13	1	1
2012	15	10	5	7
Total	616	432	157	56

Source: Polda Metro Jaya DKI Jakarta, Indonesia 2013

Most accidents occurred between BRT Transjakarta and motorcycle (see Figure 4.1). The lane of motorcycle or general lane is jammed, because the riders break into the lane of BRT Transjakarta (Amelia et.al, 2012). It is very dangerous for the riders as well as for passengers and driver of BRT Transjakarta. Sterilization for the lane of BRT Transjakarta is needed.

Figure 4.1 Transjakarta Bus Lane
Source: BLU Transjakarta, 2015

c. Another problem is a conflict between the organization of other public transport and BRT Transjakarta due to the passengers shifting modal to BRT Transjakarta. Consequently, the other public transport modes' income declines and they eventually suffer losses, stop working and become unemployed (Abdulah, 2014). Social issues like this not yet known by the manager and founder BRT Tranjakarta earlier because they only did Environmental Impact Assessment. Rimanews (2011), said that the amount of unemployment among public transport will increase because the Transjakarta operates in their track. Based on data from the General Service Board BRT Tranjakarta (2014), although BRT Transjakarta generates job opportunities for many people working there, its existence will kill other public transports in Jakarta because they cannot compete with BRT Transjakarta's better system. As a result BRT Transjakarta also brings about an indirect effect of "generating unemployment" from the other public transports (Rimanews, 2011).

d. There are still many complaints from users or public regarding the inconvenience, which is about the proximity or distance between shelters, because they are too far from one to another shelter. Many people are still reluctant to use it, they have to walk first to find the nearest shelter and then they walk again to reach the destination (Kompas, December 2009). In addition, the number of busses operated still limited which is 20, and not all shelters have open the ticket counter and security, only in some shelter provided with these services; therefore it is also not safe to wait the bus in the shelter.

e. It is related to people's habit or attitude in using public transport means. Most citizens are not accustomed to use this type of transport mode because it cannot stop everywhere. So, again, they have to walk before or after using this BRT bus to reach the destination place. The option to use private transport mode still become the best choice for the convenience and efficiency travel time.

f. The new buses were not yet substituting the informal transport modes and the project is not followed by the improvement of the supporting infrastructure, such as road capacity and quality. As the result, congestion still happens up until today and the operational of BRT even worsen the congestion at some points.

g. Jakarta as a capital city is surrounded by the buffer cities: Depok, Bekasi, Tangerang, Bogor and Karawang (see figure 5). The population of Jakarta is more in the morning than evening because many inhabitants from the buffer city came to Jakarta to get work. It makes Jakarta more crowded and traffic jump anywhere. The local authority Jakarta has already tried to find why to make integration between the local authority of the buffer city, however, it is not going well (MTI, 2014).

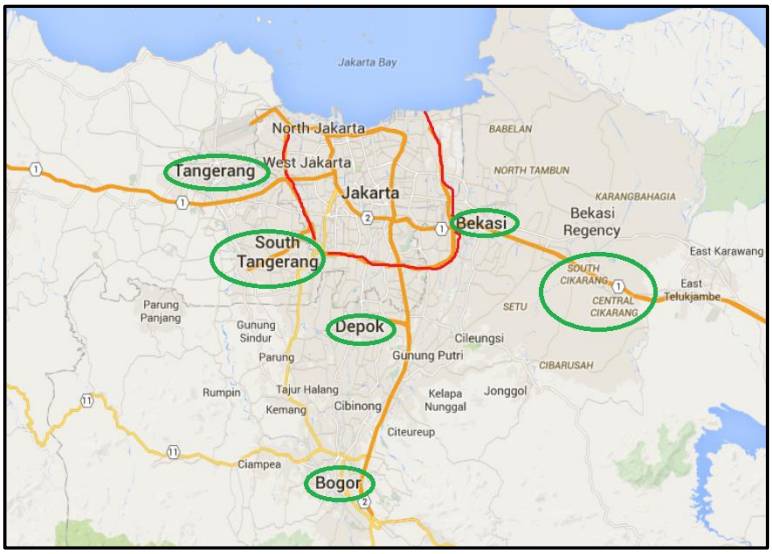

Figure 5.1 Map of Jakarta & buffer city
Source: Google source (2015)

There are many stakeholders with their interest. The Bus Rapid Transit Transjakarta is faced with this problem. The main characteristic of the present social system in Indonesia and especially in BRT Transjakarta is lack of commitment and political will of the government in order to consistent implementation about urban transport policy development (Susilo et. al, 2007). It makes most cases sometimes applied policy does not achieve the expected goals or the policy itself does not implement that make sense.

Although the idea to adopt BRT Transjakata was consider being such a great breakthrough, in terms of transport infrastructure development, it spends huge amounts of budget to deliver the service. From the investment calculation stated in the feasibility study, the total investment for this BRT project is 97.241.500.000 rupiah, which include investment for the supporting infrastructure and for the units of buses. And recently, local government proposes for more government subsidy for public so that the service delivered by the operator can reach the minimum standard of public transport service (Kompas, September 2014). However, the implementation of Transjakarta BRT project have yet show significant impact in solving transport problem, like congestion. As stated by transportation expert from Soegijapranata Catholic University, Djoko Setijowarno, he mentioned that it will require another supporting infrastructure and an integrated system to minimize the use of private vehicle and optimize the use of public transport, so that the implementation of Jakarta project will be more effective (Kompas, December 2015). By seeing the problems and the existing condition of transport in Jakarta City, and also study the current implementation of this BRT project, it can be seen that the implementation of BRT, Transjakarta, has not yet effective to reduce transport problems. Some of the reasons are:

a. First, those who are using this kind of bus currently are people who usually use conventional type of public transportation, like mini-vans and minibus. So they just shift their mode of transport in order to get better convenience than the conventional one, or maybe because it is just a coincidence since that is the one that pass by or available in a short time. So it means that the existence of Transjakarta buses or BRT are not yet reducing the use of personal vehicles.

b. Second, there are still many complains from users or public about the inconvenience, which is about the proximity or distance between shelters, because they are too far from one to another shelter. Many people are still reluctant to use it they have to walk first to find the nearest shelter and then they walk again to reach the destination (Kompas, December 2009). In addition, the number of bus operated still limited which is 20, and not all shelters have open the ticket counter and security, only in some shelter provided with these services; therefore it is also not safe to wait the bus in the shelter.

c. Third is related to people's habit or attitude in using public transport means. Most citizen are not accustomed to use this type of transport mode because it cannot stop everywhere. So, again, they have to walk before or after using this BRT bus to reach the destination place. The option to use private transport mode still become the best choice for the convenience and efficient travel time.

d. Fourth, the new buses have not yet substituting the informal transport modes and the project is not followed by the improvement of the supporting infrastructure, such as road capacity and quality. As the result congestion still happens up until today and the operational of BRT even worsen the congestion at some points.

e. Fifth, the current route of BRT is still overlapping with other informal transport modes. As the result BRT not become the only choice of transport mode to reach the destination. In addition, in changing the traffic route of other competing informal transports and applying new BRT route are not an easy task to do considering the possible conflict with the informal transport drivers.

f. Sixth, no other regulations that limit the number of personal vehicles or informal transport vehicles on street, like minimum passengers for car, new traffic routes for the informal transport, and regulation to impose people or private vehicle users to use BRT mode. So the assumption that one BRT bus will reduce the number of motorcycle or car on street for about 85 to 100 units, or will substitute or replace 3 to 4 mini-vans and 2 minibuses cannot be achieved in this case.

Based in the above reasons, it seem like the existence of BRT is adding more congestion rather than reducing the volume of personal vehicles. The local government might argue that the ineffectiveness is mainly because it has not yet fully operated. But in the future, this may still not effective enough to traffic congestion because the local government seems to be more concern about the technical, institutional, and financial problem of this project. In brief, it is important to make the use of BRT become one attractive choice of public transportation in Jakarta City.

CHAPTER 5
IMPROVEMENT POLICY IMPLEMENTATION

5.1 The Existing Social Impact Assessment (SIA) guidelines

To facilitate the elaboration and application of SIA in practice, several organizations have developed SIA guidelines. The main finding of a review of these guidelines is that the existing SIA guidelines mostly focus on large road and rail infrastructure projects and have not been tailored to address the urban situation nor have them been put into practice. Some SIAs have been designed to handle the negative consequences of the new transport projects funded by the government to address social impacts of the transport projects they usually fund, i.e. road and rail projects, and to address particular social issues associated with these, e.g. the relocation of citizens. There is a need to take SIAs to the next level, namely to establish an SIA approach that does not only identify and mitigate the negative impacts, but also identifies and enhances positive impacts of the public transport systems. Furthermore, an assessment of travel demand should be carried out before making decisions on the kind of public transport that best matches the demands for accessibility. Within the assessment, there are specific elements that require the analysis of social aspects. The SIA approach will evolve continuously based on on-the-ground experiences. The ultimate purpose of applying SIA to public transport projects is to increase accessibility and mobility for millions people in urban areas through public transport. At the same time, the demands, behaviors, and traditions related to urban travel vary from one city to another and from one group of people to another. Therefore, mainstreaming the SIA approach can be useful, but the process must be tailored to address the needs of specific cities and the affected stakeholder groups. In order to cover the expenses related to the implementation of the SIA, it is suggested that 5–10% of the design costs of a public transport system be allocated to SIA (Han, 2010).

In order to conceptualize the possible impact pathways, the analysis required a categorization of the social impacts. According to Vanclay (2002), the impact of the social issue as a result of the planned intervention can be classified into seven categories:

1. Health and social well-being – related to the health issues and the change of aspiration or perception of the individual or community towards the future.
2. Quality of the living environment, which means the livability of the neighborhood and workplace.
3. Economic impacts and material well-being – this impact related to the wealth and prosperity of individuals and the community as a whole.
4. Cultural impacts – related to the change of the culture in an affected area of the intended planning, including loss of language, loss of cultural heritage, or a change in the integrity of a culture.
5. Family and community – including impacts related to the family, social networks, and the community generally.

6. Institutional, legal, political and equity impacts – related to the excess of institutional capacity to cope with the extra workload from the development activities.
7. Gender relations – related to the gender discrimination.

5.2 Predicting and assessing the possible impact pathways

Predicting and assessing the impacts of [the transport project] aims at recognizing the possible impacts not only for the present, but also for the future. Predicting the impacts is an anticipatory action to the unforeseen impacts that needs to be antedated by formulating alternative solutions. In addition, the SIA process chooses the prioritized impacts that have to be solved as soon as possible in order to mitigate the unpredictable negative impacts that might emerge in the future. However, actually, those emerging impacts will raise the pros and cons sides, particularly regarding with the implementation and service process. In relation to the case study, the local community or BRT passengers are usually tend to be dissatisfied with the existing BRT's service because of many reasons. For example, they do not want to pay more for services that exist today.

In relation to this, the impacts of the existence of Transjakarta implementation are categorized into three parts, which are direct, indirect and cumulative impacts (see Table 5). According to Vanclay et.al, 2015) a direct impact takes place at the same time and same space as the activity, whereas an indirect impact happens later in time, at a different place from the causal activity or as a result of complex pathway. Meanwhile, a cumulative impact relates to the impact occurred as a whole. Regarding with the case study, the author has categorized the impacts of Transjakarta implementation based on Vanclay et.al (2015). Direct impacts are classified as the impact imposed by local community directly and indirect impact relates to the government project development, whilst cumulative impact refers to the impact yielded to the urban development itself. Those impacts are important to be tackled. However, the author predicts that direct impact is the first impact that needs to be prioritized because it relates to local community for transport. Furthermore, if the direct impact can be solved as soon as possible, the other impact (indirect and cumulative impact) can also be tackled where the impacts solved should be from a small scope (local community) to a broader scope (urban region transport).

Based on the context of Jakarta case, this work used four of the categories mentioned by Vanclay (2002). The categories include health and social well-being; economic impacts and material well-being; the quality of the living environment; and institutional, legal, political and equity impacts.

5.3 Direct Impact of BRT Transjakarta's project

The first direct impact of the existence of [the project?] concerns with the health and social well-being issues. As often said that *"... one of the greatest impacts of many projects is the uncertainty or fear associated with a project, and that the impacts that are perceived in anticipation of the planned intervention can be many times greater than the impacts that ultimately result from a planned*

intervention …" (Burdge and Vanclay, 1995, Vanclay, 2002). In the case of BRT implementation in Jakarta City, the health issue is triggered by the fact that providing public transports raises great expectations from informal transport operators, in that they expect to get opportunities to work as one of the new bus drivers. In other words, the new BRT, Trans Jakarta, opens new job opportunities, gives chance to get a better life and a more stable or fixed income due to the possibility of changing status from informal to formal public transport operators.

The second impact is the economic and well-being impacts. According to Vanclay (2002), economic and material well-being impacts are often related to *"... the wealth and prosperity of individual and the community as a whole."* Informal transports in almost all cities in Indonesia provide substantial job opportunities for unskilled workforce either young or old people. Consequently, they can come from the inner city or from the hinterland/ surrounding areas, and they expect to get a better life by working in informal transport field – as drivers or co-drivers. Working as informal transport operators often give a better payment, better income stability, and less tax payment obligation.

The third impact is quality of the living environment that relates to the concentrations of polluting emissions and noise from vehicles. The fourth impact are institutional, legal, political and equity impacts as stated by Cervero (2002) there is a lack of normative policy framework, which regulates informal transport. Their existence is sometimes seen as 'illegal' services although they have the license, either officially by paying fee for permit or unofficially by paying some extra money to the authority to get the permit.

5.3.1 Health and Social Well-being

The provision of public transportation system as a general has positive impact to the health and social issues. Comfortable, safe and affordable public transports encourage the mode shift from private vehicles to public transports (Banister, 2008). The shift can reduce the number of private vehicles because the public transport has a larger capacity than the private vehicle, which may lead to the reduction of traffic congestion. This can improve the quality of life of the city, and reduces the possibility of health problem from air and noise pollution. In addition, the reduction of informal transport vehicle as a result of Transjakarta provision and also Transjarkarta policy can reduce the possibility of car accidents. Apart from the health issues, the mobility of people facilitated by the provision of public transportation systems can improve the social integration between people, since they will use the same vehicle regardless any social class differences.

During the development process of Transjakarta project, the local government of Province DKI Jakarta promised to form a consortium for the informal transport owners affected by operation of Transjakarta and also will prioritize the drivers to work as a driver or as Transjakarta officer that support the operational (e.g. ticket service, security etc.). Since the operation of Transjakarta will be held by private operators through a tendering process, the private operators already have their own human

resources. This condition forced the municipality to break their promises to the informal transport drivers. The informal transport drivers felt betrayed and lower their trust to the local government (GalamediaNews, 2015). In this case, the informal transport owners and the drivers become the affected-communities. The second attempt to operate Transjakarta before the consortium accomplished and without providing another solution of the prioritization issue influence the affected-communities opinion about the Transjakarta implementation, their opinion become negative towards the Transkjakarta. It happens because the previous negative experiences have reduced the trustworthiness of the project, although the project has several benefits (van der Voort and Vanclay, 2014).

5.3.2 Economic Impacts and Material Well-being

The operation of Transjakarta provides job opportunities, which ranges from the construction process of bus shelter to the the operation of the bus. In addition, the operation of *angkot* as an informal public transport also provides job opportunities for the low-skilled people without any educational background requirement (Cervero and Golub, 2007). The operation of public transport can reduce the number of unemployment rate of the city. In addition to that, the drivers can get salary to fulfil their daily needs and creates a better society as they can fulfil a standard of living.

The provision of a new bus-based public transport, that offers a better quality of service with a relatively cheap ticket fare, causes the *informal transport* owners that have the same routes or intersected with the Transjakarta routes feel anxious and afraid about the sutainability of their business. It is very possible that the passengers will shift their choices to use the Transjakarta and decrease the daily income of *informal transport* owners or even make them close down their operations. In addition, there are several parking officers who would lose their job as the routes of Transjakarta went through several on-street parking areas. The possibility of losing a job can increase the unemployment rate of the city that can hamper the economic growth of the city.

5.3.3 Quality of the Living Environment

The provision of comfortable, safe and affordable public transportation can improve the quality of living environment through the effectiveness and efficiency of its service. The greater mobility can be facilitated without increasing the number of vehicles. It means the air and noise pollution can be significantly reduced and, in turn, may improve the quality of life of the city. In addition, the issue of exhaustion of unrenewable fuel reserves can be avoided as a result of the efficiency of the transportation system (Han, 2010).

In contrast to the positive impact above, there is an indirect impact of the development process of Transjakarta that can reduce the quality of the living environment. People who are at risk of losing their job as mentioned on the economic impact aspect can also increase the unemployment rate. Most

of them are unskilled people with low-level educational background. In addition, the criminal rate can also increase, as people without any educational background who lose their jobs need income to survive in the city. This condition can lead to the an unsafe environment that can reduce the quality of the living environment.

5.3.4 Institutional, Legal, Political and Equity Impacts

The grant of many buses to the local government from the central government has changed the institutional condition of the transportation sector in Jakarta city. The local government of Province DKI Jakarta has to form a team for conducting the preparation of Transjakarta project. Afterwards, the local transportation agency has to create a new organization to manage the operational of Transjakarta. Instead of improving the existing quality of the informal public transport, the local transportation agency has additional tasks to develop and maintain the new public transport system. Therefore, the local transportation agency has to propose additional funding to support the operation of Transjakarta such as to develop new bus shelter, the cost of the operation and maintenance of the bus, etc. The change of institutional condition generates extra workload as a result of the development activities. In addition, the development of bus shelter that needs huge funding creates a potential chance of corruption, meanwhile the tendering process of Transjakarta operation to the private company also creates a potential for offering bribes from the private company to get favours in return during the tendering process (Vanclay, 2002).

The change of institutional condition also affected the informal public transportation system. The reduction of income as a result of the Transjakarta operation forces *informal transport* owners to change their business strategy. They have to improve their service to be more attractive than Transjakarta or they have to participate as a private company to join the tendering process. The first choice seems to be more difficult than the second one because of their low profit margin. Regarding the second choice, the *informal transport* owners can form a consortium as a legal body framework if they want to join the tendering process. However, they have to merge their businesses among owners and share risk as well as their responsibility. It will take time and need extra effort since they have different interest and point of view.

5.4 Indirect impact of BRT Transjakarta's project

The indirect impact of BRT Transjakarta relates to the success of project development (e.g. government infrastructure project, private project etc.). According to the priority social characteristics described above regarding the disintegrations public bus in Jakarta with BRT Transjakarta will impact the unemployment from workers other public transport buses. This is caused by the BRT Transjakarta take their service lane that because their incomes will decrease. This problem has to be addressed.

The stakeholder must consider about this problem especially is the local authority and also the agency of public services BRT Transjakarta. They have to take into account about unemployment of the employee from bus transportation operator in Jakarta. It is not easy to say like maybe the employee in operator bus transport in Jakarta can be hired by BRT Transjakarta agency. Because the project of BRT Transjakarta still ongoing process, BRT Transjakarta already hired their employee.

According to Litman (2013), one of sustainable transport goal in urban transport are the integration of different modes in urban transportation planning. It means that one mode and other modes have to integrate with each other. Taking into account about the case study, BRT Transjakarta as a major public bus to serve the major lanes and the other public bus transport will be used as a feeder for BRT Transjakarta.

The operational system like ticketing, and headway maintenance also have to be considered when developing the BRT Transjakarta and other public bus integration system in Jakarta. Who will take the responsibility about what, how about founding, and also how to monitoring and control the system between BRT Transjakarta and public bus in Jakarta? This issue has to be considered by each stakeholder that involves in the Transportation planning processes in the case study.

The integration of BRT Transjakarta and public bus in Jakarta will decrease the number of accident. It is in line with MTI (2014) which states that the integration of transportation in Jakarta will decrease the number of the accident. It is because the indirect effect of those integration. Integration makes a better service that makes it easier to travel from one place to other places and will decrease the use motorcycle. This is particularly significant as most accidents occur between BRT Transjakarta and motorcycles. Regarding the social characteristics and actual social impact about the accident in the BRT Transjakarta lane, integration modes transport in Jakarta also get better impact for the road safety in Indonesia in general.

Referring to the explanation above, taking Social Impact Assessment in the transportation project into consideration, such as aimed in the present case study, is really important to cope and deal with the t "unemployment" conflict between BRT Transjakarta operator and other public buses. Considering the social impact assessment in BRT Transjakarta project can increase awareness about the idea about the importance of integrating the transportation modals.

5.5 Cumulative impacts of BRT Transjakarta

The cumulative impact of BRT Transjakarta project globally deals with the imbalanced condition that leads to the declining attainment of the urban transport sustainable development (social, ecology, and economy perspective). In the social perspective, the presence of BRT operation leads to the lack of awareness and the absence of paradigm changes to concurrently preserve the environment. In addition, it shows that the absence of government policy oriented in society participation, where local community has not been involved in planning, implementation and also monitoring. This also indicates the lack of a good interaction between government and local community, in which government still conducts a top-down policy that does not embrace the input from community. Then, in ecological perspective, BRT Transjakarta brings degradation to the environmental; for instance, noise pollution and air pollution through emission of vehicles. Recognize Social Impact Assessment in transport is important to integrate with other local governments that have to be involved in transportation planning processes and also implementation about the planning by actor-consulting approach.

Table 5.1 Predicting and prioritizing the impacts of BRT Transjakarta

No.	Impacts	Categorization of impacts	Predicting future impacts	Priority impact
1.	a. Health and Social Well-being. b. Economic Impacts and Material Well-being. c. Quality of the Living Environment. d. Institutional, Legal, Political and Equity Impacts.	Direct impact	Contradiction on the operation and implementation process, particularly in term of guarantee of quality of service that can give a better quality (e.g. all facilities that they would accept).	First priority
2.	Infrastructure project development impact	Indirect impact	The declining of government service quality of public transport to community (society)	Second priority
3.	Urban quality and development	Cumulative impact	The attainment on transport sustainable development	Third priority

Source: Author (2015)

5.6 Mitigation strategies of BRT Transjakarta policy

SIA aims to maximize the benefits and minimize the costs of a new project introduced in a particular area by predicting potential impacts prior to project implementation. Early impacts identification can help decision-makers to make better decisions about which interventions can be conducted to prevent possible negative impacts and to arrange mitigation measures and compensation scheme if necessary. The process of SIA supports community empowerment, gender equity, poverty alleviation, and other social related problems.

Based on the explanation above, there are positive and negative impacts of each classification that need to be considered in the development of Transjakarta. It is very clear that the positive impact has to be maintained and improved to achieve the provision of Transjakarta that is comfortable, safe and affordable. However, the negative impacts that can hamper the implementation of Transjakarta have to be mitigated in possible and rational ways. Mitigation strategies conducted to manage the impacts of the existence of implementation of Transjakarta in Jakarta are using 'mitigation hierarchy' that consists of four aspects, which are identifying possible measures, assessingn feasibility, proposing and prioritizing and proposing compensation.

Regarding the health and social well-being; economic impacts and material well-being; and quality of the living environment, it seems that these three categories are overlapped into each other. There is a direct impact that created problems for the three categories – the increase of anxiety and fear about the operation of the Transjakarta. It is because the municipality did not involve the *informal transport* owners from the beginning of the planning process. The local government of Province DKI Jakarta has to be more concerned with the opinion of affected communities towards the implementation of Transjakarta operation. The local government of DKI Jakarta Province has a power to provide and regulate the transportation system, and cannot ignore the other stakeholder opinions. The support of all stakeholders is needed to make the development successfully implemented, since the planning practice is not done within an isolated area, but connected with the other actors in complex situations (Healey, 1992).

The local government can rebuild the trustworthiness by updating every process of the consortium development to the affected communities with clear and transparent information. If the preparation to form a consortium cannot be done within a short period of time, the municipality can do a re-routing of informal transport routes that overlapped with the Transjakarta routes. The service of informal transport is still needed as a feeder of Transjakarta due to the limitation of Transjakarta service coverage as the result of the narrow road issue. In addition, the local transportation agency has to stop issuing a permit for new informal transport operators and try to maximize the existing or even reducing the number of informal transport in the city. The local government can provide a new job opportunity through the new consortium company to avoid problems from the informal transport reduction. A clear mechanism to

re-route or reduce the number of existing informal transport is needed to avoid a miscommunication or misinformation that can create other problems and conflicts.

The next impacts that need to be mitigated are related to the institutional, legal, political and equity impacts. The extra workload as a result of the development activities has to be overcome by adding more competent employees. This effort is not easy to do in a short period of time due to the recruitment process of government officer requires a long process of selection. However, the recruitment of more competent employees offers more benefits in order to prepare the next corridor developments.

Regarding to the corruption and a potential bribery issue, the local government of DKI Jakarta Province has to develop a clear and transparent mechanism. It might be done through an online tendering process and monitoring the use of funding construction. These attempts can increase the trustworthiness to the municipality due to the involvement of the public during the development process.

Realistic and affordable mitigating measures cannot be proposed without first estimating the scope of the side effects, which should be done in monetary terms whenever possible. However, not all impacts can be monetized. For some issues, like gender inequity or the importance of mobility for maintaining social networks, methods for monetizing them may not be available, or such econometric methods may be beyond the scope of the SIA. Efforts should be made to at least measure the change, if not the absolute value, of such parameters. It then becomes important to quantify the impact of the suggested improvements by means of further prediction work. Clearly, options need to be discarded as soon as their unsuitability can be proven or alternatives shown to be superior in environmental or economic terms, or both. It is also important to test the "without project" scenario. To enable the likely impacts of a development proposal to be identified and analyzed, the conditions of the current situation, or baseline, must first be established. This can be done by using existing information or by collecting new information. The most common approach includes both of these techniques.

Table 5.2 Mitigation strategies of the impacts of Transjakarta

Mitigation hierarchy	Mitigation strategies
Identify Possible measure	1. Conducting integrated planning and implementation in all sectors (government, NGO, other stakeholders) that also involve local community in order to reach better service in public transport. 2. Mitigation measures for common social issues may include specific measures (such as installing ramps or lifts for wheelchair access to a station) but may also take the form of different scenarios of the public transport project, such as proposing a different route, a BRT instead of an MRT, or the other way around.
Assess feasibility of mitigation	1. Practical/technical feasibility: for example, the need for new equipment on buses or the metro, the availability of space, or the acceptance of the measure by interest groups 2. Economic feasibility: investment costs, annual operating/ongoing costs, and payback period if applicable, and who will pay for this (e.g. government, development banks) 3. Social feasibility: reducing the side-effects of the transport project, such as restricted access for a defined urban area or group of potential passengers, but also impact on other possibly relevant social issues. 4. Making agreement through IBA (impact and benefits agreement) as a negotiated legal contract (in order to get a legitimacy and/or social license from local community) between local community and stakeholders involved is also required that aims to avoid the contradictions and opposition from them. 5. Involving other stakeholders to get funding support in providing a new housing (e.g. CSR, world fund solidarity etc.).
Propose and prioritize mitigation	1. Now that we know which mitigation measures are feasible, they need to be ranked in order of priority. 2. Allow the decision-maker to select a few mitigation measures from the list in the event of budget limitations
Propose compensation measures	1. If the adverse impact cannot be mitigated reasonably by the project then the affected groups need to be given satisfactory compensation. 2. The monetization of impacts helps in the process of defining monetary compensation for the affected groups. Sometimes the compensation may have to be not in "cash" but in "kind," such as the provision of extra facilities to the affected groups. 3. Internalizing the costs of mitigation and compensation within the project cost will change the economic cost-benefit analysis of the public transport project and hence its feasibility.

Source: Author, 2015 (adopted from Vanclay et.al, 2015 that modified from João et.al., 2011)

SIAs are carried out with a combination of qualitative and quantitative tools to determine the likely social impact of a project on stakeholders, and the likely effect of stakeholders on the project. In relation to the general public and the various social aspects, there is a multitude of methods to explore, such as market research, user satisfaction surveys, customer care programs, focus groups, open houses, interactive websites, hotlines during a particular phase of the project, etc. These address different demands and focus on different stages of SIAs. The types of assessment methods chosen will significantly impact the costs of the assessment; for example, a public hearing or workshop will cost much less than a survey. The range of assessment methods selected will depend on their suitability for the selected social issues, their appropriateness for relevant interest groups (which is what should be discussed with these groups' representatives), and the availability of resources to carry out the assessment.

CHAPTER 6
CONCLUSION AND RECOMMENDATION

6.1 Conclusion

This section will elaborate conclusions of the research which it relates to answer the research questions. The first question of the research is about how the social impact issues considered in public transport policy. With regard to this, social impacts consideration are often neglected in public transport policies, although it becomes an important aspect in every transportation project. In most cases of transportation project in developing countries, technical and financial aspects often become the main consideration in deciding whether the project proposal is feasible to be realized or not. Which is the SIA refers to consideration of qualitative indicators, for example, social issues that change person's perception about a particular project (Vanclay, 2002). In fact, many cases of development plans show that social aspects can be a major hindrance in realizing both government and private projects.

The second question of the research is how the SIA is implemented in Transjakarta project. In order to assess the social impacts of the implementation of Transjakarta, lesson learned from other cities or countries that have succeeded in the implement BRT can be utilized as a benchmarking. For example, Jakarta can adopt the social impact assessment from Bogota (Columbia) and New Delhi (India) or even another cities to minimize the negative social impacts and maximize the benefits of positive impacts of the planned interventions (projects, plans, policies and programs). In both countries, 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 the urban transport changes program. Campaign about this change provided information and feedback from all stakeholders. The government implemented 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 a solution to improve public transport and to cope with urban growth. As a consequence, the social impacts emerge, and social impact assessment is required to analyze, monitor and mitigate the social impacts

The third question of the research is on the actual social impacts of the implementation of BRT Transjakarta, which it can be classified into 3 (three) categories, namely: direct, indirect and cumulative impacts. Direct impacts refer to health and social well-being, economic impact, quality of living environment and institutional, legal, political and equity impacts. Indirect impact relate to infrastructure project development that interpreted by a decrease of government service quality of public transport. Meanwhile, a cumulative impact deals with urban quality and development that leads to achievement of sustainable transportation in the future. Those are the negative impacts that should be managed and mitigated.

The fourth question of the research concerns with the mitigation strategies to tackle those impacts. Mitigation strategies conducted to minimize the impacts of Transjakarta are through mitigation hierarchy, which encompass and identify possible measures, evaluate a feasible mitigation, make a priority of mitigation measure and propose a compensation measure. Those strategies also deal with the undertaking of integrated of planned interventions (e.g. collaborative, participatory, proactive and persuasive approach); in addition, they involve all actors (government, NGO, local community or passengers); and incorporate all sectors as a whole (e.g. infrastructure, telecommunication and etc.), emphasize on future orientation (long time horizon). They are aimed not only to prevent the impacts that take place in the present, but also to anticipate the unforeseen impacts in the future. Moreover, involving the current public transport providers as a collaborative action is required to reduce the conflicts, in which local government can provide opportunities for the existing public providers to take part in minimizing the impacts emerged. As a controlling function to providers, the local government should enact an assertive regulation and increase a competition for the market. The competition can be created through a bidding process to choose an appropriate operator for Transjakarta in terms of executing the infrastructure, purchasing vehicle and managing the human resources. Furthermore, the success of Transjakarta development should be adhered by enacting other supporting policies as mitigation strategies to improve the public transport policies.

In relation to mitigating the impacts of Transjakarta, transportation policies should not only focus on improving public transport service and its facilities, but also on other measures (e.g. traffic demand management/TDM), for example park-and-ride, parking restriction, and traffic restriction (three in one policy), private vehicles restriction, road pricing, car-pooling etc. Conducting TDM in tandem with improving public transport policies will improve public transport policies. As a benchmarking for the implementation of BRT, Bogota has implemented TransMilenio followed by relocating the current public transport to other routes not served by TransMillenio routes and develop supporting facilities such as park-and-ride and bike lane (bike-and-ride). TransMilenio development is also followed by land use rearrangement through relocating poor areas to other areas with better facilities and connecting them to TransMilenio routes. However, the enactment of the policies is still partial because there is no public participation in evaluating government's policies.

6.2 Recommendation

The social impacts of transportation project should also be considered as one of the main aspects to improve public transport policies in addition to the economic and environmental considerations. Social Impact Assessment (SIA) should be conducted in transportation project to identify potential impacts in the present and in the future. Additionally, the goal of SIA is to recommend mitigation strategies that can relieve many negative impacts and to develop positive impacts associated with the

proposed project. Social Impact Assessment can also be a valuable strategy for decision-makers, particularly in the transportation sector. Furthermore, it has potential guidelines for policies by involving stakeholders and using the comprehensive information gathered as early as possible.

According to the case study of BRT Transjakarta, the local government have a good plan to cope with public transport problems in Jakarta, whereby opposing stances from the pro and cons sides in the local community still exists. It shows that the local government should conduct a social impact assessment to obtain better information and solutions for improving public transport. Conducting SIA of BRT Transjakarta should involve many stakeholders (the government, private sectors, NGOs and community) in the process and the implementation of BRT Transjakarta as a collaborative action. Furthermore, the participatory approach and collaborative approach among stakeholders will improve public transport policies.

Contribution of many stakeholders in the process and implementation of BRT Transjakarta is a key component to improve Transjakarta service in the future. In relation to this, some policy recommendations that should be conducted related to the social impacts emerged, and described as follows:

1. Direct impacts

   Minimizing the direct impacts of the implementation of Transjakarta, which are:

   a. The impact on the quality of environment that refers to an increased number and capacity of park-and-ride and bike-and-ride facilities connected to BRT Transjakarta. The availability of these facilities is aimed at reducing motor vehicles usage from sub-urban area of Jakarta to city center of Jakarta that also leads to the declining traffic congestion in Jakarta city.
   b. The impact on institutional, legal, political and equity related to the sterilization of the Transjakarta's lanes. Relevantly, the local government has enacted the No.8/2007 regulation on the prohibition of entering Transjakarta's lane. However, some people still violate it. In association to this, the local government should improve the controlling function by increasing the number of government officials and enacting assertive sanctions for violators who still tresspass the lane. These sanctions should be given for violators in order to change their attitude and reduce the number of traffic accidents within the lane. Moreover, dealing with political and equity impacts, improving the quality of human resources (government officials) by training action is required, in which this way can minimize a political action from violators who try to bribe government officials. Thus, the enactment of an assertive sanctions supported by government regulation will create an equity principal and justice for all road users, particularly for Transjakarta users.
   c. The impact on economic deals with the unreliability of Transjakarta service. To tackle this impact, local government should improve the service of Transjakarta through developing the routes integrated with another public transport modes (angkot as Transjakarta feeder) that do

not only serve within Jakarta region, but also expand to the buffer cities of Jakarta such as (Depok, Bekasi, Tangerang, Bogor and Karawang). An integrated public transport modes can precisely decrease the additional cost for passengers and it will be more efficient in term of time. Consequently, it will impat on the increasing the number of passengers of Transjakarta that will, in turn, influence the revenue of management board of Transjakarta.

d. The impact on social well-being relates to the improvement of driver's welfare of Transjakarta and the empowerment of informal public transport modes that have operated with the same routes of Transjakarta. The policy recommendation that can be conducted by local government is embracing all operators of Transjakarta and informal public transport modes through a deliberative process. This way can result in advantages for both operators, whereby informal public transport modes can be empowered through making consortium and they can be involved in management board of Transjakarta.

2. Indirect impact

   Minimizing the indirect impact of the implementation of Transjakarta deals with the success of Transjakarta service to community. The way conducted is through embracing all operators, not only Transjakarta operators, but also informal public transport operators. The informal public transport operators can be a trigger to develop another routes, so they can be empowered. This way can be done through a collaborative approach between management board of Transjakarta, local government (transportation agency) and all operators to make an agreement on the operation of Transjakarta. As a result, it can improve the project development of Transjakarta in the future because there is a division of tasks and its responsibilities for the operation of each corridor of Transjakarta.

3. Cumulative impact

   Minimizing a cumulative impact of the implementation of Transjakarta relates to the achievement of sustainable transportation that considers three dimensions: social, ecological and environmental perspective. This can be conducted through public participation, in which public or citizens should be involved in decision making process in order to assess the implementation of Transjakarta service. In addition, the attainment of sustainable transportation can be achieved through a collaborative approach among stakeholders in providing facilities of Transjakarta including integration facilities that also involve another government authority (Depok, Bekasi, Bogor, Tanggerang and Karawang).

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