A MINOR FIELD STUDY:

Urban Mobility among Lower Income Communities in Jakarta

A Study of the Bus Rapid Transit System

Lisa Wentzel

Degree Project SoM EX 2010-45
Master Program Spatial Planning

Stockholm 2010

KTH, Department of Urban Planning and Environment
Division of Urban and Regional Studies
Kungliga Tekniska högskolan
This study has been carried out within the framework of the Minor Field Studies Scholarship Programme, MFS, which is funded by the Swedish International Development Cooperation Agency, Sida.

The MFS Scholarship Programme offers Swedish university students an opportunity to carry out two months’ field work, usually the student’s final degree project, in a country in Africa, Asia or Latin America. The results of the work are presented in an MFS report which is also the student’s Master of Science Thesis. Minor Field Studies are primarily conducted within subject areas of importance from a development perspective and in a country where Swedish international cooperation is ongoing.

The main purpose of the MFS Programme is to enhance Swedish university students’ knowledge and understanding of these countries and their problems and opportunities. MFS should provide the student with initial experience of conditions in such a country. The overall goals are to widen the Swedish human resources cadre for engagement in international development cooperation as well as to promote scientific exchange between universities, research institutes and similar authorities as well as NGOs in developing countries and in Sweden.

The International Office at KTH the Royal Institute of Technology, Stockholm, Sweden, administers the MFS Programme within engineering and applied natural sciences.

Maria Rothzén
Programme Officer
MFS Programme, KTH International Office
Abstract
Urban planning research in developing countries has often focused on slum upgrading. Lately environmental issues have become increasingly important as well. Hence, transportation is an important field, as basis for the development of cities in developing countries, yet few studies on transport for the urban poor in developing countries have been conducted. Studies, which have been conducted, identify mobility as an important attribute for peoples employment opportunities, and, therefore, improving their living conditions. In Jakarta, transportation is, along with the battle against flooding and poverty, one of the most important issues for the future. This study explores the field of urban mobility in low-income communities in Jakarta, by looking at the newly implemented Bus Rapid Transit (BRT) system, through an explorative, descriptive and part explanatory approach. The BRT has been implemented to ease the chaotic traffic situation in Jakarta. But, in literature, BRT systems are argued to benefit the lower-income population as it provides cheap and fast transportation. The field study concludes that the BRT is used with restriction among the low-income residents, who were interviewed, due to several reasons. It infers that the BRT routes do not suite the travel patterns of the residents, besides, the fare including transfer costs becomes expensive. Consequently, the BRT has yet to make a significant impact on the low-income residents in Jakarta.

Abstrak
Sammanfattning

# Table of Contents

ABSTRACT ................................................................................................................................. 5  
ABSTRAK ................................................................................................................................. 5  
SAMMANFATTNING .................................................................................................................... 6  
TABLE OF CONTENTS .............................................................................................................. 8  
ACKNOWLEDGEMENTS ............................................................................................................ 11  
1. INTRODUCTION .................................................................................................................... 13  
   1.1 Problem Formulation ........................................................................................................ 13  
   1.1.1 General problem field - Environmental Problems ......................................................... 13  
   1.1.2 Specific problem area - Sustainable Development in Transportation .......................... 14  
   1.1.3 Research Problem - Socio-economically equitable transport system ......................... 14  
   1.2 Purpose ............................................................................................................................ 15  
   1.3 Theoretical Framework ................................................................................................... 16  
   1.4 Methodological Approach ............................................................................................... 16  
   1.5 Summary of Findings ...................................................................................................... 16  
   1.6 Organisation of the Thesis ............................................................................................. 17  
2. THEORETICAL FRAMEWORK ............................................................................................ 18  
   2.1 Introduction .................................................................................................................... 18  
   2.2 What is sustainable development and how do we plan for it? ....................................... 18  
   2.2.1 Sustainable development in Theory ............................................................................ 18  
   2.2.2 Planning and Sustainable development ...................................................................... 20  
   2.3 Sustainable Transportation in the Developing World ..................................................... 20  
   2.4 Socially Equitable Transportation .................................................................................. 21  
   2.4.1 Transport and the millennium development goals ...................................................... 22  
   2.4.2 BRT as a solution ....................................................................................................... 23  
   2.5 Summary ....................................................................................................................... 24  
3. THE INDONESIA-JAKARTA CONTEXT .............................................................................. 25  
   3.1 Introduction .................................................................................................................... 25  
   3.2 Political and Socio-economic History ........................................................................... 25  
   3.3 Urban Development in Jakarta ...................................................................................... 26  
   3.4 DKI Jakarta ..................................................................................................................... 27  
   3.5 Current Transportation Situation .................................................................................... 29  
   3.5.1 Private vehicles, roads and highways ........................................................................ 30  
   3.5.2 Public Transport ........................................................................................................ 32  
   3.6 Socio-economic Situation in Jakarta ............................................................................ 35  
   3.7 Summary ....................................................................................................................... 36  
4. METHODOLOGY .................................................................................................................. 38  
   4.1 Introduction .................................................................................................................... 38  
   4.2 Methodology .................................................................................................................. 38  
   4.2.1 The Background Study .............................................................................................. 39  
   4.2.2 The Field research ..................................................................................................... 39  
   4.3 Summary ....................................................................................................................... 41
5. TRANSPORT MASTER PLAN, LOW-INCOME COMMUNITIES AND THE BRT .......................... 42

5.1 INTRODUCTION ................................................................................................................. 42
5.2 PLANNING JAKARTA’S PUBLIC TRANSPORTATION ......................................................... 42
  5.2.1 Transport Master Plan ................................................................................................. 42
  5.2.2 Transportation Policy in Jabodetabek ...................................................................... 43
  5.2.3 The BRT plan ............................................................................................................... 43
5.3 LOW-INCOME COMMUNITIES AND THE BRT ............................................................. 45
  5.3.1 Current BRT users ..................................................................................................... 46
  5.3.2 Mapping Poverty and BRT ........................................................................................ 46
5.4 SUMMARY ....................................................................................................................... 50

6. FIELD RESEARCH .............................................................................................................. 51

  6.1 INTRODUCTION ................................................................................................................ 51
  6.2 FIELD STUDY AREA SETTING ....................................................................................... 51
  6.3 FIELD STUDY RESULTS - RESPONDENTS PROFILES .................................................. 53
    6.3.1 Sex............................................................................................................................. 53
    6.3.2 The respondents’ occupation .................................................................................. 53
    6.3.3 Income ..................................................................................................................... 54
    6.3.4 Residential areas (Kecamatan) .............................................................................. 55
  6.4 FIELD STUDY RESULT – TRAVEL BEHAVIOURS ............................................................ 55
    6.4.1 Living and transport ................................................................................................. 55
    6.4.2 Travel patterns ......................................................................................................... 55
    6.4.3 Travel expenditure .................................................................................................... 56
    6.4.4 Mode of transport ................................................................................................... 56
    6.4.5 Private vehicle ownership ....................................................................................... 57
    6.4.6 The BRT .................................................................................................................. 57
  6.5 FIELD STUDY RESULTS – REPLIES FROM NGOs AND GOVERNING AUTHORITIES .... 59
    6.5.1 Replies from NGOs ................................................................................................. 59
    6.5.2 Replies from Governing Authorities ...................................................................... 60
  6.6 SUMMARY ....................................................................................................................... 61

7. DISCUSSION ....................................................................................................................... 62

  7.1 INTRODUCTION ................................................................................................................ 62
  7.2 RESULTS IN RELATION TO PROBLEM FORMULATION AND THEORETICAL FRAMEWORK ......................................................................................................................... 62
    7.2.1 The Theoretical Framework and Jakarta .................................................................. 62
    7.2.2 Urban Mobility in Jakarta’s lower-income communities ........................................ 64
    7.2.3 Methodological Approach and Delimitations ........................................................... 66
  7.3 CONCLUSIONS ................................................................................................................ 66
  7.4 FUTURE RESEARCH ..................................................................................................... 67

SUMMARY .......................................................................................................................... 68

LIST OF FIGURES .................................................................................................................. 68
LIST OF TABLES ..................................................................................................................... 69
LIST OF ACRONYMS .............................................................................................................. 70
REFERENCES ....................................................................................................................... 72
List of Interviews .................................................................................................................. 76
Other sources ....................................................................................................................... 76
APPENDIX – QUESTIONNAIRE ........................................................................................... 77
Acknowledgements

There are a significant amount of people who I wish to acknowledge as this study would not have been completed without their help. First, I would like to thank, all the people at ITDP in Jakarta, ‘Ibu Tia’, ‘Mba Rosy’, ‘Mba Dhany’, ‘Mba Titi’, ‘Mba Eva’, ‘Mba Ratna’, ‘Pak Iful’, ‘Pak Yoga’, ‘Pak Deni’, ‘Pak Dika’ and John Ernst, for helping me with contacts, material, translations and making my time in Jakarta a Joy. I would also like to give my acknowledgements to the all the people at FAKTA, especially to Tigor and Cecilia, for helping me carry out interviews. Also a great thank to ‘Pak Yanto’ for helping me with interviews in North and West Jakarta. All the government and NGO employees for taking time for my questions, I will give my acknowledgements. Special thanks to all the interviewees in the different communities who took their time on answering my questionnaires. I would also like to thank my fiancée Marsingal Sidabutar for his support in the writing process and for translation advice.

Thanks to Sida and the International Office at KTH for giving me the funding and opportunity to conduct a Minor Field Study in Indonesia.

Last but not least, acknowledgements to my supervisor, Nils Viking, for his great advice during all stages of this paper.
1. Introduction

‘Sustainable development’ is amongst the most used concepts when addressing environmental issues in urban development. The basis of the term sustainable development is that it should incorporate environmental protection, social development and economic growth. In the last decade reduction of carbon dioxide emissions have become a priority in this field. Transportation, as a major emitter, is a major target area for the reduction of these emissions. It is a recipient subject of funding by Sida, Swedish international cooperation development agency, to address climate change and reduce carbon emissions (Utrikesdepartementet, 2009:4). Public transport is an alternative to private car use in that it can reduce carbon emissions significantly. In the recent decade “Bus Rapid Transit (BRT) has revolutionised regional transportation planning in much of the developing and developed world.” (Rodriguez and Mojica, 2008:2). Moreover, BRT is often suggested as a cost-effective system, which can reduce environmentally damaging carbon emissions, decrease traffic congestions and provide better mobility options for low income groups (Cevaro and Kang, 2009:1).

A concept, which has been an extension to Sustainable Development, has been ‘environmental justice’. It seeks to address human inequality with environmental quality outcomes; environmental problems often affect the poor worse rather than the rich (Agyeman et al, 2003). According to Sanchez and Wolf (2005:2), environmental justice in transport planning is related to social equality, and, therefore, looking at the issue of social inclusion in public transport is highly justified.

1.1 Problem Formulation

1.1.1 General problem field - Environmental Problems

In the last few decades environmental issues have become one of the most common discussed issues in regional planning literature, mainly because of the many alarming reports on climate change as a result of the release of carbon emissions. In many cities such release is a priority to tackle as it is recognised as also part of a global issue. With rapid economic development and urban growth in cities like Jakarta, high rates of carbon emissions are now causing local health problems (Sari, 2004:125). An interesting factor in the case of Jakarta is that carbon dioxide emissions from the transport sector account for 70% of the total carbon dioxide emissions (Sari, 2004:144).

Box 1.1 – The Indonesian context

It was not until after the Asian financial crisis in 1997 Indonesia became a democracy allowing a decentralized state. Regarding planning in Indonesia not much had happen since the colonial Dutch rule, including any official kind of public transport systems. In 1999 after the fall of long ruling Dictator Suharto due to this a new legal act was promulgated, allowing the state to be decentralised. This legal act allowed regionalisation and has principles, which encourage “…democracy, community participation and empowerment, equity and justice, recognition of the potential and diversity within regions, and the need to strengthen local legislatures.” (Asri, 2005:2311). The new law is hoped to strengthen the ability for regions to plan and implement transportation (Asri, 2005). As a new democracy, Indonesia is still facing difficulties as corruption is among the most severe in the world. Many Asian cities have severe problems regarding traffic, Jakarta is no exception. Cities in Indonesia have previously had no or little official form of public transport; mostly due to a lack of political will and economic reasons (Susilo et al., 2007:63). However, since systems like Bus Rapid Transit (BRT) had been established in developing countries in Latin America as a cheaper option to a fast transportation system, it was thought to be a solution to the escalating traffic problems in Indonesia (Satienmann, 2006). Another aspect, which emphasises the implementation of the BRT system, is argued to be that it is a more equitable system (ITDP, 2010).
1.1.2 Specific problem area - Sustainable Development in Transportation

‘Sustainable development’ as a recognised concept emerged on the international scene in 1987, and has since also become the most commonly used term in tackling the environmental problems. The given definition of sustainable development in 1987 was that “…sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” (WCED, 1987, in Agyeman et al, 2003:5). A major reason for the growing environmental concern has been industrialisation and urbanisation with the result of increased pollution (Hassan and Zetter, 2002). The major focus for the concept of sustainable development is to incorporate social development, economic growth and environmental protection (ibid). In the transportation sector sustainable development has mostly been discussed as an environmental concern where reducing carbon dioxide emissions has been the most important component. This is not an exception in Indonesia and Jakarta, where pollution levels are among the highest in the world (Sari, 2005:126). Social development and economic growth also play a vital role in sustainable transportation. Providing a working public transport system can not only reduce emissions, but also increases availability for transport opportunities for those who can not afford private vehicles (Susilo et al 2007:60). Moreover, traffic jams - as severe as those in Jakarta - harm possibilities for economic growth.

1.1.3 Research Problem - Socio-economically equitable transport system

The Jakarta BRT was constructed to ease the chaotic traffic situation in the Jakarta Metropolitan Region. BRT systems are mainly constructed as a cheaper form of a mass transit system, which objective is to give a more even distribution of transport services among different groups of society. In Jakarta, the BRT is also implemented to promote a more sustainable environment, ie, easing the use of private vehicle ownership. In a longer perspective - as distributive justice in urban planning is vital for sustainable development - it is important that the services are justly distributed among different income groups, ie, in favour of the disadvantaged majority (Viking, 1995:25). The current major goal in the Jakarta BRT project is to increase the use of the BRT (GEF proposal, 2009). This means that there are both technical and non-technical improvements needed. Although it is recognised that the major aim of the BRT has been to reduce car use and congestion, it is generally agreed that a BRT system is a good choice in providing better mobility for the urban poor. Considering these factors, an interesting research problem is to investigate to ‘what extent a public transport system can be socio-economically equitable and reaching different groups of society’. Further, the BRT is selected as case study due to the fact that it is a recently opened system in Jakarta and has a significant role in Jakarta’s Transportation Master Plan. Besides, as the study is carried out with guidance from ITDP, it was a logical choice as it is within the institute’s major working field.

Research Questions. The researchable questions for the present study emanate from a main research question concerning to what extent and degree (Viking, 1995) the recently constructed Jakarta BRT is reaching the lower-income communities (LIC) in Jakarta. Furthermore, this thesis work aims to investigate the effects, which the newly implemented
Bus Rapid Transit (BRT) system has had on lower income communities (LIC) in several areas of Jakarta.

The research questions, which are the basis for this research, have been altered several times during the research process as findings forced them to change.

A final set of research questions are as follows:

1. What is urban sustainable transportation and how could it be achieved?
2. Which transportation modes are found in Jakarta, and how effective are they?
3. Is the use of the BRT distributed evenly among different income groups?
4. How do the Low-income residents in Jakarta travel?
   a. To what extent is the BRT used and does it affect their mobility?
   b. Are there any policies that affect the users and the use of the BRT?
   c. Could policies be altered to increase the use of the BRT?

Though all the above questions are basis for this research project it is the fourth question which is the most important for the primary data collection. Questions 1-3 can rather be addressed as a background study, and is addressed in Chapter 2, 3 and 5, for question 4, whereas question 4 is the focus for the empirical study.

**Delimitations.** This study is made with an explorative approach as little research in the specific field has previously been conducted. The field study was conducted within two months and the time restriction did not allow for major changes to the original research agenda. Due to restricted amount of time and funding, the numbers of interviewees are few. Choosing Jakarta as a case study creates a general delimitation to the study as such a vast area is difficult to get a clear picture of. Moreover, many low-income residents who work in Jakarta live outside the capital region; hence they are not included in the study.

Open ended questionnaires were chosen as a method given the language restrictions, as it allowed the interviews with the residents to be conducted at a simple level of language. It must, therefore, be acknowledged that the outcome must have some limitations as there was a language barrier. There was no interpreter present at the interviews with the residents, however they where conducted together with people who had some knowledge of English. If the answers were unclear they were written down in Indonesian for later translation. Therefore, the answer could be said to be simplified and short to get an understanding of the interview.

Further, it is important to acknowledge that many of the planning reports that were used in the research were written in Indonesian. Due to my restricted knowledge of the language a translating tool was used, though if something was unclear there was help available.

**1.2 Purpose**

**Aim.** The research of the present study aims to contribute to and to explore the international environmental concepts of sustainable development and environmental justice. Moreover, it seeks to add to the body of knowledge on the socio-economic and environmental dilemmas in regional planning. The aim also to contribute to social equity as the research is linked to
poverty eradication - availability of affordable transportation gives greater opportunities. Jakarta BRT is not supported by Sida, Swedish International Development Cooperation Agency, but ITDP receives funding by the United Nations Environmental Programme (UNEP). Further, I hope that the study may contribute to the work of ITDP and a more livable Jakarta with an increased use of BRT.

**Objectives.** An overall objective of the present study is to explore, describe and partly explain what impact the BRT in Jakarta has had on low-income communities. This means that the academic objective of this study is to explore and shed light on how the Jakarta BRT has impacted on social equity issues as a part of sustainable development goals and how it can reach more people. Hence, the study is related to Sida’s main working area of interest in Indonesia - it relates to the agency’s support to environmental protection, as it investigates in what way public transport can reach more people.

1.3 **Theoretical Framework**

The main objective of the theoretical framework of this study is to identify the link between sustainable development and socially equitable transportation. Further, it discovers the most common concepts in social sustainable transportation, such as the importance of mobility. Mobility is often seen as a basis for employment opportunities among lower income groups. Besides, linking it with sustainability it should be affordable public transportation which allows greater mobility. Based on the theoretical framework BRT is often hailed as a good option for providing such mobility.

1.4 **Methodological Approach**

The approach for this study is primary explorative and descriptive, yet, partly explanatory. As mentioned in the delimitations, under 1.1.3, above, few studies in the specific field have previously been conducted, which is a reason for choosing a more explorative approach. Conducting interviews / questionnaires was chosen as it is a suitable option for exploring the field and the research problem. The interviews where conducted with families in low income communities all over Jakarta to get a general, albeit limited, picture.

1.5 **Summary of Findings**

The purpose of this study is to give an understanding to what extent and degree the BRT is reaching low-income people in Jakarta. The findings infer that the use of the BRT is very restricted in these groups, for several reasons: travel patterns among the interviewees vary greatly, and there is not a specific route which is used by the residents. Besides, travel expenses are high in Jakarta for low-income residents and the current public transport system requires costly transfers for the passengers. So, if tariffs were not based on transfers, costs could decrease and mobility may increase. However, such argument is with the delimitation of this study impossible to conclude. A future study on feeder BRT would be interesting, as it may compliment the current system and could be a suitable option for residents in low-income communities in Jakarta.
1.6 Organisation of the Thesis

The structure of this thesis is based on the IMRAD scientific approach as it provides a clear organisation of the work. Following this introduction, the formulation of the theoretical framework is given, which will discuss social equity in transportation as part of sustainable development theories. After the Theoretical framework is explained, there will be a chapter on the Jakartan context, explaining the urban, social and political history as well as giving the current transport picture. The fourth chapter is encountering the methods and explaining how and why the primary research was conducted in a specific way. The following chapter looks at the development and the Master plan of the BRT system in Jakarta. Further, the sixth chapter explains what was found in the field research- the questionnaires and the interviews- as a basis for a discussion. In the field study chapter there will also be a part on answers from NGO’s and responsible authorities. The discussion will look at all previous chapter with specific regards to the field study and analyse the results from the research questions. At the end, the discussion is concluding the study.
2. Theoretical Framework

2.1 Introduction

In the Introductory chapter an outline the present study is made, and - as an important part of this study is to contribute to the research in Sustainable Development this chapter begins by formulating a theoretical framework based on Sustainable Development theories, yet it ends with focusing on socially equitable transportation as a part of Sustainable Development. Literature, which looks at sustainable transportation, is ample; it seems, however, that it often disregards the social aspect of Sustainable Development. In this chapter, an investigation of social sustainable transport will be carried out. First, it identifies sustainable development and sustainable transportation in general. After, it examines how scholars believe we should regard Sustainable Development planning. Besides, the chapter looks at important features, which can help to build and improve a transportation system to become more socially equitable and associated difficulties. The Millennium Development Goals (MDG) can create guidelines for social sustainable transportation and especially how transportation could benefit the poor in urban settlements. A study by Hook and Howe (2005), is also useful in identifying a socially equitable transportation system. At the end of this chapter, a study on BRT is addressed and in what way BRT can be explained to be a suitable transportation system for sustainable development in the developing world.

The objective of this chapter is to provide support to the field study analysis and help identify features, which can provide an improved transportation system. The basis of this chapter is therefore to create a framework for a social equitable transportation system, which will be used in the discussion that will be the last chapter of this thesis.

2.2 What is sustainable development and how do we plan for it?

Sustainable Development is a popular concept throughout the world today. Its use is, however, confused in many circumstances, and, therefore, the first section of this chapter will try to clarify this concept, and give it a definition that will be used in this thesis.

2.2.1 Sustainable development in Theory

In 1987 the concept of Sustainable Development was brought up, and has since become the most favourable term in tackling the environmental problems. The definition of Sustainable Development, which was considered was that “…sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs…” (WCED,1987, in Agyeman et al, 2003:5). A major reason for the growing environmental concern has been industrialisation and urbanization with the result of increased pollution (Hassan and Zetter, 2002). The major focus for the concept of Sustainable Development is to incorporate social development, economic growth an environmental protection (Hassan and Zetter, 2002). However, we shall not forget that this concept has been highly contested (Agyeman et al, 2003). A concept, which has been an extension to Sustainable Development has been the concept of environmental justice. Environmental justice is based on a contention that human inequality is bad for environmental quality. It is
also argued that the environmental problems often affect the poor worse rather than the rich. Carrying capacity is another key word - reflecting environmental justice – and it could be understood as a critique to Sustainable Development as it infers that there is a certain capacity that the environment can handle. Hence, further economic growth in the developed countries can not support a sustainable environment (Agyeman et al, 2003). Moreover, it criticises sustainable development as carrying capacity does not allow continuous economic growth as Sustainable Development sometimes indicate (ibid).

Another way of explaining sustainable development theory is the diagram (Figure 2.1, below), which indicates that there is an aim to create a balance between social equity, economic growth and environmental protection. A balance between Social Equity, Economic Growth and Environmental Protection is not easy to find, as there is rather a conflict between the three (Figure 2.2, below).

![Figure 2.1 – Sustainable Development Theory](image)

![Figure 2.2 – Conflicts in sustainable development](image)

Source: Agyeman and Evans (2003:37)  
Source: Campbell (1996:298)

Berke and Manta Conroy (2000:22) write that there are several different schools in the definition of sustainable development that can be identified through characteristics. The first characteristic is ‘reproduction’, which means that the aim is to have an evolutionary system, which can reproduce itself. A second characteristic of sustainable development is ‘balance’. It can be identified in Figure 2.1 (above), as it shows a balance between the foundations of sustainable development. The third characteristic, according to Berke and Manta Conroy (2000:22-23), is that plans for sustainable development should link local to global concerns. A fourth characteristic is that it is a dynamic process to create sustainable development. Overall, sustainable development is a generally accepted concept; however it is often contested as being a utopia. The utopia might be seen in the first statement on sustainable development of the Brundtland commission in 1987, which can be described in Figure 2.1, but contested through Figure 2.2. It also indicates that sustainable development is much more complex in practice as it is difficult to agree that economic growth and environmental protection can coexist.


2.2.2 Planning and Sustainable development

Among planners sustainable development has become an important part of the vocabulary, and few reports are written without the word sustainable development (Naess, 2001:503). If sustainable development is contested in theory it is in practice even more difficult to deal with. There are numerous fields, which this theory can be applied in. In the urban setting it is in land use planning, solid waste management, toxic chemical use, residential energy use and transport planning according to (Agyeman and Evans, 2003:42-7). Campbell (1996:296) argues that it is important to integrate social equity in planning, as often it is only incorporating environmental protection or economic development as a focus by many planners. His argument is based on a statement that planning often forgets aspects of sustainable development. In the planning society sustainable development often equals environmental protection. Moreover, sustainable development is good as a long-term goal for urban development (Campbell, 1996:306).

Sustainable development as a balance is often a simplified version; Campbell (1996:296) argues that planning for sustainable development is specifically about resolving the conflicts between the fields to create sustainable development. In Figure 2.2, above, an example is the property conflict between equity and growth, as it symbolises the conflict between private interest and public good.

As sustainable development in planning is a widely used concept, this chapter will discuss this further in the next section. To understand how the concept of sustainable development can be used, according to the scholars previously stated, it is useful to delve into specific areas such transport planning.

2.3 Sustainable Transportation in the developing world

Transport investments take up a major share of the expenditure of developing countries with up to 40% (Leinbach, 1995:337). Therefore, it can be recognised that transport is lifeblood of modern day economies, but at the same time it is also a source for social and environmental problems (Walker et al, 2008:225). However, traditionally many economists used to say that mobility on its own provides economic benefits, but Litman and Burwell (2006:335) argue that new research shows that it is much more complex and that a growth of motor vehicles can have a negative impact on the economy. They say that it is important for sustainable transport that parallel modes are used (ibid: 335). Transportation is a crucial element in everyday life as it has effects on employment searches, basic needs including accessibility to healthcare facilities in developing countries (Leinbach, 1995:338).

IEA (2002) write that providing a good public transportation system for developing countries is vital for future sustainability. The major issue is argued to be that as countries experience economic growth people afford better transportation. As, however, the public transport is lacking behind people will choose private transportation which will be extremely damaging for the environment. Transportation is still seen as an important source for development all over the world; it creates better opportunities for people and corporations (Greene and Wegener, 1997:177). Another highly discussed issue is in transport planning literature is the high dependency on the automobile; it is generally argued that such a dependency is a general
cause for environmental and social costs. Mostly the discussion of sustainable development in this case is between economic and environmental objectives, but this is often much more complex (Litman and Burwell, 2006:340).

An interesting aspect of the relation between transportation and development, which is stated by Hook and Howe (2005:13-25), is that there are four myths linked to investment in transportation and economic growth. The myths are as follows:

1. Inadequate road networks are responsible for hunger and malnutrition;
2. Road investments will induce Economic development;
3. Road investments will alleviate poverty; and,
4. Kilometers of paved roads per 1000 people is a useful indicator of whether or not a country has an appropriate road network.

These myths are often referred to, and can sometimes contribute to causing unsustainable development both socially and environmentally.

It is generally agreed that a sustainable transportation system is important for cities in the future, the larger question concerns what sustainable transportation is and how we plan for it. According to Deakin (2001:5) “...strategies for increasing transportation sustainability include demand management, operations management, pricing policies, vehicle technology improvements, clean fuels, and integrated land use and transportation planning.” To clarify these strategies, they can be divided into three different categories. The first category is the strategies, which are aiming to reduce environmental effects by technological improvements. The second is aiming at improving roadways and vehicle operations and the third is the strategies for managing the transportation system (ibid:8). The third category includes strategies such as modal substitution, pricing incentives and land-use strategies. At the same time it is vital that transportation is discussed from a multi-modal perspective, as there is no single solution to the problems (Meyer and Miller, 2001:6).

Agyeman and Evans (2003:46) look at transportation planning from the perspective of just sustainability, and in general it can be understood that in history transport planning that included highway projects had a significant negative impact on low-income neighbourhoods. Moreover, equity in transportation means that the system must serve everyone - the highway project only served the middle and upper income neighbourhoods as those are the ones who are car-owners. Those that do not own a car, apart from not being targeted to be served, suffered from pollution (ibid:47).

2.4 Socially equitable Transportation

As this study looks at the accessibility and the mobility of the lower-income groups in Jakarta it is important to understand why transportation is important for the urban poor. This literature review will, therefore, look into the matter of transportation, sustainability and poverty alleviation to comprehend the complete issue. Moreover, as a basis for the discussion in the last chapter, the theoretical framework looks at how it may be possible to create a sustainable urban transportation system, which can benefit the lower income groups.
The literature on sustainable transport in both the developing and developed world is primarily focused on the environmental aspects. Social development aspects of transportation have unfortunately been neglected. However, it is said that it is important that transport planning should address these issues of social equity along with environmental problems as recognition of environmental justice theory (Meyer and Miller, 2001:142). Hook and Howe (2005) looks at transport and the MDGs, and the role transport plays for the urban slum dwellers. Moreover, they suggest that transport policies can be adjusted to improve the situation of the urban poor as they could result in greater mobility with lower cost (ibid:5). Meyer and Miller (2001:1) agree that “…a metropolitan area’s economic and social health depends to a large extent on the performance of its transportation system…” as it provides mobility.

There are two important concepts within the field of socially equitable transportation, ie, the concepts of mobility and accessibility (Meyer and Miller, 2001:95). They might be defined as:

“Mobility: the ability and knowledge to travel from one location to another in a reasonable amount of time and for acceptable costs”; and,  

“Accessibility: The means by which an individual can accomplish some economic or social activity through access to that activity”. (Meyer, 1995 in Meyer and Miller, 2001: 95

Mobility is used by many scholars when addressing transport as a social issue. A static relationship between mobility and income often indicates that mobility is related to wealth. It is, however, wrong to simplify through this assumption, and, therefore, analysis should be done more thoroughly (Leinbach, 1995:338).

The social problems and indicators for sustainable development are usually less discussed and especially in transport literature. The European commission’s EXTRA project (2001, in Walker et al, 2008:234) identifies some social aspects of sustainable mobility, and covers:

- Accessibility to transport services, such as affordable public transport;
- Effects of the transport network on social cohesion;
- Care for marginal/disadvantage/vulnerable groups;
- Social equity of transport policy changes and the implications for public acceptability – depending for example, on the effects on income distribution, regional development, and employment; and,
- Working conditions for operatives.

These five points are simple to comprehend, and are useful in defining existing issues in many developing countries. Although these points recognise the issues they, do not tell us how to deal with them.

**2.4.1 Transport and the millennium development goals**

The linkage between transportation and poverty is only a fairly recently addressed in the international development arena. It is only during the last two decades that the UN has addressed the issue, and, therefore, research is not as vast as in other development fields.
According to a report written by Hook and Howe (2005) it is important to include transportation matters even though they are not specifically noted in the MDGs. Moreover, it can be said that transportation programs and projects can have an enormous impact on poverty alleviation (ibid:4). In the UN system it is UN-HABITAT that has become the basis for working on transport related issues, but the activity is still rather thin and there is no specific agency dealing with this issue. It is rather the World Bank, which stands for the transportation policies up to date (ibid:9). To move over to the issue of how we can relate transportation to the field of poverty alleviation, it can be said that it is generally agreed that investment in the transportation sector is a compliment to economic growth and poverty alleviation. Though, it is important to acknowledge that there is little evidence that the investments will induce poverty alleviation (Bejakovic, 1970 in Hook and Howe, 2005:11). According to Hook and Howe (2005:11) it is important that these investments are carefully done as misdirected investment could actually increase harm the development process.

2.4.2 BRT as a solution.

Armstrong-Wright (1993:31) writes that in the 1990s a few third world cities had introduced a bus rapid transit (BRT) system. These were located in Brazil, Peru and Turkey. Moreover, he explains that the costs of building a BRT system is much lower than constructing a rail mass transit system (ibid:37). Yet, even when considering this aspect, relatively few countries decide to build a BRT system, and according to Hensher (2006:1), it is because buses are often seen as much more unglamorous that a rail based system. Primary policies for transportation in the developing world that are suggested are promotions of non-motorized transportation (NMT), but also cheap fast public transportation such as a BRT system (Hook and Howe, 2005:5).

Litman and Burwell (2006:341) write that transportation equity should strive provide greater mobility for economically, socially and physically disadvantaged groups by giving improved transit, cycling and walking conditions. With other words, BRT should not be considered as the only choice as a wider provision of transport is needed. Another reflection of an improved sustainable transport system is that communities need to increase their liveability, therefore communities need to be provided with a good street network that provides walking and bicycling facilities but also public transit (ibid:341).

From the previous sections of this chapter it can be understood that there is not a single solution to a problem in the transport system. Although, it is generally agreed that BRT is a good option as a public transport system, it must be remembered that a good transport system needs to be multi-modal. Hass-Klau (2003:190) criticises much of the literature in transport planning as it often forgets the relationship of public transport and walking. She says that public transport increases the amount of pedestrians as there is a need to walk to and from the stations, at the same time, to be able to increase walking, wider sidewalks are needed (ibid: 189). So that implies that even if a good public transportation system is installed, it is necessary that the city has a good pedestrian environment.
2.5 Summary

This chapter identifies a common definition of sustainable development. Moreover, it has looked upon sustainable development in transportation studies. Sustainability is described as a difficult concept in transport planning in the developing world. Mobility is, for example, important both for economic growth and socio-economic development. Yet, to create sustainable environmental development alternatives to private transportation is needed. Socially equitable transport is also a difficult matter, and does interact with other issues in urban development in developing countries. But as the study focuses on socially sustainable development, a special focus has been on literature that addresses these issues. It must be acknowledged that the chapter has discussed several issues, which will not be specifically investigated in the coming chapters as the focus of this study is primarily on issues that are related to mobility and accessibility. Though, it is essential not to forget social issues that are related to environmental problems such as noise and air pollution, which could also be an issue for a later study.
3. The Indonesia-Jakarta Context

3.1 Introduction

The decision to construct a BRT system in Jakarta was taken by governor Sitoyoso. Its major objective was to ease/reduce the growing number of private car ownership in Jakarta and with that reduce the pollution. The choice of a bus based system, rather than a rail system, was made as it would be both cheaper and quicker to construct, and, therefore, it would be able to be finished within a constitutive period. Moreover, it is generally considered that BRT will provide a lower fare than MRT, and would, therefore, suite the city both in terms of construction costs and providing affordable transportation.

The focus of this study is on transportation for the low income groups in Jakarta. To get a better understanding of the situation in general a look at the political, social and economic context is vital. The previous chapter introduced this study, and, to progress, this chapter will now investigate how Jakarta looks today and in history with special regards to transport, urbanisation and poverty. Further, an investigation of the Master Plan for the development of Jakarta (4th chapter) will compliment this chapter and enable a look at the way the BRT and other transportation have been developed and planned with regards to physical and non-physical aspects.

3.2 Political and socio-economic history

Indonesia is a young state with a 60-year history of independence after the Dutch and later Japanese colonial rule. It has an even newer history of being a democratic nation since the fall of Suharto as a result of the economic crisis in 1998. Table 3.1 explains the most important events in Indonesian and Jakartan history. It is important to point out is that even though Indonesian economic development was significant before democratisation there was no large scale public transport implementation prior to it.

<table>
<thead>
<tr>
<th>Table 3.1 – Key events in Jakarta’s and Indonesia’s History</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Classic era ~400–1600</td>
</tr>
<tr>
<td>Dutch era 1600–1945</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Sukarno era 1945–1965</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Suharto era 1965–1998 (the New order)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Reformasi era</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Source: Adapted from Hutabarat Lo (2010:530) and Forbes (2004)
As a result of being the centre of decision making, Jakarta is also the economic centre in Indonesia. Though, the Indonesian capital had a significant economic decline following the Asian monetary crisis (Figure 3.1) it has been now able to catch up to the levels prior the crisis.

With not digging to deeply in the political history, there are some events that might have played a central role over the urban development, which will be important to understand before looking into the current infrastructure situation. They will be discussed more thoroughly in the next part as they are integrated with the urban development of Jakarta.

3.3 Urban Development in Jakarta

Jakarta is the largest city in South-East Asia and amongst the largest cities in the world with a population of over 8 million people in the Capital district. When including its metropolitan area it can be ranked as the second largest in the world. The city has a long history with several different names, but did not really start growing until the Dutch rule when its name was Batavia.

An important factor in the recent urban development has been the decentralisation of power in 1999 when the government passed a legislation, which transferred power from the central government to regional government (Asri, 2005:2308). Prior to the decentralisation, power was of course centralised in Jakarta, which resulted in mass migration to the capital.

The political history has formed much of the urban development in Jakarta and how it looks today. According to Hutabarat Lo (2010:534-6) Jakarta has been shaped by both Sukarno and Suharto. During Sukarno’s legislative development was somehow characterised by socialism with large boulevards, stadium and the large freedom square (Medan Merdeka) (Forbes, 2004:271). Moreover, urban development was striving for modernisation, and large roads were built for manufacturing (Hutabarat Lo, 2010:536). At the same time pedestrian facilities remained non-existent even though 60% of the population walked to work (ibid).

During the Suharto era from 1967, the urban development was influenced by neo-liberalism with a focus on foreign direct investment in contrast to the Sukarno regime where import substitution was the general practice. The globalisation of the economy led to a vast growth in investment, and Japan stood for 73.2% of all foreign investment (Soegijoko, 1996:380). In
the 1980s further liberalisation of the economy increased international trade (*ibid:*382). At the same time Suharto still centralised the power, and most investment and development occurred on Java and in Jakarta. This caused a rapid urbanisation and economic growth in the capital region.

The Neo-liberal strategies had a clear effect on the urban development of Jakarta, and state enterprises were privatised.

“During both eras, development of monumental roadways supporting privatised public spaces belied autocratic, top-down approaches that were influenced more by international sources of finance and technical assistance than local need and everyday practices.” (Hutabarat Lo, 2010:536).

The rapid urbanisation in Indonesia but also the past centralisation of power have led to Jakarta and its metropolitan region having grown tremendously. Moreover, the population density is increasing and spreading to the suburbs (Figure 3.2), which has effected the poorest population as housing prices have increased and, therefore, worsened their living conditions (Asri, 2005:2309). Goldblum and Wong (2000:36) argue that the “…rapid urban development in the Jabotabek region has revealed the lack of competent planning and management staff to ensure smooth implementation of Master Plans…”.

Figure 3.2 – Population density in Jabodetabek 1990 and 2000


### 3.4 DKI Jakarta

In Indonesia there are three levels of decision making. These are the central, regional and local. Jakarta, which in the regional governing is named DKI Jakarta (Dearah Khusus Ibukota = Special capital district) and has since the decentralisation in 1999 been the centre for decision making in regional development plans. At a local level there are five different municipalities (Figure 3.3, below), which are divided over North, South, West, East and Central Jakarta. The district of DKI Jakarta is the one that this study is investigating. It should be acknowledged, however, that there is a greater district that includes the cities of Bogor, Depok, Tangerang and Bekasi, which is called Jabodetabek (or Jabotabek when excluding Depok). At a local level the municipalities consist of several sub-districts called ‘kecamatan’.
At a local neighbourhood level there are ‘kelurahan’, which are the villages within the sub-district. In the villages (kelurahan) there is always a person who is selected to be head of the village and has the responsibility of communication with the authorities.

At a central level, planning is conducted by the National Planning Board (Bappenas) that in Jakarta mainly decides over railroad and toll road development. A regional level it is the Regional Planning Board (Bappeda) that is the central actor in planning in DKI Jakarta, There are also Planning Boards (Bappedas) at the local, municipal, level that follow recommendations from the Regional Planning Board. Concentrating on the governing bodies, which have power in the decision making process related to the BRT development, except Bappeda, the Department of Transportation (DisHub, DKI Jakarta) is an important actor in the development of the BRT. The Public Works Agency (DPU DKI Jakarta) is another actor, responsible for infrastructure development. On top of these, ITDP Indonesia is an international NGO, which currently provides technical advice for the authorities.

**Figure 3.3 – Map of the municipalities in Jakarta**

![Map of the municipalities in Jakarta](http://upload.wikimedia.org/wikipedia/id/2/28/Peta_Jakarta.gif)

*Source: [http://upload.wikimedia.org/wikipedia/id/2/28/Peta_Jakarta.gif](http://upload.wikimedia.org/wikipedia/id/2/28/Peta_Jakarta.gif)*
3.5 Current transportation situation

The current transportation situation in Jakarta varies with area visited and the available infrastructure in that specific area.

In the SITRAMP report it is acknowledged that transportation is the major issue for the development of the capital region Jabodetabek (JICA, 2004:i). The region has during the last decades rapidly expanded though transportation has not kept up with the expansion and travel times are increasing rapidly. As the region is the most important for the Indonesian economy it is vital that the chaotic traffic situation does not - according to the SITRAMP study – increase, which would hamper the region’s economic growth (ibid:i).

Figure 3.4  –  Modal Composition by Income Level

![Modal Composition by Income Level](image)

Source: JICA 2004

The situation prior to the BRT implementation indicates the inequality in transportation between various incomes groups as the high income groups in the area do not significantly rely on public transport. Figure 3.4, above, shows that those who are highly dependent on public transport mainly the low income groups.

Another important factor in the urgent need for improving the transportation system lies outside of DKI Jakarta as the capital is a great recipient of commuting workers from the neighbouring regions (Figure 3.5, below).
3.5.1 **Private vehicles, roads and highways**

The use of private vehicles for transportation can be still considered the most popular choice especially among higher income (Figure 3.4, above). The current public transportation mode is still not attractive enough, and provides less mobility than the use of motorbikes or cars. Figure 3.6, below, indicates that the share of private vehicle ownership changes as income level increases, especially car ownership. The recent economic development has been a factor, which has led to a rapid motorisation in Jakarta (Figure 3.7, below), and road construction has not been able to handle the rapid increase. Therefore, Jakarta has become one of the most congested cities in the world. Besides, DisHub (2009) claims that Jakarta has a significant road deficiency and that either it needs to increase the road ratio up to 12% by building 5,950 km new roads or reduce/restrain traffic by 32.6%. To deal with this road deficiency there are propositions involving both road construction and public transport development (DisHub, 2009).
Jakarta thus has a major road deficiency according to Dishub. Besides, it is estimated in DKI Jakarta only 6.26% of the land use is for roads (Dishub, 2009) Therefore, the city administration aims to increase the road capacity as it is even significantly lower then the least ‘road-dense’ cities like Singapore. It is however clear that the density of roads varies between different neighbourhoods (Figure 3.8, below). Certainly central Jakarta has a higher density of roads, whereas the eastern and northern parts have a lower density of roads, especially along the coast.

Figure 3.8 – Road density

Source: PTM (2007)
3.5.2 Public Transport

Public transportation in Jakarta today exists of railway, BRT, AC-buses, ordinary buses, medium buses and mini buses. Figure 3.9, below, is illustrating the current public transport modes. The newest system is the BRT. It is government operated and subsidised to keep fare costs at a low level. The statistics below are from a survey done in January 2008, and, as the BRT is still under development, its share of users has since grown. Medium and mini busses are most frequently used; this might mean that many people travel quite locally. It is also a result that most need to use either mini bus or a medium bus to travel to the local BRT station. Besides, medium sized busses such as Metromini and Kopaja are probably the most affordable as a single fare is IDR 2000 (SEK 1.56, EUR 0.17).

Figure 3.9 – Public Transport modes in Jakarta

![Public Transportation Modes Selection](image)

Public transportation that mostly used by people are Medium Bus and Mini Bus. But people also often use three-wheel vehicles (bemo) for certain routes, although it has been restricted in certain areas by DKI Provincial Government.

<table>
<thead>
<tr>
<th>Public Transportation</th>
<th>Jabotabek Railway</th>
<th>Large Bus – BRT Transjakarta</th>
<th>Large AC Bus</th>
<th>Large Non AC Bus</th>
<th>Medium Bus (= Metromini, Kopaja)</th>
<th>Mini Bus (= Angkot, Mikrolet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance</td>
<td>Medium – Long</td>
<td>Short – Medium – Long</td>
<td>Medium – Long</td>
<td>Medium – Long</td>
<td>Short</td>
<td>Short</td>
</tr>
<tr>
<td>Capacity &amp; Tariff</td>
<td>&gt;300 persons; Rp. 1,500 – 7,000</td>
<td>60-80 persons; Rp. 3,500</td>
<td>60-80 persons; Rp. 5,000–10,000</td>
<td>14 persons; Rp. 1,500 - 5,000</td>
<td>25-50 persons, Rp. 2,000</td>
<td>5-6 persons; Rp. 1,500 – 5,000</td>
</tr>
</tbody>
</table>
| Source: PT. Pacific Rekanprima (2008)

Larger buses, not including those of the BRT, often travels between several of the Jakarta municipalities. Besides, they travel beyond DKI Jakarta to the Bodetabek area. Further, it is mainly the routes of the larger busses which have been replaced by the BRT. It is also important to mention that the tariffs on large AC busses are considerably higher than the BRT, which is also air-conditioned.

Another fact which should be acknowledged is that on all public transportation, except the BRT and the Railway, drivers and the conductors are paid directly by the tickets they sell - they do not have a basic salary. This means that the busses, especially mini busses, will not
leave until they are full, resulting in a time-wise longer journey than needed. To collect the maximum amount of passengers, the driver will stop wherever on the road when requested, despite the government’s attempt to make it illegal as it increases traffic congestion (Interview: Pak Syafrin, 2010).

**The BRT.** Today the BRT is running along eight corridors from south to north and from west to east (Figure 2.10, below) covering 8% of DKI Jakarta prior to the opening of the 8th corridor (Renny, 2009:12). As Figure 3.9, above, shows, its share in public transport is still low but increasing. The monthly amount of passengers (trips) is reaching 7 million (TransJakarta, 2010). It is, however, far from serving most people in DKI Jakarta, which has a population of more than 8 million people. In total, there are 15 planned corridors, corridor 9 and 10 are already constructed and planned to be opened by the end of this year.

Currently the service of the BRT in Jakarta is highly debated and the level of service varies greatly between the different corridors. The first corridor is considered to have the highest level of service, as the whole corridor is separated from other vehicles with a frequent flow of buses. In a survey conducted by the Indonesian Consumer Association, YLKI, in 2010 the lowest level of service was in corridors 7 and 8. Corridor 8 was specifically regarded as not reaching a minimum standard, due to mixed traffic (YLKI, 2010).

**Figure 3.10 – Map of the current BRT corridors**

Source: ITDP
The BRT is in built on major roads in Jakarta, Figures 3.11 and 3.12 (above), show how the system looks like. Its route is mostly separated from the traffic, but in some areas it is not. As seen in Figure 3.12 (above), boarding the bus is done from an elevated platform shelter to avoid people entering from the streets. As most shelters are located in the middle of the road, footbridges are constructed to make a safe entrance to the shelter. With regards to the system’s impact on other traffic, it is a contested issue. People working with the BRT argue that it has an insignificant impact on congestions, whereas private vehicle owners often say it has increased congestion.

NMT in Jakarta. Cycling and walking is still widely used by many in Jabodetabek, though the levels in Jakarta are significantly lower than in the Bodetabek area. Figure 3.11, below, is showing that around 60% of the modal share is by NMT in the region of Jabotetabek.

**Figure 3.13 – Transportation Modal share by gender in Jabodetabek**

Source: JICA 2004b
The provision of facilities for cycling and walking varies greatly in different areas. The photos in Figure 3.14, below, compares the sidewalk provision. In the central business areas sidewalks are relatively clean and free from obstructing items, in higher-income areas there are still sidewalks provided and are generally quite good for walking. Most significant is the lack of sidewalks in many low-income neighbourhoods (Figure 3.14, below), in these areas walking and bicycling is mixed with motorised vehicles which makes it very unpleasant to walk.

**Figure 3.14 – Pedestrian facilities in an high income neighbourhood and in a low income neighbourhood**

Source: Author

### 3.6 Socio-economic situation in Jakarta

Jakarta is the centre of economic activity in Indonesia, yet poverty is still a large issue in the capital. Figure 3.15, below, shows that in 2004 a high proportion of households have a household income of IDR 1 million or less. The Regional Statistics Agency (BPS DKI Jakarta), have numbers from 2010, which says that 3.48% of the population in DKI Jakarta are poor (BPS, 2010). Yet, BPS DKI Jakarta sets the poverty line at IDR 200 000/person/month (EUR 16.91, SEK 156), which is significantly lower than the set poverty lines by the World Bank at USD 1-2/person/day. If the poverty line was set by World Bank standards the percentage would be significantly higher.

Spatially, the distribution of household income difference in Jabodetabek is most significant between DKI Jakarta and the surrounding regions Bodetabek (Figure 3.16, below). Inside DKI Jakarta, the most significant difference is that the northern area has a higher proportion of low-income households.
3.7 Summary

This chapter introduces Jakarta and Indonesia with a connection to the research field of this study. Urban development and planning in Jakarta is a mirror of the political history and economic development of the country. As a new democracy, it is only recently that a public transport system operated by the regional government was introduced. With regards to poverty Jakarta is far better than the rest of the country. However, this does not mean that it is not an issue in the capital where income is not distributed equally and, hence, travel modes are determined by income. In the following chapter, this study is looking at the methodology that is setting the basis for the field study.
Figure 3.16 – Spatial Distribution of Household Income in Jabodetabek

4. Methodology

4.1 Introduction

In the previous chapter, a context of Indonesia and Jakarta has been addressed looking at political history, urban development and planning, urban transportation and poverty in Jakarta. This chapter uses the introduction and the context as a background establishing methodology of the present study. It thus refers to the problem formulation and its research questions to identify an appropriate methodological approach, method, technique and the choice of data collection. It first looks at the general methodological approach and then moves over to identify, which methods and techniques that are chosen for data collection.

4.2 Methodology

Approach. The research approach in the study is primary explorative as there has not been much research carried out concerning the study’s specific problem area – as defined in Problem Outline and Research Questions, in the introduction – in Jakarta. It is also descriptive, as it intends to contribute through recording of empirical findings towards an understanding of the current situation. The latter of the two approaches are linked to an explanation, which would mean to identify causes that might affect BRT’s inability to reach low-income populations in Jakarta. The study is partly explanatory as it tries to identify some possible causes to the problem (research questions 4.a-c). Such explanation would be a necessary prerequisite for the study to be normative or prescriptive. These methodological approaches are based on Msc thesis work recommendations by Viking (2004:17-20). A delimitation of the study is that its limited resources does not permit a full explanation and thus prescription – yet, an attempt to raise questions for the future is done in the ensuing discussion (Chapter 7). Further, the field research has a case study approach meaning that it will be easier to explore the case more thoroughly (Denscombe, 2003).

Method. The research method is based on collecting and examining first and secondary data, which is both quantitative and qualitative. However, the primarily use of methods in this project is qualitative – a reason being that my previous research experience in development studies have been qualitative. Besides, field research is mostly associated with qualitative data collection and analysis (Frankfort-Nachmias and Nachmias, 1996:281). Some quantitative data analysis for the study is included, mainly to be collected from secondary material. The methods for collecting primary research data was a field study in combination with a case study. The chosen case study is the BRT system in Jakarta, whereas the field study is conducted in low-income communities in Jakarta. The discussion is based on an analysis of the results from primary and secondary data. Below, techniques for this collection and analysis will be identified.

Techniques. This study techniques are focused on secondary data analysis, field study observation, questionnaires and a few interviews. These techniques are chosen as they compliment each other. Observational methods are suitable in the cases when observation is possible, in this case the physical situation in the field (Frankfort-Nachmias and Nachmias, 1996:224). The questionnaires compliment the observation to identify things which can not
bee seen. In the case of the interviews that were conducted with NGOs and governing authorities, semi-structure interviews were used, which allows the respondent to think, and give answers that otherwise may not have come up. Moreover, the present study will put emphasis on analysing material that will be collected according to environmental justice and sustainable development theories, especially linking environmental issues with social equity. The techniques that are just mentioned are more thoroughly discussed below with reference to the background study and field research.

4.2.1 The Background Study

The background study is a combination of the theoretical framework and the context along with a desktop study of the master plans and other documents in the related field. The material that is used in the theoretical framework is primarily academically published articles and books. Whereas the Indonesia-Jakarta context chapter (Chapter 3) and the Transport Master Plan, Low-income Communities and the BRT Chapter (Chapter 5) uses a combination of published and unpublished data. The data collection of material on the BRT was found during field research in Jakarta. Some of the information came from the employees of ITDP Indonesia, as much of the desktop study was carried out in the ITDP office.

4.2.2 The Field research

Qualitatively structured interviews are a basis for the primary data collection of this study. The interviews where conducted in several low-income areas in various parts of Jakarta (Figures 4.1-2, below). The selected interviewees were not randomly chosen due to the difficulty of accessing the neighbourhoods on my own. They were conducted with assistance from organisations and individuals to get contact with residents. It must be acknowledged that this might impact on the results as the individuals interviewed might be more informed and interested in developing the communities as they are engaged in the work of the organisations. Moreover, acknowledgement should be made to say that some of the interviewees are on the border to belong to medium-income earners; this was not the intention, as the selection of interviewees was done solely on residential basis I had no knowledge of the household income beforehand.

The communities where the interviewees lived are in various geographical parts of Jakarta (Figure 4.1, below). the major reason for this was to investigate if there might be geographical spatial differences or if low income communities around Jakarta are in a similar position. Due to the shortage of interviews of residents, this primary research was assisted by interviews with a few organisation representatives and their opinion, but also secondary data from other research. To support arguments, photos from the field research are included in the field study chapter. As only 38 interview/questionnaires were processed there is not enough data to use as quantitative data. With this in mind it must be recognized that answers, which are stating income and transport expenditure are just to give an reflection of the respondents’ background. Moreover, most important in this research will be to look at the obstacles in providing the low income communities with a sustainable good transport system.
Figure 4.1 – Neighbourhoods where the interviewees lived


Figure 4.2 – Data collection using open ended questionnaire

Source: Friend of Author (Edi Beno)
The interviews with the residents were made with a questionnaire form in Indonesian with open-ended questions. The interviews were predominantly done in the residents’ house or nearby. A few interviews were conducted in a local NGO building. Interviews were made in a simple Indonesian language, and answers were written on a questionnaire. The interviewees considered questions regarding their whole household (Appendix 1), this to create a clearer picture of what the different family members travel behaviours are. It was done as it was difficult in the field to get an opportunity to talk to the husbands/men as they were often out working whilst the wives were at home. Moreover, only interviewing housewives about their travel habits would not have given the study a clear understanding, as many housewives moved around a lot less.

At the end of the research period three interviews were made with government civil workers to provide an insight to the political situation, the past development of Jakarta and future plans. Though, more specifically they were conducted to investigate the policies on transportation for low- income communities. These interviews are also made to check or compliment arguments that were found in the interviews with residents in Jakarta’s low income communities. Further, a few interviews with representatives from NGOs were also conducted regarding their opinion on how low income people travel in Jakarta.

4.3 Summary

The methodology that is used in this study is a combination of a theoretical framework formulation (Chapter 2) and a methodological approach, methods and techniques that are based on a field study. This Chapter has outlined a Methodological framework, which is explorative, descriptive and part explanatory with a qualitative and part quantitative methods. The techniques used in this study are a mix of primary and secondary data collection, with a focus on a field study. In the following chapter concerning the Master Plan and The BRT is considered as a basis for the forthcoming Field Study Chapter (Chapter 6) along with the concluding Discussion Chapter (Chapter 7).
5. Transport Master Plan, Low-Income Communities and the BRT

5.1 Introduction

In the last proceeding Chapters theoretical framework and methodology are accounted. This chapter is based on the findings in the theoretical framework with specific regards to transportation planning and policy. Different existing local plans in transportation will be discussed as a background for the field study. To understand the plans, the chapter will first identify the current transportation situation and what modes of transport are available. Following this, there will be a review of the transportation plans, which are the The Study on Integrated Transportation Master Plan for Jabodetabek (SITRAMP), Transportation Master Plan (PTM), Busway feasibility study and the Perencanaan Pola Operasional Koridor BRT. The latter of the stated studies was the basis for the choice of the corridors, which the current BRT is following.

All the recent transportation studies and plans, which have been ordered by the DKI Jakarta administration have addressed the importance of a public transportation system (PT Paramitra Mardhika, year unknown:1-1). To begin this chapter, there is a short outline of the current transportation master plan, and following it is a summary of the current transport policies.

5.2 Planning Jakarta’s public transportation

5.2.1 Transport Master Plan

The Jakarta master plan has been developed to deal with the huge transportation challenges that the city of Jakarta is dealing with. In Figure 5.1, below, there are three major strategies, which are the basis for the transportation master plan.

Figure 5.1 – Strategy PTM

Source: PTM, 2007
Among the strategies in public transportation development (Figure 5.1, above) it is only the BRT which has begun the implementation stage. The monorail and the MRT are currently put on ice due to insufficient funding. The major objective in the transport master plan is to reduce or prevent further traffic congestions in the city (PTM, 2007). The strategies, which are seen in Figure 5.1, above, are all part of this objective, and most of the strategies are still to be fully implemented. The Transportation Master Plan (PTM, 2007) also indicates that the city needs major road improvements as the city has a low road ratio. Even if public transport use is increased, it is indicated that more roads are necessary for Jakarta to become a competitive city for economic investment. In addition, there is a large toll road project in Northern Jakarta to improve the access to the Tanjung Priok port; this project is being lead by the National Planning Board Bappenas, and is, therefore, not part of the DKI Jakarta Master Plan.

5.2.2 Transportation Policy in Jabodetabek

In the SITRAMP technical report there are some policy statements according to how the transportation policies should be for future development. The following policies are stated:

- Policy 1: Alleviation of Traffic Congestion;
- Policy 2: Improvement of Public Transportation Services;
- Policy 3: Reducing Air Pollution; and,
- Policy 4: Improvement of Transportation Safety and Security (JICA, 2004b – vol. 9, ch. 3:5-12).

A stated goal is that there should be provided better equity among all social groups in society. Further, it is stated that the provision of decent public transportation should allow the low-income group greater mobility (JICA, 2004b:3-4). Therefore, it can be suggested that improvement in public transport is necessary in the area and that the government should focus on providing a minimum service rather than on a maximum fare level. The infrastructure improvement should be provided by the government with priority lanes for buses.

According to Renny (2009:12), the DKI Jakarta Transportation Agency (DisHub) current transportation policy to improve mobility for the urban poor includes the improvement in public transportation such as the BRT. Further, DisHub address that the with the cheaper morning tariff on the BRT it will provide economic access for the urban poor. The agency also states that the policy is to provide public transport within 400 m radius from an urban settlement as this is considered a reasonable walking distance (ibid).

5.2.3 The BRT plan

The BRT was chosen as the major public transportation to be developed in Jakarta as it was a cheaper option then building an MRT system. However, the macro transportation plan (PTM) is suggesting that in the future, corridor 1 from Blok M to Kota will have to be substituted by MRT as it will not be able to handle the demand (PTM, 2007). As seen in Figure 5.1, above, there is a proposition of a monorail construction in the future. These projects will not be examined as they have yet to be implemented and are also not part of this research.
An extensive study was carried out as a basis for the choice of the BRT corridors by the consultancy firm (PT. Krabati Inti Partama, year unknown). Figure 5.2, below, shows the methodology, which was the basis for planning the BRT routes. According to this study it seems as the route plan had a strong basis in socio-economic data. However, in the report parameters are chosen in a multimodal perspective. It is significant that the study states that an assessment of the current transportation system is needed. The demand patterns and the road networks are declared as the basis for the study as they will indicate how a future bus system is laid out (PT. Krabati Inti Partama, year unknown:6-1).

**Figure 5.2 – BRT Development Methodology**

Source: PT. Krabat Inti Partama (year unknown:6-2)

Another important parameter in the development of choosing appropriate corridors for the BRT was looking at the road network system. In the report it is acknowledged that the road network that was examined was containing the arterial, collector and local roads (PT. Krabati Inti Partama, year unknown:6-9).

**Demand Analysis.** The demand analysis was the basis for the corridor selection of the BRT. In the demand analysis it is stated that the work to be performed was to:

“1) Identify the road network system (volume and traffic patterns), and perform estimates of future travel demand based on forecasting the total population, spatial distribution, the number of workers, economic conditions and vehicle ownership rates in the future.

2) Estimating the demand for travel in the corridor.”

(ibid:1-4)
In an interview with ‘Pak Taufik’, who was part of the team which researched the demand analysis, said that the focus of choosing corridors were on the demands of the then current bus route network system and the traffic volumes. The priority in the project was to reduce the congestion, but the system was also to be built on the existing road network (Interview, ‘Pak Taufik’, 2010-04). It can, therefore, be understood that as the primary basis for the demand analysis was the current bus network use, it would have resulted in that the BRT was built on the then current main roads. Besides, it is unclear whether the demand analysis or the demand model development included the aspects of better mobility for low-income groups. In the analysis of socio-economic projection it is stated that a forecast for socio-economic growth is needed to provide the future demand patterns (PT. Krabati Inti Partama, year unkown:3-21). Figure 5.2, above, demonstrates the above mentioned factors, which were underlying for the development of the BRT system network.

**Ticketing system.** The ticketing system in the current BRT is based on a flat fare of IDR 3500 (EUR 0.30, SEK 2.73) for all travels, except in the morning before 7 am when the trip fare is IDR 2000 (EUR 0.17, SEK 1.56). The fare is regardless of the distance travelled, and the it is not incorporated with other public transportation modes. The government has set the fare, and the reason for a lower morning fare is the suggestion that it is lower- income groups that travel early in the morning.

**Future policy.** Over the coming year two more corridors will be opened, a little later than first planned. Another important change is that the government has been recommended to cut the subsidies for the BRT as it is too costly. It is instead recommended that to provide a service for the low-income group, subsidies should be provided directly to the people rather than the whole system so that subsidies are distributed more equally (PTM, 2007). Yet, it is unclear how this can be achieved and whether the money will be distributed to the right people and the right purpose. According to Nainggolan (e-mail reply, 2010), the reduction of subsidies will wait as the government has made clear that the level of service is not high enough to increase the fare.

A study is currently being conducted on a feeder BRT system, though there is yet no information on how this system will work. Present feeder lines are privately operated, and are mostly owned by ‘new-town’ developers. This means that they are not truly feeders for the BRT but rather shuttle buses for residents in the ‘new-town’ areas.

### 5.3 Low- Income communities and the BRT

The general picture of Jakarta is that there is not a clear income segregation as can be seen in many other world cities. Instead Jakarta is often called the city of Kampungs (villages) as it is grown out of many villages. However, there are areas in the city, which have a higher population of lower income groups than others, and also areas that have a larger population of higher income groups. In Figure 5.4, below, poverty is more distinct in northern and eastern Jakarta, whereas Figure 5.5, below, shows that slum areas are located throughout the city with some concentration in the north and the west. Within the capital it is significant that the northern part has a higher concentration of low-income communities whereas the southern part is home for the better off.
5.3.1 Current BRT users

A study conducted this year by YLKI (consumer organisation in Indonesia) on the ability to pay for the BRT in Jakarta also shows average income among the travellers. The recent research shows that around 45%, Figure 5.3, below, has an income between IDR 1-2.5 million, with an overall average income of IDR 2.226.316 (YLKI, 2010). Further, it must be acknowledged that a 34.7% of people having an income below IDR 1 million are students or pupils. This may be compared with the average monthly income of employees in DKI Jakarta, which is IDR 1,925,662 in February 2010 (BPS, 2010). IDR 1,925,662 might not be a significantly lower than the average income rate of BRT customers, though it must, however, be recognised that the average income rate overall only accounts the formally employed in DKI Jakarta. Therefore, it is clear that the BRT users could be considered as medium income and student, with only a small proportion of low-income users.

![Figure 5.3 – Proportion of BRT respondents customers’ monthly income](image)

Source: YLKI (2010)

5.3.2 Mapping Poverty and BRT

In a study by Mercy Corps, mapping of poverty in Jakarta has been constructed (Figures 5.4-5, below). If comparing these images with the BRT, Figure 5.6, below, it is spatially difficult to outline a drastic difference in whether the BRT is distributed equally among various income groups according to these maps (Figures 5.4-6, below) as many of the low income communities are spread throughout the city with a slight concentration in the north. It seems as the development of the BRT in the north has been slower as corridors 9 and 10 are behind of schedule and has not yet opened (as seen in Figure 5.6, below). The current corridor, which is reaching the northern part of Jakarta, is corridor 5, with corridor 1 reaching the border of northern Jakarta.
Figure 5.4 – DKI Jakarta Poverty map

The concentration of poor households in DKI Jakarta is mostly found in North Jakarta, followed by East Jakarta.

Source: Mercy Corps (2008)
Figure 5.5 – DKI Jakarta slum areas

Source: Mercy Corps (2008)
Figure 5.6 – Jakarta BRT map including future corridors

Source: http://www.transjakarta.co.id/rute.php

According to Figure 5.7, below, the number of residents who live in northern Jakarta using the BRT is currently the lowest in DKI Jakarta. If considering the amount of residents in Jakarta’s different municipalities with the amount of BRT users, the share is still significantly lower in the north and the west municipalities. However, as the highest percentage of users live in Eastern Jakarta where a fairly high proportion of residents are lower income it is difficult to strictly consider the BRT as unevenly distributed with income as an aspect.
Figure 5.7 – Proportion profile of respondents based on the residence of BRT customers

Source: YLKI, 2010

From what has been stated in this section it is clear that the BRT is currently attracting mostly middle-income passengers, according to the YLKI survey done in 2010, even though Chapter 3, above, shows, that in general, public transport in Jakarta has most users among the lower-income groups (Figure 3.4, above). The first obvious suggestion would be that the BRT corridors are not spatially evenly distributed among different income groups. The maps show that this hypothesis is not easily proven, whilst it might be said that BRT is not reaching many communities in north Jakarta where most of the low-income communities live. In contrast, the YLKI (2010) research found that corridor 8 had the lowest average income of the BRT users, even if it is reaching higher-income neighbourhoods like Pondok Indah in southern Jakarta. Once, again, it can, therefore, be stated that the hypothesis that the BRT is unevenly distributed would be difficult to prove.

5.4 Summary

This chapter has looked at the transportation master plan and transport policies in DKI Jakarta. The major policies have been identified as a background for the next chapter, which is the field research considering transportation behaviour of some low-income community residents. Further, the BRT has been evaluated spatially, and the plan of the BRT has been introduced as it will be a foundation for addressing possible reasons to why the BRT is currently not reaching many people in low-income communities.
6. Field Research

6.1 Introduction

Transportation is not generally seen as a priority area amongst the interviewed and organisations working the low income neighbourhoods in Jakarta. Flooding, evictions and health issues are a high priority in these neighbourhoods. Transportation is, as is understood in the literature study, an important factor to increase the employment opportunities. Though, it could also be argued that transportation and employment is closely related to issues such as health, safety and education accessibility.

In the previous chapter the study looked at the transportation master plans and low-income communities in relation to the BRT network in Jakarta. The findings, in previous chapter, acts as compliments to the findings in this field research chapter. The field research is based on the findings in interviews with residents; it will further include comments, which have been made by NGO representatives and workers of government bodies. First, in this chapter, the area setting will be explained and photo images and maps are showing the areas in which interviews where conducted. In Chapter 2, the context has already been explained, and the aim is to combine the field study findings with document findings to understand the transportation situation for low-income communities in Jakarta and to analyse the research questions findings.

6.2 Field Study area setting

Informal settlements are common in Jakarta, and even among many middle-income neighbourhoods some houses are semi-informal. This informality can be argued to have an effect on the accessibility in many informal settlements. In north Jakarta and the area of Muara Baru in Penjaringan, paved roads inside the settlements are rare and maintenance is financed by residents or organisations rather than the municipality.

Figure 4.1, above, shows a map over the different areas in which the questionnaire respondents lived. There is a slight concentration in north and east Jakarta, due to the fact that these parts of Jakarta are usually described as where there is a greater concentration of low-income residents as is also shown in the previous chapter.

The areas which were visited for interviews all have some similar features with neighbourhood roads generally small and with no specific side walks provided. Some of the neighbourhoods are very difficult to access from the major road, such as neighbourhoods in Mataram and Sunter Jaya, in north and east Jakarta. Penjaringan in north Jakarta is contrasting as it is next to a heavy industrial area, resulting in a lot of heavy traffic (photo in Figure 6.1, below). The area of Ulujami in south Jakarta is a neighbourhood which would not be categorised as a slum; the respondents in this area also had significantly higher incomes.

The field study, which included 38 interviews with residents in lower income areas, finds that there were several factors, which could have impacted the low usage of the Jakarta BRT amongst low income groups. These factors can be divided into physical and non-physical factors. This section starts by summarising the travel habits that the interviewed families had.
Journeys made by the households on an everyday basis were to school, work and for shopping, which was mostly done at the local traditional market.

Figure 6.1 – Photos from North, East and West Jakarta municipalities

Photos:
- Top left – Sunter Jaya North Jakarta
- Top right – Mataram, East Jakarta
- Left – Cengkareng, West Jakarta
- Bottom left – Muara Baru, Penjaringan North Jakarta
- Bottom right – Muara Baru, Penjaringan North Jakarta
6.3 Field Study Results - Respondents profiles

6.3.1 Sex
A question regarding gender was included to investigate whether there were differences between the interviewees, if they were male or female, even though the interviewees were asked considering the whole family. The outcome shows that there was an overrepresentation of female respondents; with an explanation that the men were often out at work or had other activities and that the organisations which helped with the contacts, mostly had contact persons amongst the women in the neighbourhoods.

22 of the respondents were women and 16 were men. Among other questions, the gender base will be discussed as there might be differences in travel patterns and needs of women and men. However, it must be acknowledged that the purpose of this research is not gender based, but rather household orientated.

6.3.2 The respondents’ occupation
Occupation is an important factor in understanding the need of a specific mode of transportation. It might also indicate an underlying reason for the use or non-use of the Jakarta BRT. Firstly, it must be recognised that a majority of the women who were interviewed did not work outside the home, but had a stated occupation as housewife. However, they sometimes ran businesses from the homes such as selling various things in front of the house, organising playgroups and some extra work with NGOs. It must also be said that there were a few women who worked – in the formal sector as a teacher, a private employee, as well as in the informal sector.

Among the men, there were a few that stated their occupation as ‘tidak tentu’, which literally means ‘not fluent’, these were men who worked with various things, sometimes employed in a nearby factory or construction work on a day basis, others worked as ‘tukang ojek’, non-
formal motorbike taxi driver. There were, however, 15 people in these 38 families who had formal employment, and it is later discussed if the transportation methods differ amongst the families who had formal employment and those who did not.

6.3.3 Income

Although all areas, except that one in south Jakarta where the SMEs garment industry is located, where the interviewees lived would be considered informal settlements, there where around 10 families that would be classified slightly above the UN level of USD 2/person/day. These families will still be considered in this report due to several factors. Firstly, it must be recognised that the USD 2/person/day does not recognise different levels of expenditure; living in Jakarta is far more expensive than in other areas in Indonesia, including cost such as transport, school and rent. Further, another interesting aspect is to see the difference of answers between those families with the lowest income in transport behaviour.

Table 6.1 – Income distributed over Family size according to Poverty level by the UN

<table>
<thead>
<tr>
<th>Number of family members/ income per month</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>&gt;9</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1 million IDR</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>xxx</td>
<td>xxx</td>
<td>xxx</td>
<td>x</td>
<td>x (11 people)</td>
</tr>
<tr>
<td>1-2 million IDR</td>
<td>xx</td>
<td>(family outside)</td>
<td>x</td>
<td>1 million exactly</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x (10 people)</td>
</tr>
<tr>
<td>2-3 million IDR</td>
<td></td>
<td>xxx</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;3 million IDR</td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td>xxx</td>
<td>xxx</td>
<td>x (but 6 million)</td>
<td>x (11 people 4 million)</td>
<td></td>
</tr>
</tbody>
</table>

1 family not known

12 families less USD 1/person/day
8 families less then USD 2/person/day
9 families bordering to USD 2/person/day
8 families above low income level

Note: USD is used as basis from the UN (USD 1 = EUR 0.78, SEK 7.03, IDR 9,030.00) (Source: http://www.xe.com/ucc/, [2010-12-01])

Table 6.1, above, shows that some of the families are considered as lower-middle income, whereas others are on the border with the poverty level at USD 2/person/day. The respondents who were above the low-income border at USD 2/person/day are still considered, however, with caution, as they are still on the border of middle income to low income – it could be useful to understand the differences in transportation choices between those with the lowest income and those with a slightly higher income. Besides, here it must be noted that the income replies can not be completely trusted as those with informal work stated an example of their daily income and some stated their income as zero, which would be impossible. It should also be recognised that the respondents who answered that their income was lower
that these figures are not completely accurate as the women and the men had different perspective of their income.

6.3.4 Residential areas (Kecamatan)

Among the families questioned there is a clear indication that the families with the lowest income either lived in east or north Jakarta. This does not, however, mean that these areas are the poorest in Jakarta, but merely an indication that those were the lowest-income areas that I visited.

Table 6.2 – Residential areas of the interviewees according to income group

<table>
<thead>
<tr>
<th>Purple group</th>
<th>Red group</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 in Kebon Pala, Kampung Makassar, East Jakarta</td>
<td>3 in Matraman, East Jakarta</td>
</tr>
<tr>
<td>3 Jati Negara, East Jakarta</td>
<td>1 Jati Negara, East Jakarta</td>
</tr>
<tr>
<td>2 in Muara Baru, Penjaringan, North Jakarta</td>
<td>1 Sunter Jaya, North Jakarta</td>
</tr>
<tr>
<td>2 in Koja, North Jakarta</td>
<td>1 Koja, North Jakarta</td>
</tr>
<tr>
<td>1 Sunter Jaya, North Jakarta</td>
<td>2 Cengkareng, West Jakarta</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Yellow group</th>
<th>Green Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 Sunter Jaya, North Jakarta</td>
<td>3 in Ulujami, Pesangrahan, South Jakarta</td>
</tr>
<tr>
<td>2 Matraman, East Jakarta</td>
<td>2 in Kalideres-cengkareng, West Jakarta</td>
</tr>
<tr>
<td>1 Jati Negara, East Jakarta</td>
<td>2 in Penjaringan, North Jakarta</td>
</tr>
<tr>
<td>1 Kalideres cengkareng, West Jakarta</td>
<td>1 in Cempaka putih, East Jakarta</td>
</tr>
</tbody>
</table>

6.4 Field Study Result – Travel Behaviours

6.4.1 Living and transport

In the questionnaire it was asked the reason for living in the specific place, as in Jakarta it is often said that people with a lower budget choose to locate close to work to minimize the transport cost. On the one hand, there were a few who gave this as a reason, it was not the majority and those who did were seldom from Jakarta but came to Jakarta solely to work, and, therefore, located close to work. On the other hand, many people did still live in the same part of the city where they worked, yet their reason to live in this place was that either it was affordable or that they always lived in that area. Only two of the interviewees stated that they lived in that particular area because it was a nice area to live in.

6.4.2 Travel patterns

All the families, that were interviewed, travel for work, school and shopping as a majority of their trips. A few trips are made to visit family and friends and for recreation. As explained in the previous section, the families mostly lived in the same part of the city in which the husband (or wife) worked. This did not mean however that their time spent on travel was short. It is clear that most of the working people spent at least one hour one way on an everyday basis.
Travel to school is done with all sorts of different transportation. If the school is close by the children walk to school, but often the schools are a couple of kilometres away and various motorised transport is used, including motorbike, minibus and motorbike taxi (ojek). It also seems that children in the same area often go to different schools or use different modes of transport. Many of the women are housewives, and their daily travel patterns mostly consist of going to the market. This is done in different ways, a few of the women walk or use a bicycle, but only if the market was no further then a kilometre away. They also stated that if they needed to buy a lot they had to use a minibus or motorbike to transport the goods.

For the workers, in the families there is a great difference in transport patterns. Therefore, it will be interesting to give a few examples of how their daily travel could look like. Most of those who owned a motorbike used this as their choice of transportation. If work was informal as that pertaining to that of a walking or bicycling trader, no additional transportation was needed. Public transport was also used, primarily using other buses than those of the BRT. Interestingly, workers from the same neighbourhood seldom had a similar travel pattern, and their work places were located in different areas.

6.4.3 Travel expenditure
The travel expenditure among the interviewed families had a great variety. Answers were also unclear, especially from those who were motorbike owners. Among those it was only the cost of petrol, which was given. Other cost such as credit payments and taxes were not included. Moreover, some of the replies stated such a high cost that it was impossible for the families to afford it. However, to summarize, it appears from the present study field visit that transportation costs in Jakarta is high for the low-income families, as many use a third or more of their income for transportation costs.

Although many interviewees stated that they could not afford to buy a motorbike, it was also a common statement among motorbike owners that it was a cheaper option. A reason behind this is that petrol in Indonesia is still subsidised due to its perceived importance in the economy. This issue will be discussed later in this Chapter as a question with regards to what were asked in interviews with government officials.

6.4.4 Mode of transport
Among the respondents almost all kinds of transportation modes were used with the exception of a private car as only one of the families owned a car. The use of motorbike seemed highly popular, especially among the men in the families. Far from all, however, could afford a motorbike.

The use of public transport was high among those who did not own or use a motorbike, and with some closer discussions there where several reasons behind this. The minibuses were certainly a choice for many school children as there was even a price cap at IDR 1000 (EUR 0.08, SEK 0.78) for students. Among the housewives there were several different modes of transport, which they prefer for going to the market. Walking was popular when the market was less than one kilometre from the house, a little longer distance was covered with either minibuses, motorbikes or motorbike taxis.
The use of transport among the workers in the families varied according to the employment they had. Those who had a job as ‘kaki lima’ (walking salesman) either bicycled or walked around the whole city while selling food or other stock. Therefore, they did not use public transport to get between areas as buses usually have a restriction of bringing a larger quantity of goods on the bus.

To summarize, it was found that walking or bicycling was not a popular form of transportation when travelling distances of over a kilometre. There are several answers to why this is the case. One is that the climate is extremely hot – it was only in the early morning people felt it was pleasant to walk. Another reply was that they did not feel safe to walk on the roads as there was seldom a space for pedestrians and traffic is often heavy on many streets.

6.4.5 Private vehicle ownership

In the Tables 6.1-2, above, it is possible to see that the income levels vary among the interviewees. Table 6.1, above, gives the outline of the division of the income levels of the interviewees in this study. With regards to the interviewees households income group it is interesting looking at if there is a link between income and private vehicle ownership.

- **Purple** income group: 5 families with motorbike – 7 without;
- **Red** income group: 6 families with motorbike – 2 without;
- **Yellow** income group: 6 families with motorbike/1 car – 3 without; and,
- **Green** income group: All 8 owns 1 or more motorbikes.

Although this study does not have the base for being quantitative it is obvious that vehicle ownership reflects income levels in the families, as seen above. It must be acknowledged, however, that families, which can be considered to live in extreme poverty (>USD 1 = EUR 0.78, SEK 7.03, IDR 9,030.00), have motorbikes as well. This can be explained by several factors. As described in the second Chapter, on the context, credit for buying motorbikes is becoming more common, which allows even those with very little income an opportunity to buy a motorbike on credit, just to return it if they can not pay the credit. To be noted is that income levels given are not completely reliable as it is an estimate of a monthly income.

As the purple, red and yellow groups’ income levels are all below the poverty line of USD 2/person/day (Table 6.1, above), they are from now on not divided as the next section looks at the BRT.

6.4.6 The BRT

In general it was found that most interviewees had very positive ideas of the BRT in Jakarta, though very few used it on daily basis. The image of the BRT, at a first glance, seemed positive, even though very few use it. Therefore, it was important to understand this image of the BRT and, besides, examine whether there were negative images as well. This section on
the BRT will look at when the interviewees used the BRT, their perception of it and how they considered the costs.

**The usage of the BRT.** In this investigation it was found that only two persons of all the 38 families used the BRT, the reason for this was mostly that there was no available route for their everyday travel. The two respondents, who did use the BRT for their everyday travel, responded that it was the quickest and cheapest way for them to get to work.

The BRT users were Karmila’s husband and Emi. Karmila’s husband used the BRT for going to work in the business area of Kuningan from their home in Sunter Yaya, Tanjung Priok in North Jakarta. The reason for using the BRT was that it was the cheapest option and that there was a good route to his destination. The other user was Emi, who lives in Penjaringan in North Jakarta and works with her own insurance business in Sudirman. She stated that the BRT was the easiest and quickest way of travel as she was able to use corridor 1 from Kota to Sudirman without transfer (BRT map, Figure 3.10, above).

An interesting aspect is that it seems as many families have used the BRT for recreation and clothes shopping and even just going around the city with their family. Although many still go with the family on a motorbike, they have noticed that when covering a greater distance the BRT is more comfortable and safe. Among the women in East Jakarta it was popular to visit the Senen area. Senen holds a large second hand market where clothes are among the cheapest in Jakarta. It can also be reached with the BRT from East Jakarta. Moreover, it seems as the BRT use begins when more than one interchange is required to reach their final destination with other modes of public transport. The women who travelled to Senen with the BRT stated that if they would use other public transport they would need to transfer several times whereas with the BRT only twice. Another reason for avoiding several transfers on other public transportation was that it increased the costs, while the BRT would provide services throughout the city at a flat fare.

Sunter Jaya in Tanjung Priok, North Jakarta was one of the areas, which was investigated and several interviews where conducted. In this specific area the BRT is close by, yet only a few people use the system. Roji, a private employee, who uses many different forms of transportation, gave an insight of the travelling behaviours in the neighbourhood. Roji himself travels for two hours every day by motorbike to his work in Pondok Indah in South Jakarta, which is a location that has a BRT shelter. He states that he indeed believes that the BRT is a very good initiative to provide transportation, but he still states that driving motorbike is much faster than taking the BRT.

Concluding remarks on the usage of the BRT amongst the interviewees would be that they would choose the BRT if it provided easy access to their choice of destination, and also if the cost would be reduced compared to other public transport. Many respondents travelled quite short distances and in these cases mini buses would be the most accessible option.

**The perception of the BRT.** As there were very few BRT users, a question which became important was the image that the interviewees had of the BRT. The image amongst the different respondents varied and at the beginning it seemed positive, but whilst talking the image sometimes changed. A word which was often used was that the BRT was ‘cocok’ for
Jakarta, which means that it suited the city. In terms of the services, most said that the quality was a lot better than the quality of other public transportation.

The perception of the BRT itself was positive, yet comments, which regarded the effects that it had had on Jakarta, were less positive. Among the motorbike drivers, complaints with regards to increased traffic were common. Besides, several of the motorbike drivers in West Jakarta stated that the BRT had lead to an increase of accidents. Another interesting point, which one respondent in Pejaringan gave, was that if BRT services would come closer to her house she would start to worry about eviction, as widening of the roads would be needed in such areas like Muara Baru in Prnjaringan (Photo, Figure 6.1, above).

**The cost of the BRT.** The most common reply to the cost of the BRT was surprisingly that most did not think it was expensive at all. For a cost of IDR 3500 (EUR 0.30, SEK 2.72) they could travel all over Jakarta, which would be impossible on the other public transport as change would be needed several times. Yet, it still seems that for trips, which could be replaced by a single alternative bus ride, the BRT would not be used as the cost of a ride on another bus would be IDR 2000 (EUR 0.17, SEK1.55). Another interesting aspect, which was discussed with a few of the respondents, was the problem of paying several times during one journey. It seems that most did not see the possibility of an integrated system where payment could be made once for a whole journey.

### 6.5 Field Study Results – Replies from NGOs and Governing Authorities

During this research many different observations have been made and various answers have been found. Generally it seems that the development of the BRT in Jakarta has the main objective to reduce traffic. Furthermore, transportation is seldom linked with social development. It is also due to the fact that as the low income groups are spread throughout Jakarta, transportation inequality is not seen as a major issue – it is still distributed spatially evenly. In this section the study is referring to the interviews with both NGOs and governing authorities, who replied on their view of the BRT and its distribution to low-income communities. The governing authorities were also asked on their policies on issues that are related to the outcomes in the field study.

6.5.1 Replies from NGOs

Three people from NGOs gave their opinion on the BRT and the role it has played in Jakarta and especially in low-income communities. The interviewees came from Mercy Corps, Urban and Regional Development Institute (URDI) and a former employee of Institute for Transportation Policy (INSTRAN). In general, their opinions endorsed the findings that very few low-income residents used the BRT.

‘Ibu Ria’, the former employee of INSTRAN, who had one year ago done a study on transport issues in some low-income neighbourhoods in Jakarta, believed that the BRT is not useful for many low-income residents and that most of them actually prefer to use motorbikes as it is cheaper (Interview: ‘Ibu Ria’, 2010-04). ‘Ibu Yanti’, from Mercy Corps, agrees that motorbike use is increasing in many low-income neighbourhoods. But she also says that, in
North Jakarta where she works, many people work in a nearby factory, hence the use of transportation is limited (Interview, ‘Ibu Yanti’, 2010-04).

One area, which was researched by ‘Ibu Ria’, was located close to the BRT, yet the residents travel pattern did not suite the BRT system. Though, she argues that most low-income residents do not regard transportation as an issue at all (Interview: ‘Ibu Ria’, 2010-04). ‘Pak Wahyu’, from URDI, said that low-income residents are often hesitant to find work far from their home, as they have a restricted mobility (Interview: ‘Pak Wahyu’, 2010-04). Further, many communities have a restricted connectivity, and BRT is, according to ‘Ibu Ria’, not the solution but she thinks that improvements of public transport is needed to improve mobility of many low-income residents (Interview: ‘Ibu Ria’, 2010-04).

6.5.2 Replies from Governing Authorities

Three major interviews with governing bodies in Jakarta were carried out to find answers to questions regarding the findings during the field research. One of the interviews was done with ‘Ibu Yani’ (interview, 2010) who is Head of the Department of Environment and Development Assistant of Jakarta Capital City Administration. She stated that currently the major strategy to improve the situation of the low income population in Jakarta was the construction of a sewage system. The other two interviews were made with ‘Ibu Puji’, chairperson for external affairs at the Regional Planning Board (Bappeda) and with ‘Pak Syafrin’, Head of the public transport division at the Regional Transportation Agency (DisHub). An interview with one of the original BRT planners, ‘Pak Taufik’, of the BRT – who now works for TransJakarta (BRT operating agency) – was carried out at an early stage of the research.

Developing the public transportation is currently, according to ‘Ibu Yani’, said to be a priority for DKI Jakarta. Since 7 years, investments have increased from nearly invisible rates in public transportation. Currently the public transport is not well integrated, but there is a possible future feeder system study, which will look at how the public transportation system can become integrated to provide better facilities for the residents (interview: ‘Ibu Yani’, 2010-05). ‘Pak Syafrin’ (interview, 2010-05), from the division of public transportation in DisHub, further explains that his division is in charge of privately operated public transport as well. According to him and ‘Ibu Yani’, it is difficult to attract operators on routes, which have fewer users, meaning that operations of medium and mini buses are less frequent in areas with lower demand. Moreover, as the local buses are privately operated it has resulted in a non-existent cooperation between them and the BRT (interview: ‘Pak Syafrin’, 2010-05).

The use of motorbikes is also said by ‘Ibu Yani’ to play a very important role in the Indonesian economy, and, therefore, the city faces a dilemma were at this moment there are no policies to reduce the use of motorbikes. Further, she admits that the cost for using motorbikes is currently often lower than using public transport, and this is a reason for the rapid increase of motorbike ownership (Interview: ‘Ibu Yani’, 2010-05). The DKI administration has had discussions with the Ministry of Communication on policies to reduce the use of private vehicles. It is, however, difficult to introduce such policies without
involving the Ministry of Trade, as motorbikes are primary imported, giving its low prices (Interview: ‘Ibu Yani’, 2010-05).

The administration of DKI Jakarta’s response to why there is still a large development of building toll roads is contradictive. Firstly, it is admitted that road development is important as the current road ratio is still low compared to other cities as mentioned in the Transportation Master plan. According to ‘Ibu Yani’ (Interview, 2010-05) toll roads are often chosen as they require less investment from the city administration; as it is the private investors who pay and later charge for the use of toll roads. ‘Pak Syafirin’ states that funds that comes from vehicle taxes are higher than the expenditure on transportation (Interview: ‘Pak Syafirin’, 2010-05), indicating that there might be more funds available to improve the system and local road network. It can be explained by ‘Ibu Puji’, Assistant Chairman for External Affairs at the Regional Planning Board (Bappeda), as taxes from vehicles are collected by central government and distributed through regional and local levels. Besides, many local roads are under supervision of municipal government and development, therefore, can development of local roads become unequal (Interview: ‘Ibu Puji’, 2010-05).

In a steering committee meeting with the Regional Government (DKI Jakarta), Institute for Transport and Development Policy (ITDP), United Nations Environment Program-Global Environment Facility (UNEP-GEF), who are the supporters of the BRT, the issue of the services and pricing was discussed. It was announced that in 2011 they hope that subsidies to the system will be cut, resulting in a rise in fare to IDR 5000 (EUR 0.42, SEK 3.87) (Steering Committee meeting, Balai Kota, 2010-04-27).

In general, all the interviewees from governing authorities had few replies to whether the BRT could increase the mobility of low-income communities. ‘Pak Taufik’, from TransJakarta and the former BRT planner, indicated that the BRT may have increased mobility for low-income residents travelling from East to West Jakarta (Interview: ‘Pak Taufik’, 2010-04). Yet, there is no specific proof concerning this. The only other incentive that was stated was the lower morning fare of the BRT, which actually has been proven not useful.

6.6 Summary
This Chapter finds that transportation among low-income residents is a very complex matter. Travel patterns are difficult to identify. In high and middle income neighbourhoods travel patterns are often easier to spot and, hence, transportation for these people is easier to develop. A very significant result that this research finds is that motorbikes played a significant role in many of the families’ lives. It could contribute to income such in the case the ojek driver Suwarto, which had no formal employment but could generate earnings by using his motorbike. Yet, it seems that the Jakarta economy is reliant on the use of private vehicles and people who can not afford it have a restricted mobility.

An attempt to investigate the current situation in the lower income communities in relation to the Jakarta BRT is made in this Chapter. It also discusses issues related to the initial re-search questions. In the following Chapter the findings will be discussed with a reflection to policies and master plans to understand the shortcomings and the positive effects of the BRT in Jakarta.
7. Discussion

7.1 Introduction
The previous chapter explains the empirical findings in this study, which will form the basis for this chapter. Besides, the outline of this chapter is to compare the results with the relation to the problem formulation and theoretical framework. As the empirical study is limited the chapter referring to the transportation master plans is important when analysing the results, and, hence, discussing and analysing chapter 4 will be of importance for this study. The results in relation to the problem formulation mainly concern looking at the researchable questions, which were stated in the Introduction of this study. This discussion is also considering the delimitations and what impact, assuming every delimited aspect, it might have had for the outcome of the study and future related studies.

Mobility of the urban poor is a key issue when improving employment opportunities and the ability to reach several services that improve the welfare of the people. This study, moreover, argues that it is important in the urbanising developing world to control pollution, and, therefore, a public transport system would provide opportunities to do so. Indonesia and Jakarta have only in the last decade started to develop the public transportation to meet the need of sustainability. As the chosen system was a BRT it would be possible that services would be well distributed amongst the citizens. However, according to the study conducted it is doubtful that it has been the outcome. Other research also indicated that the BRT is much more used by the middle class in Jakarta. Therefore, this Chapter focuses on discussing and analysing the reasons for this development in relation to the problem formulation and the theoretical framework of the study.

7.2 Results in relation to Problem Formulation and Theoretical Framework

7.2.1 The Theoretical Framework and Jakarta
For clarification of this section the research questions are stated below:

1. What is urban sustainable transportation and how could it be achieved?
2. Which transportation modes is found in Jakarta and how effective are they?
3. Is the use of the BRT distributed evenly among different income groups?

This section is discussing the research questions and their relation to findings in Chapter 4 and 5. This section is discussing the theories behind socially sustainable transportation planning and to what extent this is being exercised in Jakarta.

The theoretical framework finds that most literature on sustainable development and planning for sustainable development primary examines environmental issues. The construction of the BRT in Jakarta is part of the future scenario of becoming a more sustainable city (PTM, 2007). Yet, policies indicate that the focus is put on environmental sustainability with a few strategies linked to socially sustainable transport, such as that inherent in providing a decent public transport system that can allow low-income groups better mobility. An interesting aspect is that both the Transportation Master Plan (PTM, 2007) and ‘Ibu Yani’ (Interview:...
2010) stated that Jakarta has a road ratio deficiency. Hook and Howe (2005:13-23), however, state that it is a myth that inadequate road network have direct effects on poverty. In relation to the study’s results both the above statements may be true. One the one hand, the case is that in many low-income communities in Jakarta the road networks are not sufficient for the residents to provide adequate transportation. Whereas, on the other hand, not all road constructions will benefit the low-income communities, such as the toll road development, which mainly allows cars and heavy traffic.

Planning for sustainable development transportation in Jakarta is seen as a huge issue, and it does play a role in the growing economy of Indonesia. The strategies that Deakin (2001:5) use for increasing sustainability in transportation, such as demand management, operations management, pricing policies, vehicle technology improvements and clean fuels are all part of the Jakarta Transportation Master Plan (PTM, 2007). Furthermore, in the literature on sustainable transportation it is argued that providing a good public transport system, which follows the economic development, will be vital for providing environmental sustainability - a system that is lacking behind will increase private transport use (IEA, 2002). In Jakarta it does, however, seem that little is done to develop a safe, sustainable, system, which the lower income population could use. Many of the people who live in the informal settlements have or aim to buy a motorbike to improve their mobility, and the motorbike use is increasing. Whereas, the motorbike issue relates to the problems with the definition of sustainable development, as it appears that there is a conflict between socio-economic development and environmental protection in practice. The use of motorbikes in Jakarta is important both for economic growth and for providing mobility for low-income residents, yet it does not benefit the environment and can be identified as ‘the property conflict’ Campbell (1996). In many lower-income countries the conflict between environmental sustainability and socio-economic growth is a barrier for creating or realising the concept of sustainable development and, hence, it is often related as being an utopia. Yet, according to this study, conflicts, like the above mentioned, needs to be resolved as environmental sustainability is in Jakarta important to human well-being as well as for future economic growth. The severe pollution and the chaotic traffic situation do make investors hesitant to locate here.

As BRT is the is the chosen subject for this study it is interesting to compare the results with what the researchers think about this kind of public transport. BRT has been hailed as a solution for transport problems in many developing countries, especially in Latin America. A reason for this is that it is much cheaper than constructing railway based transit, and, therefore, the fare would be low and suite lower income groups providing them with a more effective and safe transport system (Armstrong-Wright, 1993:37). In Jakarta, BRT was introduced as it was affordable and possible to construct in a short time. However, in Jakarta it has been shown that the BRT users are mostly middle income - among lower income groups BRT is used very little. The BRT’s main purpose in Jakarta was to reduce pollution and traffic in the capital, hence attracting potential car users was a priority. Further, it has been discussed that a system like the BRT is not sufficient as a multi-modal transportation is needed.

Research question number three is ‘How the use of the BRT is distributed among different social groups in Jakarta?’ This question was set in response to the theoretical framework as it
is often explained that the target for the BRT is low income communities. In a study by the Indonesian consumer agency (YLKI, 2010) it was found that the regular BRT user was a middle income Jakartan and very often a high school or university student. Spatially it is difficult to tell whether the distribution is uneven as Jakarta’s low-income communities are spread throughout the city.

Hass-Klau (2003:190) writes that walking facilities are extremely important in accessing public transport. In Jakarta pedestrianisation is part of the transportation Master Plan (PTM, 2007). Yet, only in central business districts and high income neighbourhoods such facilities are visible. In the field study areas, sidewalks were non-existent and walking often became unsafe as the residents had to walk together with heavy traffic, notably in Muara Baru, Penjaringan, North Jakarta.

7.2.2 Urban Mobility in Jakarta’s lower-income communities

The latter section having looked at the results in relation to the theoretical framework, this section continues to discuss the result, but then in the relation to the problem formulation. It will, however, not forget about the underlying theories for social sustainable transportation, discussed above. The problem formulation of this study is generated by identifying a general problem field, specific problem area and a research problem. This section is relating the results to the research problem and the researchable questions, described in the Introduction. In this section Research Question 4 will mainly be discussed as questions 4.a-4.c are the bases for the empirical research.

**Research question 4.a BRT use and mobility.** Mobility is seen as the key concept in socially sustainable transportation; it can be defined as accessibility to transport services, such as affordable public transport (Walker et al, 2008:234). In Jakarta it is questionable whether the low income communities may be considered as mobile. The field study finds that the low-income residents did usually have public transport in the vicinity of their home, yet the close public transport facilities were mostly mini and medium sized buses, which often required costly transfers for travelling across the city. At the end, transportation costs for many residents were not affordable.

Mobility for low income groups should mean that a decent affordable public transport system is required. The economic constraints for using the BRT in Jakarta are, notwithstanding, seldom stated as a problem. Currently the BRT is subsidised, and the ticket price for one journey is IDR 3500 (EUR 0.29, SEK 2.72). When talking more deeply to the residents, the economic factor starts to appear. Travelling from the area of Muara Baru, Penjaringan, to Jakarta’s central areas, it is easily done by taking a mini or medium sized bus to the BRT shelter in Kota and from Kota take Corridor 1 to the central areas. Ibu Eni, who is in the insurance business, uses the BRT on an everyday basis for her travels to work in the specific way described in the previous chapter. In contrast, her friend Ibu Hartini, who lives in the same area, believes that the travel becomes expensive as one needs to pay for two different journeys on the way to the BRT shelter. In the rare cases when she goes to the city, she complains, the transits become expensive.
Occasional use of the BRT was, however, very popular in contrast to everyday use. It is difficult to outline any specific reasons for this case. Though, it seems as the occasional travels where done to a larger extent with the BRT as there were suitable destinations and a competitive pricing. This would seem to mean that the route of the BRT did not suite the everyday travel of the interviewees.

Research Question 4.b-4.c Policies. This study has thus found that the BRT use among the interviewees and their families were low. As the method of this study has an explorative approach its purpose is to be only partly explanatory. Therefore, there is an attempt to explain the reasons to the BRT’s inability to reach low-income communities to a greater extent. The possible impacts on the usage of BRT by low income groups according to this study is explained in Table 7.1 (below):

<table>
<thead>
<tr>
<th>Event Description</th>
<th>Impacts on BRT Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>The initial plan of BRT corridors</td>
<td>The planning and implementation of the BRT corridors consideration was mostly of existing bus routes that had a high demand (PT. Krabati Inti Partama, year unknown). This means it was travels with larger busses using the existing primary roads that were considered. The field study shows that many of the interviewees preferred medium or mini buses for their everyday travel as many only travelled shorter distances.</td>
</tr>
<tr>
<td>Current road network</td>
<td>Current road network in many low income communities is not sufficient enough to allow a BRT system in those areas. Widening of the roads would be required.</td>
</tr>
<tr>
<td>Cooperation with other infrastructure development</td>
<td>Widening of roads and development of the road network on a local level requires space, and, therefore, housing development.</td>
</tr>
<tr>
<td>Low-income residents travel patterns</td>
<td>Travel patterns seem to be irregular among the interviewees; therefore, a system like the BRT would not suite their behaviours. Many people also choose to live close to work as transportation costs are high.</td>
</tr>
<tr>
<td>Motorcycle use and mobility</td>
<td>Motorbikes are cheap and petrol is still subsidised, making them a more suitable option for those who can afford a motorbike.</td>
</tr>
<tr>
<td>Accessibility to BRT shelter</td>
<td>Walking in many low-income neighbourhoods is unsafe. People prefer taking the closest public transport mode, which is often mini buses.</td>
</tr>
<tr>
<td>Transfer costs</td>
<td>Few can travel by BRT without transfers from other public transport modes. The fare with other public transport modes are often cheaper, hence many low-income residents choose it instead.</td>
</tr>
<tr>
<td>Fare System</td>
<td>It is possible that the flat fare system diminishes the willingness of using the BRT for shorter trips.</td>
</tr>
</tbody>
</table>

Although, all the above factors could be underlying reasons, it can be discussed whether the most interesting out of these are the statement referring to transfer costs. If a feeder system would be implemented, which allowed a single fare even if you combined the travels with a mini bus service; it might be more beneficial for many low-income communities. Besides, as
it may provide a cheaper and effective system, it could be linked to theories of mobility as the definition states that:

“Mobility: the ability and knowledge to travel from one location to another in a reasonable amount of time and for acceptable costs.”

“Accessibility: The means by which an individual can accomplish some economic or social activity through access to that activity.” (Meyer, 1995 in Meyer and Miller, 2001:95).

Another important factor is that transportation costs for low income households are high and a significant restriction in the mobility. Instead, it is clearly visible that to provide better mobility for oneself in Jakarta, a motorbike is the best option as it is both the fastest option and fairly cheap. In future, it will, however, be impossible to rely on, and improvements in the public transportation will be necessary targeting a greater proportion of the population in Jakarta to reduce pollution.

7.2.3 Methodological Approach and Delimitations

The chosen methodological approach of mainly being explorative and descriptive limits the outcome as it may only be part explanatory. The delimitation, in the Introduction, notes that there were a low number of interviewees due to time and funding limitation, which only allows the study to infer conclusions for further research. Attempting to include the whole capital district contributes to this. The chosen field study approach with a limited number of interviewees spread over a number of neighbourhoods also limits the study’s ability to be explanatory. If the study were to be repeated, it may have been more useful to explore a single representative neighbourhood, or two. Provided it would have been possible to choose it, or them, may have allowed a greater capability of a study of being explanatory and even prescriptive. During the interviews of the residents, NGO workers, and Regional Government employees the language barrier may have affected the outcome. The interviews with the low-income residents were conducted together with a NGO employee, which could have interfered with the responders’ opinion.

7.3 Conclusions

In Jakarta as in many other cities in the developing world, transportation is one of the largest issues. A BRT system was introduced to ease the chaotic situation in providing better mobility for its residents. In countries in Latin America such a system has been chosen as it would also provide better mobility for the low-income population as a cheaper option. In Jakarta, the low-income residents are still a group that is largely dependent on public transport, but whose use of BRT is marginal. As the low-income residents, in Jakarta, can use other form of public transport, some claims that it is not necessary that they are able to use the BRT as well. However, as a main reason to implement a BRT system is to improve the mobility of people around the city, it should be acknowledged that the BRT can provide better mobility as a faster option. Underlying reasons for the low use of the BRT among low-income residents are difficult to point out as spatially the system is distributed to different neighbourhoods in Jakarta. It can be established that intention of building the BRT did not embrace low-income
users according to its destinations. Transport cost might also have a significant impact in the use as not a single interviewee had a BRT shelter within a walking distance from home.

Finally, transport is not a priority for many of the residents in Jakarta’s low-income neighbourhoods. Other issues such as decent living conditions, education, employment and flooding, are more important for many of their residents. Yet, an effective affordable public transport system is linked to these issues as it could provide greater mobility. And, greater mobility, can improve employment opportunities or choice of residential areas. So far the BRT has not made significant impact on the low-income communities, in Jakarta, though future expansion of the BRT and policy changes might be able to improve the low-income residents’ mobility.

7.4 Future Research

This study finds that pedestrian facilities are important for urban mobility among the low-income communities. In future this is an interesting field for research; one could, for example, study two communities with different levels of pedestrian facilities, and see what impacts these have on their budget and travel patterns. Yet, the most interesting topic emanating from this study is a feeder capability. A study on feeder buses is already being conducted by the Institute for transport and Development Policy (ITDP), and linking such a study to urban mobility for low-income communities in Jakarta could be very interesting for further research. Referring to the delimitations, above, a similar study can be conducted with a focus on one or two specific neighbourhoods, allowing the study to be explanatory and prescriptive, and, hence, give a greater understanding of urban mobility in selected low-income communities in Jakarta.
Summary

List of Figures

FIGURE 2.1 – SUSTAINABLE DEVELOPMENT THEORY ................................................................. 12
FIGURE 2.2 – CONFLICTS IN SUSTAINABLE DEVELOPMENT...................................................... 12
FIGURE 3.1 – ECONOMIC DEVELOPMENT IN JAKARTA DURING THE LAST DECADE ................ 18
FIGURE 3.2 – POPULATION DENSITY IN JABODETABEK 1990 AND 2000..................................... 18
FIGURE 3.3 – MAP OF THE MUNICIPALITIES IN JAKARTA .......................................................... 20
FIGURE 3.4 – MODAL COMPOSITION BY INCOME LEVEL .......................................................... 21
FIGURE 3.5 – THE INCREASE OF TRIPS FROM NEIGHBOURING REGIONS TO JAKARTA : 1985 – 2002 22
FIGURE 3.6 – CAR AND MOTORCYCLE OWNERSHIP BY INCOME............................................... 22
FIGURE 3.7 – PRIVATE VEHICLE VS ROADS IN DKI JAKARTA ...................................................... 23
FIGURE 3.8 – ROAD DENSITY .................................................................................................... 23
FIGURE 3.9 – PUBLIC TRANSPORT MODES IN JAKARTA ............................................................ 24
FIGURE 3.10 – MAP OF THE CURRENT BRT CORRIDORS .............................................................. 25
FIGURE 3.11 – THE BRT IN JAKARTA ......................................................................................... 26
FIGURE 3.12 – PEOPLE WAITING FOR THE BRT ....................................................................... 26
FIGURE 3.13 – TRANSPORTATION MODAL SHARE BY GENDER IN JABODETABEK ................ 26
FIGURE 3.14 – PEDESTRIAN FACILITIES IN AN HIGH INCOME NEIGHBOURHOOD AND IN A LOW INCOME NEIGHBOURHOOD ................................................................. 26
FIGURE 3.15 – SHARE OF INCOME IN DKI JAKARTA AND JABODETABEK .............................. 27
FIGURE 3.16 – SPATIAL DISTRIBUTION OF HOUSEHOLD INCOME IN JABODETABEK ............... 28
FIGURE 4.1 – NEIGHBOURHOODS WHERE THE INTERVIEWEES LIVED ....................................... 32
FIGURE 4.2 – DATA COLLECTION: OPEN ENDED QUESTIONNAIRE ......................................... 32
FIGURE 5.1 – STRATEGY PTM ..................................................................................................... 33
FIGURE 5.2 – BRT DEVELOPMENT METHODOLOGY ................................................................ 35
FIGURE 5.3 – PROPORTION OF BRT RESPONDENTS CUSTOMERS’ MONTHLY INCOME ............. 37
FIGURE 5.4 – DKI JAKARTA POVERTY MAP .............................................................................. 38
FIGURE 5.5 – DKI JAKARTA SLUM AREAS ............................................................................... 39
FIGURE 5.6 – JAKARTA BRT MAP INCLUDING FUTURE CORRIDORS ........................................... 40
FIGURE 5.7 – PROPORTION PROFILE OF RESPONDENTS BASED ON THE RESIDENCE OF BRT CUSTOMERS .......................................................... 41
FIGURE 6.1 – PHOTOS FROM NORTH AND EAST JAKARTA ....................................................... 43-44
List of Tables

TABLE 3.1 – KEY EVENTS IN JAKARTA’S AND INDONESIA’S HISTORY ............................................................ 17
TABLE 6.1 – INCOME DISTRIBUTED OVER FAMILY SIZE ACCORDING TO POVERTY LEVEL BY THE UN .............. 45
TABLE 6.2 – RESIDENTIAL AREAS OF THE INTERVIEWEES ACCORDING TO INCOME GROUP .................. 46
TABLE 7.1 – EVENTS AND POLICIES, WHICH MIGHT HAVE IMPACTED ON BRT USE ............................... 56
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bappeda</td>
<td>Badan Perencana Pembangunan Daerah</td>
<td>Regional Planning Board</td>
</tr>
<tr>
<td>Bappenas</td>
<td>Badan Perencanaan Pembangunan Nasional</td>
<td>National Development Planning Agency Republic of Indonesia</td>
</tr>
<tr>
<td>Bodetabek</td>
<td>Bogor, Depok, Tangerang, Bekasi</td>
<td>Regions outside Jakarta</td>
</tr>
<tr>
<td>BPS</td>
<td>Badan Pusat Statistik</td>
<td>Indonesian central statistics agency</td>
</tr>
<tr>
<td>BRT</td>
<td>Bus Rapid Transit</td>
<td></td>
</tr>
<tr>
<td>DisHub</td>
<td>Dinas Perhubungan</td>
<td>Department of Transportation</td>
</tr>
<tr>
<td>DKI Jakarta</td>
<td>Daerah Khusus Ibukota Jakarta</td>
<td>Special Capital District Jakarta</td>
</tr>
<tr>
<td>DPU</td>
<td>Dinas Pekerjaan Umum</td>
<td>Public Works</td>
</tr>
<tr>
<td>EUR</td>
<td>Euro</td>
<td></td>
</tr>
<tr>
<td>GEF</td>
<td>Global Environment Facility</td>
<td></td>
</tr>
<tr>
<td>IDR</td>
<td>Indonesian Rupiah</td>
<td></td>
</tr>
<tr>
<td>IEA</td>
<td>International Energy Agency</td>
<td></td>
</tr>
<tr>
<td>ITDP</td>
<td>Institute for Transport and Development Policy</td>
<td></td>
</tr>
<tr>
<td>Jabodetabek</td>
<td>Jakarta, Bogor, Depok, Tangerang, Bekasi</td>
<td>Jakarta Metropolitan Region</td>
</tr>
<tr>
<td>Jabotabek</td>
<td>Above without Depok</td>
<td></td>
</tr>
<tr>
<td>JICA</td>
<td>Japan International Cooperation Agency</td>
<td></td>
</tr>
<tr>
<td>LIC</td>
<td>Low-Income Community</td>
<td></td>
</tr>
<tr>
<td>MDG</td>
<td>Millennium Development Goal</td>
<td></td>
</tr>
<tr>
<td>MRT</td>
<td>Mass Rapid Transit</td>
<td></td>
</tr>
<tr>
<td>NGO</td>
<td>Non-government Organisation</td>
<td></td>
</tr>
<tr>
<td>NMT</td>
<td>Non-motorized Transport</td>
<td></td>
</tr>
<tr>
<td>PTM</td>
<td>Pola Transportasi Makro</td>
<td>Transportation Master Plan</td>
</tr>
<tr>
<td>SEK</td>
<td>Swedish Krona</td>
<td></td>
</tr>
<tr>
<td>Sida</td>
<td>Swedish International Development Cooperation Agency</td>
<td></td>
</tr>
<tr>
<td>SITRAMP</td>
<td>The Study on Integrated Transportation Master Plan</td>
<td>For Jabodetabek</td>
</tr>
<tr>
<td>SME</td>
<td>Small and Medium Enterprises</td>
<td></td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
<td></td>
</tr>
<tr>
<td>UNEP</td>
<td>United Nations Environment Program</td>
<td></td>
</tr>
<tr>
<td>UN-HABITAT</td>
<td>United Nations Human Settlement</td>
<td></td>
</tr>
<tr>
<td>Program</td>
<td>USD</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>-----------</td>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>WCED</td>
<td>US Dollars</td>
<td>World Commission on Environment and Development</td>
</tr>
<tr>
<td>YLKI</td>
<td></td>
<td>Yayasan Lembanga Konsumen Indonesia Indonesian Consumer Foundation</td>
</tr>
</tbody>
</table>
References


GEF proposal (2009), “Goals and Objectives of the Jakarta BRT”, ITDP- Indonesia, Received by email from: Ernst, J. (vice director of ITDP) [13/01/2010]


List of Interviews

Interview: ‘Ibu Ria’, (2010-04), Former employee at INSTRAN (Institute for Transportation Study).

Interview: ‘Pak Syafrin’, (2010-05), Employee at DisHub (Regional Department of Transportation).

Interview: ‘Pak Taufik’, (2010-04), Employee at TransJakarta and part of the BRT planning team.

Interview: ‘Pak Wahyu’, (2010-04), Employee at URDI (Urban and Regional Development Institute).

Interview, ‘Ibu Yani’, (2010-05), Head of the Department of Environment and Development Assistant of Jakarta Capital City Administration.


Other sources
Nainggolan, A T, ( 2010), Email Reply, Head of FAKTA (Jakarta Residents Forum)

Committee meting, Balai Kota, (2010-04-27), ITDP, GEF and DKI Jakarta Present at meeting.
Appendix – Questionnaire

Interview with residents

1. Pria / Wanita? (nama?)

2. Pekerjaan?

3. Berapa total Pendapatan? (<1 jt, 1 juta – 2 juta, 2 juta – 3 juta, >3 juta)

4. Jumlah orang dalam rumah tangga?

5. Kelurahan? Kece

6. Apa alas an anda tinggal di daerah ini? (dekat dengan keluarga / terjangkau / dekat tempat bekerja / lainya)

7. Berapa banyak pengeluaran untuk keperluan transportasi, setiap hari? Atau per-bulan (kira-kira)

8. Moda Transportasi
   
a. Bagaimana anda melaksanakan perjalanan? Dengan menggunakan jalan kaki, sepeda, angkutan umum, motor atau mobil (naik taxi, bajaj, ojek, lainya)

b. Untuk keperluan apa anda bepergian? (untuk kerja / belanja / sekolah / lainya)

c. Dimanakan lokasi-lokasi tujuan anda?

d. Jam berapa anda biasanya melakukan perjalanan?

e. Berapa banyak waktu anda habiskan di perjalanan?
f. Mengapa anda memilih jenis alat transportasi ini?

9. Penggunaan Transportasi Umum
   a. Apakah anda menggunakan angkutan umum?

   b. Apa jenis angkutan umum yang anda gunakan? (jawaban bias lebih dari satu)

   c. Berapa jauh untuk mencapai angkutan umum terdekat? Dan bagaimana anda sampai di sana?

   d. Apa alasan anda memilih jenis angkutan umum? Tersebut? (Aksesibilitas / dll ekonomi)

10. Penggunaan kendaraan pribadi (sepeda motor, atau mobil, dll)
   a. Apakah anda memiliki sepeda motor atau mobil?

   b. Untuk tujuan apa anda menggunakan motor atau mobil?

   c. Apa alasan anda menggunakan motor atau mobil?

11. Penggunaan / Busway
   a. Apakah anda pernah menggunakan busway?

   b. Jika ya: Seberapa sering anda menggunakan busway?

   c. Jika ya: Apa alasan anda menggunakan busway? Dan untuk keperluan apa?

   d. Jika ya: Apa keuntungan menggunakan Busway?

   e. Jika tidak pernah ada atau hanya mencoba beberapa kali: Mengapa anda tidak menggunakan busway? (Karena halte busway terlalu jauh, ongkosnya mahal, atau alasan lain, pelayanan yang rendah)
f. Jika tidak pernah ada atau hanya mencoba beberapa kali: Apakah anda akan menggunakan busway jika?

i. Halte busway lebih dekat ke rumah: anda / tempat bekerja / sekolah / tempat belanja

ii. Ongkos/tariff sudah murah?

iii. Jika harga BBM naik?

iv. Pelayanan lebih baik?

12. Adakah hal-hal lain yang dapat membantu anda agar anda dapat menggunakan angkutan umum? (murah / lebih cepat / lainya)

13. Apa pendapat anda tentang busway?