POLICY FOR PROMOTING CYCLING IN INDONESIA TOWARDS SUSTAINABLE TRANSPORT: LESSONS LEARNED FROM THE NETHERLANDS

Thesis

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List of Contents

List of Figures

List of Table

Abstract

The application of transportation systems in daily life is not just merely about connecting one place to another but also relates to many aspects; namely travel safety, geographical condition, financial resources, socio-economic factors and psychological factors. To manage all of those factors, a good framework of policy making is needed. This thesis examines what kind of framework is suitable to be applied in the decision making of the cycling policy in Indonesia. The cycling policy is chosen because cycling is an urban transportation model that brings many advantages namely the public health, the reduction of air pollution and also the reduction of traffic congestion. In Indonesia, cycling policy faces many obstacles especially in the provision of cycling paths which needs a large amount of financial resources. In the Netherlands as the reference country that applies a good cycling policy, the financing problem of cycling infrastructures provision is shared by neighboring cities and central government. In order to seek a good framework for cycling policy, including the financing problem, this thesis uses comparative method between cycling policy in the City of Groningen in the Netherlands as the reference policy and City of Yogyakarta in Indonesia as the destined case study in Indonesia. The approaches to propose a good policy framework for cycling is first examined in the literature that discuss about the ideal condition for cycling and secondly studies how those literatures are applied in the real world. From these approaches a policy framework is proposed in the form of recommendation for the local government in the City Yogyakarta in Indonesia.

Keywords: *cycling policy, comparative study, policy framework*

CHAPTER I. INTRODUCTION

1.1. Background

Why are cycling policy initiatives important? Buehler and Pucher (2010) pointed out that cycling is more environmentally, socially and economically sustainable than any other transport mode in many aspects. Cycling causes less noise and air pollution and needs far less non-renewable materials than motorized transport. Cycling does not need any added energy other than what is provided by the bikers and, indeed, this is good exercise for them regarding health issues. In term of space, small space could accommodate a large number of bicycles compared to cars in terms of parking and roads needed. Furthermore, cycling also costs less than both private and public transport for its direct cost and its infrastructure. We can also say that cycling is more equitable, and because of its affordability can be used by everyone. In terms of age and sex, cycling can be used by male and female children, adults and even the elderly. Regarding cost, it is very cheaper than any other transport for use and maintenance.

Many countries have started implementing bicycle policies many years ago, especially in European countries. The Netherlands are the best example in Europe how cycling policy works in changing people's perspectives about the means of transport. Buehler and Pucher (2010) said that "The universality of cycling in the Netherlands highlights the extraordinary degree of social sustainability that bicycling makes possible". Traditionally, The Netherlands has a high level of cycling transport. For over 40 years until now, the Netherlands have always improved their cycling policies from national down to the local level. It started from early 1970's with re-evaluation of cycling policies and become a national transport strategy in 1989, next in 1990's until now cycling has become inclusive in urban planning (Godefroij, 2012). It has become an integral part of local and regional transport planning. In 2006, reliable data showed that the Netherlands achieved the highest percentage of bicycle use in all kind of trips compared to other European countries with 26% across the country and some cities in the Netherlands have a high percentage for example Groningen with around 35%-40% bicycle use (Ministerie van Verkeer en Waterstaat, 2009). The bike user comes from many different groups: women as much as men, all ages and all income groups (Buehler and Pucher, 2010).

It is worth it to point out what the Netherlands does to encourage people to use their bike for daily activities brings them to the highest level of cycling transport in the world. Amsterdam has become the example city with the best practice of cycling policy, however

Groningen strives to be the world's best bicycle city. This idea comes from what cycling expert, Mikael Colville-Andersen, delivered when he visited Groningen in June 2013. Firstly he said that "Groningen is sitting on a goldmine as the world's best bicycle city, but unfortunately you are forgetting to brand it" and even with that good condition he added that "Groningen needs to continuously renew itself" (http://www.letsgro.nl/en/programs/the-worlds-best-bicycle-city, 2013). What we can underline from his message is, although Groningen has become a city with the best cycle policy and practice, they still need to improve what has been done. This leads to several questions, for cities or countries that have just begun to start to implement a cycling policy, what they should do first. Could they be like Groningen or Amsterdam?

In Indonesia, the Law Number 22 year 2009 on Traffic and Road Transport said that there should be a bike path and sidewalk in every road. Some cities try to implement this law by creating the cycling path in their several road lines but the results remain under expectations. In several cities, there is no continuous and integral planning to this policy which discourages people to use bikes in daily transport, although the number of bicycle use for sport, leisure and fun is greater. Cycling policy in Indonesia needs to be improved because the transport problem in Indonesia has become more complicated since there is a greater number of private vehicle ownership, especially motor cycles. In 2011, National Police Agency reported there are 9.5 million of cars and 69.2 million motor cycles in and around Indonesia, that 68.8 % of them is concentrated in Java Island (Susantono, 2013).

Source: Indra Yoga Adhiguna, 2013 (A); Media Kontraktor, 2012 (B); Akbar Pitopang, 2012 (C)

Figure 1Condition of congestion in several a big city in Indonesia

(see picture from left to right, i.e. Jakarta, Surabaya, and Yogyakarta)

This situation creates many problems on the environment, social and economic sectors. For example, when the number of vehicle remains greater in the city, this results in bad traffic situations such as congestion. This congestion brings losses in the way of energy spent, environmental health degradation, and economic losses from the raising of transport cost caused by slow movements of goods and people, and many others. To tackle this

situation, one of the answers is to encouraged people to use non-motorized vehicles. Therefore, examining the cases in The Netherlands, by focusing on their policies and practices, this study would research on how to improve cycling policy in Indonesia.

1.2. Research Objectives

The main objective of this research is to find contributing factors of cycling policy from the Netherlands experience. To do so, this research will investigate legal and instrumental aspects of the Dutch government compared to Indonesia. Moreover, this study will formulate an approach which can be applied for Indonesian's context.

1.3. Research Question

To fulfill research objective, I employ several research questions as follows:

1. What is the main concept of cycling transportation planning?

   I illustrate concept of cycling transportation planning.
2. What aspects influence bike use in urban cities?

   I explain how the public can be influenced for using bike rather than public transportation or private vehicle.
3. Case study: what type of policy is formulated and implemented in Groningen?

   I elaborate implementation of cycling transport in Groningen as a case study. And I try explain how controlled policy and regulation of bike use in Groningen.
4. What is the situation in Indonesia concerning policy to promote bike use?

   I explain the policies, regulations and methods that have been made to support cycling transport in Indonesia.
5. What lessons can be learned from Dutch practice?

   I explore the methods that can be applied on trip using bike, I compare the methods for case study and I try to examine the appropriate methods for Indonesian context.

1.4. Research Framework

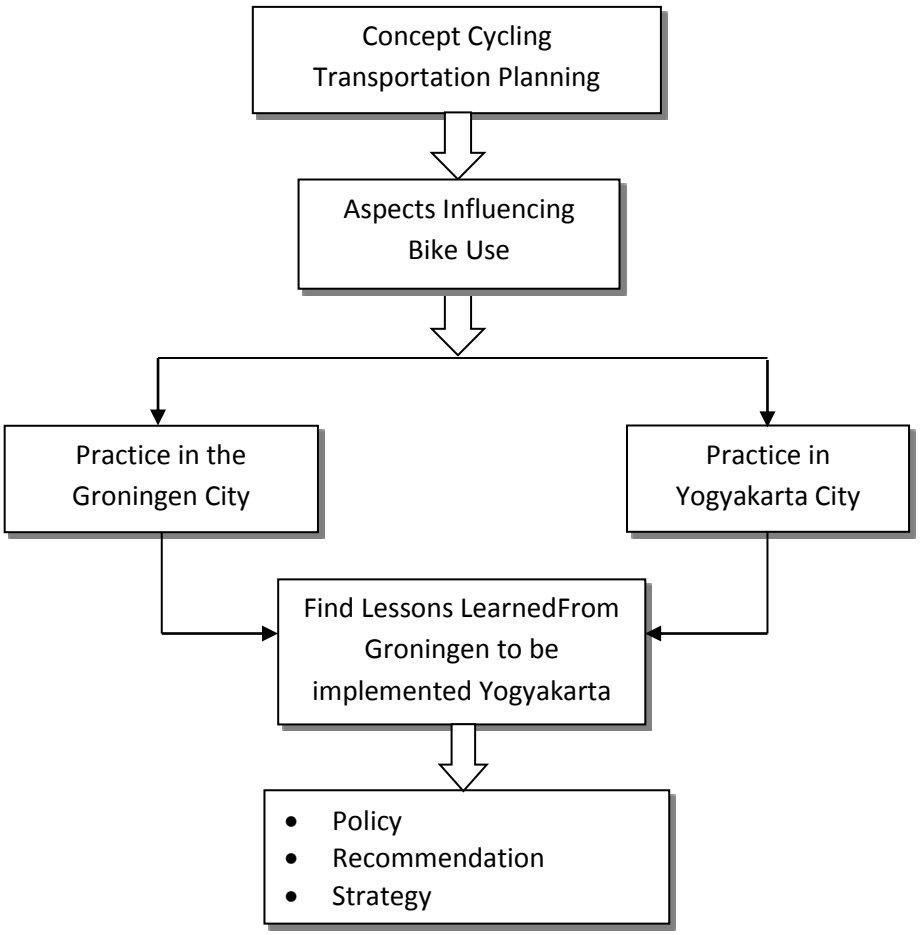


Figure 2Design Frameworks

1.5. Research Structure

This research consists of seven chapters. The content of this research can be described as follows:

Chapter I: Introduction

This chapter consists of introduction, background, research objectives, research questions, research framework, and research structure

Chapter II: Literature Review

This chapter defines briefly the theoretical framework that covers the definition of sustainable and element of transportation. This chapter also explores both factors which are physical factors and some relevant theories that influence them. This chapter provides a conceptual framework as analysis guidance of the research

Chapter III: Research Methodology

This chapter will be used to answer the key research questions and build data requirement. This chapter consists of the methodology of research, and data collection.

Chapter IV: Overview of Case Study

This chapter describes the general overview of the two case study countries case study consisting of geographical location, the initial strategy of the government to promote the bike, and analysis of each country (Netherlands and Indonesia).

Chapter V: Data and Analysis of Policy Strategies

This chapter analyzes the possibility and transferability of cycling policy initiatives in Indonesia, which is possible to be transferred and adapted from Netherlands context to Indonesia, and also identifying the barriers.

Chapter VI: Conclusion and Recommendation

This chapter proposes some research findings or conclusions and recommendations and also the reflection of this thesis.

CHAPTER II. THE CONCEPT OF CYCLING IN PLANNING

2.1. Introduction

This chapter will discuss the concept of cycling planning in theory. Broadly speaking, cycling has many benefits that can be taken by the wearer, stakeholders, and society at large. For example, cycling is cheaper than a private vehicle or public transportation. Cycling leads to a lack of noise and air pollution and material needs more non-renewable of motorized transport. Cycling is more affordable for everyone. It is expected that in the planning of cycling one needs to know some of the characteristics of people who want to use the bike in his or her life. It will be a consideration for planners in formulating policy.

Cycling policy should continue to run and integrated. That means the plan is monitored continuously in each stages. Therefore, the stakeholders involved should establish the policies in an integrated way. It can be developed with cooperation between one department and the others department. This chapter also analyzes the role of government to increase the interest of community in cycling. For example, the policy of cycling can encourage the community to use bicycles every day. So, how can the government increase everyday bicycle use in the community through policies'? If this has been introduced by all the elements, what are the characteristics of the support, and how can policy recommendations can be made based on the concept of cycling planning?

2.2. Why Cycling?

Bicycles are one of the means of transport used by some countries, especially in Europe. It aroused the curiosity of why cycling is used as a means of transportation? To answer this question, we must look at the benefits of the advantages of cycling. Using bicycles as a means of transportation, travel expenses such as maintenance is very minimal compared to a motor vehicle. Pucher et al, 2010 explained that the short journey within in the city, cycling can solve the problems resulting from the increase in motor vehicle because it is more efficient and effective. Cycling also has a positive health impact for users, it is used as one of the functions of sport. In addition, cycling can reduce air pollution and is the best solution to solve the problem of congestion (Olde Kalter, 2007), especially in large cities, which have a dense population. Indirectly, the impact of the reduction of air pollution and congestion can improve environmental sustainability (Olde Kalter, 2007) is green and clean so that a healthy climate will take effect (Pucher et al, 2010). There are financial benefits for government in terms of development, infrastructure for cyclists would cost cheaper than another infrastructure mode of transportation. A large advantage for a State that has an

average low level of income for residents is the bike can be used by everyone ranging from a low social level (Pucher et al, 2010) up to a middle and even higher social level.

Therefore, cycling can be regarded as a sustainable means of transportation. According to (Tumlin, 2012) the sustainability concept has three elements viewpoints. The three main elements are environmental sustainability, social sustainability and economic sustainability. These three elements are interlinked with each other, so it can't be separated as shown in Figure 2.1 below.

Source: Tumlin, 2012

Figure 3Concept Sustainaibility

First, Environmental Sustainability. Geetam Tiwari (1999) provides a statement in his journal that: "A sustainable transport system must meet the mobility and accessibility needs of people by providing safe and environmentally friendly modes of transportation". That is, each person has a different purpose in the journey so that they do different activities with movement as well, where communities have different social levels, especially in large urban areas with a dense population. But this should need to be considered by the Government. The government must be able to meet the needs of the community in terms of means of transport that can be used by anyone, anywhere, and anytime. When viewed from the concept of environmental sustainability, bicycle transportation is the most efficient in the use of energy and land use and requires fewer resources in manufacturing. Bicycles are also an effective vehicle because it can reduce noise and air pollution in its use, gives a fairly high mobility in a relatively small space of the other modes. In operation, cycling does not involve materials containing toxins (Buehler and Pucher, 2010).

Second, Social Sustainability. Many of the people before knowing the bike has the advantage that very much, they just assume the bike is a means of transportation for the poor people. Buehler and Pucher, 2010 explained that the social status of a person is determined

from what transport is used. He tells us that most people are no longer looking at the function of a means of transportation but looked imaging against him (in this case those who prosper) so that they are more likely to use private vehicles such as cars. Status symbol increases motorists on the road more and more and the use of bicycles on the wane from year to year. If the bike is seen from a social sustainability, it can be concluded that the bike can be used by all classes of both poor and rich, women and men, old and young, children and adolescents (Pucher and Buehler, 2007). Then, bikes encourage increased physical and emotional health of a person. In addition, bicycle transportation is a cheap form of transport so most people will be able to purchase and perform maintenance. Minimal maintenance requirements and only relying on human metabolism for operations (Buehler and Pucher, 2010).

Third. Economic Sustainability. The concept of economic sustainability can be viewed simply by assessing whether the activities carried out has a value that exceeds the cost that would be incurred can we spend with these activities continuously? (Tumlin, 2010). This concept seems easy but it is actually very difficult to be implemented. For example, with the increase in the price of carbon-based fuels, many motorists feel uneasy with the rise in fuel prices due to the decreasing amount of oil in the world. One of the solutions that can be taken by people, especially for people who have low incomes, is to find an affordable means of transportation. With economics consideration, bicycle is a means of cheap transportation and can be used on an ongoing basis. In urban areas with high density, bike trips can create much freer movement to the community regardless of economic status and will increase their economic opportunities (King, 2012).

2.3. Cycling From Plan To Reality

Two principles of cycling in the area of urban planning are how to create safety for cyclists and increase the number of cycling over and over. Safety is a key element in bicycle transportation. The more cyclists, the event will be safer cycling. Conversely, the fewer cyclists, it will be more dangerous (King, 2012). That is, the user traffic is more dominant on motorists than cyclists, the number of cycling accidents would be higher. Inversely proportional to the user when the number of cyclist is higher than the motor vehicle users, the number of cycling accidents will decrease. This is caused by the selfishness of motorists who think themselves bigger and stronger so it does not appreciate the way that users do not use the machine as pedestrians and cyclists.

To reduce road accidents and increase the amount of cycling by providing a design plan that attracted all people to be happy for cycling. The shape of the plan can be

implemented through research conducted by King, (2012) as follows: (1) what type of cycling as widely expected by? (2) a comprehensive network of bicycle paths not only think, but also the regulatory network of roads so as to create a bicycle infrastructure that can connect to another route within a short distance. (3) Required way finding to find information about the route, distance, and how the location that will be undertaken by bicycle. In this case, there must be clarity about the traffic signs and bicycle paths that have different color with other vehicles so it is easy to distinguish when it is already dark. (4) There are several infrastructure facilities that must be considered in the distribution of bicycle paths. In general there are four types of facilities, namely the off-street paths (and trails), cycle tracks, bike lane, and narrow lane. Selection of bike facilities can be classified based on the speed differential as in table 1.

Table 1 Bicycle Facility Selection Based on Speed Differential

Auto Speed	Narrow Lane	Bike Lane	Cycle Track
≥ 40 mph		x	Xx
30 mph		xx	X
≤ 20 mph	xx	x	

Source: King, 2012

(5) Intersection and Junctions. Part of this infrastructure is a very complex because conflicts often occurs, which is usually at a junction or bend unclear signs and construction design can cause accidents occur. (6) Required bicycle parking facilities. The concept is that someone will take a trip to a place where parking is necessary to leave the bike until the owner returned to retrieve it in the same place. It is expected that, in addition to bicycle parking has sufficient capacity must ensure the safety of the parking that is not prone to thieves. In table 2.2 identifies the amount of parking that vary according to the type of land use and geography. More bike-friendly areas must have a broader bicycle parking to accommodate the number of bicycles.

Table 2 Bicycle Parking per Land Use

Land Use	Number of Bicycle Parking Spaces/Land Use Unit	Who would provide this?
Residential (multifamily)	1 space per 3 units	Private developer
Commercial/retail	1 space per 4.000 square feet of leaseable space	Private developer
Office	1 space per 5.000 square feet of leaseable space	Private developer
School	1 space per 10 students	City/School board
Park	1 space per acre	City
Recreation center	1 space per 1.000 square feet of usable floor area	City

Source: King, 2012

2.4. Continous and Integrated Cycling Policy in Urban Area

Transportation and land use patterns found in the cities of South Asia differ from those in the West. Most of these towns can be classified as "cheap strategy" city (Thomson, 1977). Compared to cities in the West, these cities consume less energy from transport. High population density, diverse land use, short travel distance, and the high proportion of pedestrians and non-motorized transport are characteristics of urban centers (Newman and Kenworthy, 1989). Transportation and land use patterns are so complicated by their poverty that it became difficult to analyze their characteristics using the same index as used for the cities in countries highly motor (HMCS).

The net effect of the shortage of the planning process is that most of the urban growth occurs without formal planning. Informal housing and business premises and the development of new urban areas dominate. Distribution patterns of land use and density proposed in the plan is intended to minimize the average length of a trip. In a proposed system plan there are five levels of commercial activity to accommodate the shopping, commercial office and recreational needs of the population (Delhi Development Authority 1990). The proposal includes the provision of district centers which are designed to serve as a focal point for multi-nodal activities of the community. Number of trips per household for different purposes remains constant, regardless of whether people live in the "inner region", which has a heavy concentration of employment and commercial activity or "outer region", with new developments planned (Central Road Research Institute 1992).

In other metropolitan cities transport and urban planning has followed the same standard procedure in dealing with urban sprawl and traffic congestion. Use model of large-scale integrated land transport has supported policy and plan documents. These policies and plan documents is recommended in high-density environments, and the expansion of the arterial corridor capacity to meet future travel needs. Despite these efforts to promote mixed

land use planning, the presence and growth of "unauthorized settlements" against the residence and sidewalk master plan. (Geetam Tiwari,1999).

The concept of cycling in urban areas should pay attention to the environment, the behavior of physical culture or society, geography, and others. It should support factors of sustainable and integrated planning. According to Fietsberaad 2009 explains what is continuous, that bike can be used in the long run, while the integrated definition is alignment between the use of bicycles with other modes. Both of these are in discussions about policy.

Continuous. The government expects the transportation cycling can be used in a long period of time to pay attention to the policy from the beginning. This policy can be carried out continuously with constant attention to the needs of users as is done by the Government of Groningen. Local governments in Groningen collect data on a regular basis to calculate the number of local trips made by local people.

Integrated. Government policies on road traffic infrastructure that can connect between networks, both connected to the road network and other modes of transportation. As explained by the European Conference of Ministers of Transport, (2004) that the availability of a dedicated space and infrastructure investment needed to engintegrasikan cycling into the urban transport scheme.So, in order to achieve the bicycle continued and integrated, the government should be able to take a firm decision in determining the structure of the road and traffic routes and seen as supporting the success of cycling.

2.5. Identify factors to increase interest in cycling

Heinen et al (2010) wrote: "We subdivide the determinants into five groups. As travel is a matter of bridging a gap between locations, we start with the spatial context: the built environment. Second, we focus on the natural environment, Including landscape, weather conditions and climate, the which are particularly subject important for non motorized transport modes. The third group of determinants is composed of socio-economic variables, a well-known category of determinants in travel behavior research. The fourth group focuses on psychological factors, Including attitudinal aspects. Fifth, we discuss a number of further aspects related to cost, time, effort and safety" (p. 61). Its means that there are 5 major factors that can be used as a reference in determining the factors that support and affect the interests of a person to make decisions using the bicycle as a means of transportation. These factors are as follows:

2.5.1. Built Environment

Development will be done to improve the environment in accordance with the expected but/and can not be separated from the geographical conditions that exist at that time. Saelens et al, 2003 describes that aspects of the landscape strongly influence travel behavior with cycling, such as geographical conditions that are not flat like the mountains. Aspects that affect the built environment is an urban form, infrastructure, and facilities at work.

The studies that have been done much earlier which showed that the travel distance is a significant factor determining the selection of the mode of transport (Pucher and Buehler, 2006). According Carvero, (1996) explains that cyclists tend to choose shorter distance between the residences where she worked. But note also is the maximum distance that can be taken by any individual. Each individual has the ability to travel differently according to gender (Heinen et al, 2010). Research conducted by McDonald and Burns (2001) showed that women can travel by bike along the 6.6 miles while men can cover 11.6 miles.

Cycling-friendly cities should have a facility that can support the cyclists to and from work at the time. The facilities such as a locker (Abraham et al., 2002) for the storage of items such as a change of clothes, any bathroom (Heinen et al, 2010) to rid the body of the ride, and bicycle parking facilities are safe (Dickinson et al 2003;. Hunt and Abraham, 2007) It is expected that the bike rack can form stable bike that has a bike rack (Abraham et al., 2002) to be safe, especially for those who have an expensive bike (Dickinson et al, 2003;. Hunt and Abraham, 2007)

2.5.2. Natural environment

Basically, someone can determine the choice of the means of transport used by the weather and climate at the time he wanted to do activities outside the home. As described by Heinen et al 2010 that the election cycle is determined by the landscape mode, the condition of the land (whether street ramps, not up and down?), and are determined by weather and climate. Where they found the weather can be determined by the climatic conditions, while the daily long range weather which can be seen over a period of 30 years into the future.

Landscape factors are rare to be considered in research for motorists due to changes in altitude (Heinen et al, 2010) does not affect the motion of the user; this is different with the bike users. At the time of cycling into a slightly hilly area (Moudon et al, 2005), cyclists should have extra power to climb to the top (Stinson and Bhat, 2005). In this case, the government cannot make policy because the landscape is topography of an area (Heienen et al, 2010).

Some opinions say that the climate and season can be the most important factor in traveling by bicycle (Heinen et al, 2010). There have been many studies conducted by experts to determine how much influence the climate for the winter and cycling. The results showed that people prefer to use cycling in the summer (Stinson and Bhat, 2004; Guo et al., 2007; Nankervis, 1999). It can also be proved by research conducted by Bergström and Magnussen (2003) that the maximum distance of 20 km downhill biking in the summer to 10 km in winter.

In contrast to the season and climate in long-term conditions are as described in the beginning of this section, the weather conditions vary day-to-day that can influence decisions for cycling (Heinen et al, 2010). Rain is the most negative factor (Nankervis, 1999 and Brandenburg et al, 2004) because it can lower the amount of cycling, especially for women who are reluctant to come cycling in the rain (Bergström and Magnussen, 2003; Brandenburg et al, 2004). In addition, the temperature is also a factor that influences cycling behaviour (Heinen et al, 2010). A good temperature for cycling according to Parkin et al, (2008) is about 8.6°C - 10.3°C. Another opinion which supports the statement Parkin et al, (2008) is Nankervis, (1999). He found the cold temperatures below 17°C and he stated that cycling is more fun if the temperature is under 17°C.

2.5.3. Socio Economic Factors

Determination of alternative modes of transportation can be seen from the behavior of users based on personal and household characteristics. Interlocking and relationship between mode choice behavior and gender, income and age (Cervero, 2002). In this section we discuss the relationship between cycling and gender, age, income, ownership of vehicles (both cars and bikes), one's work situation, household structure and other socioeconomic factors (Heinan, 2012).

According to Gerald et al, 2008 countries which are friendlier to cyclists affects use by gender. While a State with a low cycling rate, resulting in a more active male cycling population compared to female. And based on the Witlox and Tindemans (2004) discovery , Within the active working population more women than men cycle for all daily trips. In non-working groups, more men are found cycling than women. It seems that there is a gender impact on cycling in certain countries. Judging from the two studies above, it can be said that gender has an important part in determining the use of bicycles in their activities with cycling conditions in each country.

2.5.4. Psychological Factors

Psychological factors may also be a deciding factor for people to choose the mode of transport to travel. This section will explain some of the variables on psychological factors in bicycling. This is influenced by the behavior of a person traveling with a view in terms of attitudes, norms, perceived behavioral control and habit (Heinen et al, 2010).

Theory of Planned Behavior / TPB (Ajzen, 1991) and the theory of interpersonal behavior / TIB (Triandis, 1980, 1997) gives a very important role. According to Heinen, (2010), the definition of attitude is an expectation generated by an activity. Therefore, based on the assessment of Dill and Voros, (2007) states that public attitude towards the use of the car in general is more popular than cycling activities.

2.5.5. Safety, Cost, Travel Time and Effort

From the several theories advanced by experts regarding what exactly the meaning of "salvation" as used in cycling is often cited as a reason that accidents in high-risk stage assumes the lack of understanding of cycle safety (Pucher et al, 1999;. Rietveld and Daniel, 2004; Lohmann and Rolle, 2005; Southworth, 2005; Pucher and Buehler, 2006). According Jorna and Zoer, (2012) mentioned that the main cause is the lack of visibility of cycling accidents and lack of control of the vehicle. The data shows that countries with high cycling investments tend to have greater levels of cycling and a lower mortality rate in cycling (ERSO 2009). Factors that are often encountered as a result of an accident in countries which have a more prominent use of private vehicles and public transport is the speed and weight of motor vehicles (Keigan et al 2009) that can't be controlled.

Based on the explanation Heinen et al, 2010 which states that: "Cost, time and effort are aspects that can be derived from utility theory. Utility theory assumes that each individual acts to maximize his or her utility ". That is, increase the time, cost and effort based on the assumption of utility theory may affect the selection of mode of travel thus decreasing the probability of a person in determining which option will be chosen. This section will focus on how safety, cost, travel time and effort in cycling affect the choice of mode and frequency (Heinen et al, 2010).

2.6. The government's policy interest in improving cycling

Another approach in determining the selection of mode of transportation is the government's policy for bicycle users. This deciding factor is no less important to the five main factors above. Policy influence on the selection of the city transportation modes for each individual when considering the five factors described in section 2.5. City plans require

special attention from the city government to build infrastructure in enhancing the promotion of cycling in urban areas. From some of the literature found, there are several aspects that influence policy to improve people's interest for cycling. Among them are the following:

2.6.1. Financial

This factor is very important because no one can run when the development financial factor is not enough. According to CHAMP, (2012) the financial factor is closely related to cycling policy, where the policy which will examine the financial existence. That is, the government can monitor financial ranging from budget allocation to the implementation of the budget expenditures based on the policy. Budget can be derived from the investment of the city government and other parties supporting the implementation of cycling policies.

In addition, according Rietveld et al, (2004) mentioned the cycling policy to increase community interest; generally, there are two ways, called “Pull and Push”. The term of pull refers to decrease of public cost. On the other hand, the term of push refers to increase cost the other mode transportation especially private vehicle. For example, the local government prohibits private vehicle to enter of city center. They must be running through round ring road. The result, they must pay the expensive cost.

2.6.2. Rule of law

Policy is strongly influenced by the prevailing regulations. According to the Municipality of Utrecht, (2003) the bicycle has the legal status set out in the Road Traffic Act. In the Road Traffic Act "a bicyclist is a “driver/rider” just like a car driver, motorbike riders and a moped rider" (p. 17). This means that cyclists have the same degree and the same rights when using the road simultaneously with other motor vehicles. Road Traffic Act contains rules applicable traffic and facilities to use the bike as a condition of the bike. The Road Traffic Act applies in the Netherlands (Municipality of Utrecht, 2003).

2.6.3. Actor Role

The parties involved in cycling policy involve all actors. As explained by the Municipality of Utrecht, (2003) the authorities in the maintenance of the road is the central government, provincial government and municipal government. There is also the role of the water authority and the private sector, although the proportion is very small. It is also reinforced by research conducted by Van Aken, E and Engels, D. (2012). He explains the role of each actor corresponding proportions. For example, financing of infrastructure development can be submitted from the province to request funds from the national government.

2.7. Society to Promote Cycling

According to Pucher and Buehler (2008) there are a few things to consider attracting people to use bicycles in everyday life. There are a variety of programs to stimulate interest and enthusiasm for cycling by all groups. Below are promotional measures that are used by the six cities, namely Amsterdam, Groningen, Copenhagen, Odense, Berlin and Muenster:

- Provide a systematic bicycle path by giving a special color for cyclists
- Available in a comprehensive map of bike paths
- There is clear and complete information through route cycling website, activities, special programs, the health benefits of cycling, get bike accessories, etc.
- Improve the security of bicycle parking facilities
- Distribute newsletters and information about cycling
- Day car-free environment that promotes the benefits of cycling, featuring the latest models of bikes and accessories, deploy a variety of other information relevant to cyclists
- Organize a cycling competition for all ages and skill levels
- Provide an annual award to the company that can promote cycling for employees and provide facilities such as lockers, bike parking, bikes to borrow, and a flexible dress code
- Focus on the health benefits of cycling
- Survey cyclists routinely to assess their satisfaction with cycling facilities and programs by collecting specific suggestions for improvement.

These promotional activities tend to be undertaken by the Danish and German rather than Dutch. Netherlands is a country that has been friendly to cycling for many decades ago until today that is no longer looking how to promote bike use to the public but rather focus on cycling safety. The steps above can be a reference for other countries to follow the success of cycling as a means of transportation.

2.8. Guidelines and Methods in Comparing and Transferring Policies

Based Dolowitz journals and Marsh (1996) to review the literature on how to compare and transfer policies. This review provides a comprehensive study of the transfer policy, including the actors involved in the transfer, the reason why the transfer should happen, what needs to be transferred and how the transfer should occur. Therefore, it is expected to serve as guidelines for countries wishing to transfer policy of the state other. For more details, please refer to the table below:

Table 3 Guidelines for policy transfer study

Guidelines in comparing and transferring policy	
Who transfers the policy	Elected officials, political parties, bureaucrats, pressure groups, policy entrepreneurs/experts and supra-national institutions
Why transfers the policy	- Search for lessons (voluntary transfer); - Part of monetary funding schemes (direct coercive transfer); - Need to developed partnership with other countries especially in coping with externalities resulted by neighboring countries (indirect coercive transfer).
What to transfer	Goals, contents, techniques, ideas, concepts, lessons (positive and negative) and instruments of policy
How to transfer	Copying, emulating (modification of copied policy), hybridization and synthesis (mix of policies learnt from various countries) and inspiration (getting new ideas by watching other countries).

Source: Dolowitz and Marsh (1996)

2.9. Conclusion

From the theories that have been described above can be concluded in general that the promotion of cycling can be done successfully to the public if the government does not just look in terms of its use alone, but depends on three elements of sustainability. The concept of sustainability is directly accommodating public demand. In addition, for the record, the Government made a policy that 'up to date' tailored to their needs. Thus, there is a strong mutual attachment between the role of the public, government, and non-government to improve the cycling promotion activities in countries that have not been successfully implemented.

Moreover, when they see some identification's factors that can affect cycling, essential also pay attention to the environment that can attract the attention of the public in improving cycling promotional activities in countries that have not been successfully implemented.

CHAPTER III. METHODOLOGY

3.1. Introduction

This chapter will describe the method and data collection used in the study. The purpose of the research is to accelerate the implementation of cycling initiatives in Indonesian policy in a more effective and efficient by learning from what has been done by the Dutch. In order to implement this policy, then this chapter will present how to answer the research questions that have been described in Chapter I, so as to formulate policy recommendations cycling in Indonesia.

3.2. Methodology and Data Collection

This study set out from the initial idea to seek lessons from other countries in order to accelerate the cycling policy initiatives in Indonesia. Focus of this research is to increase the willingness of cycling rather than using private vehicles in everyday life. One of the main reasons the Indonesian people are not interested in using bikes is lack of availability of safe cycling facilities. Therefore, this study will be conducted with the following criteria:

a. Literature Review

   Literature review is an important part to establish the theoretical framework regarding the concept of sustainable, continuous and integrated concept in cycling. This research can be conducted with collecting data through some international journal and local journal.

b. Learning from examples

   Based Dolowitz journals and Marsh (1996) as discussed in Chapter II, to review the literature on how to compare and transferpolicies. This review provides a comprehensive study of the transfer policy, including the actors involved in the transfer, the reason why the transfer should happen, what needs to be transferred and how the transfer should occur. Therefore, it is expected to serve as guidelines for countries wishing to transfer policy of the state other. For more details, please refer to the table below:

c. Explorative and Comparative Analysis

   Case studies may include a comparative study of qualitative comparison of the social entity that is based on multiple lines of national and cross-regional comparisons (Mills et al, 2006). Comparative study helps to separate the universal patterns and general to be more specific in the context of each study case and reveal the unique aspects of a particular entity. In this step, the data and information on the implementation of urban

cycling will be collected from the Netherlands by doing some literature reviews on case studies. Subsequently, this research tries to explore and compare the current implementation in the Netherlands with Indonesia.

Policy strategy of the Netherlands will be used as a guide. Then be compared to current conditions in Indonesia. Strategies and policies to be implemented is one that is suited to the conditions in Indonesia. Comparative data and information obtained from secondary data and qualitative observations. Expected end result is a list of recommendations that may be easily adapted to transfer and policies that could fit with the character and condition in Indonesia, so that the public interest for cycling in Indonesia can be improved.

3.3. Data Collection

This study collected data from a secondary data source. Collecting data used to gather information by reviewing the theoretical and empirical case studies. This has become an important part to gain a deep understanding of the definitions, guidelines and concepts in urban cycling. An important part of this is also to collect data about the current state of case studies in the Netherlands and Indonesia. data will be collected using significant resources such as books, journals, articles, related publications, other research, internet sources, official government documents, government databases, and also archives for developing a theoretical review and case studies. Data used in this study relates to physical factors such as data density, diversity, distance, cycling infrastructure design and institutional factors such as data stakeholder engagement, policies and regulations.

3.4. Steps Research

This section describes the steps of research. These steps are performed to obtain research purposes. These research steps described below:

1. Literature as a Basic Theoretical Background

   This step discusses theories related to the concept of sustainable, continuous and integration concept, the concept of how to stimulate interest in cycling by providing effective and efficient policies. Furthermore, the theoretical perspective of helping to build a conceptual framework for selecting appropriate methods to analyze the problem in this study.

2. Comparing Case Study

This step describes the reason for selecting a particular area to be compared. Study chose a comparison with the Netherlands as the country of Indonesia. Reasons for choosing the Netherlands is the best country for the practice of cycling in urban areas. Meanwhile, Indonesia was chosen as the study area due to lack of accessibility and facilities for bicycle users so people tend to use private vehicles in the transport sector. Accordingly, detailed information about the case of Netherlands and Indonesia case will be explained in the analysis section.

3. Data Collection

Secondary data were gathered through a literature review and collect data from various sources such as reports, published and unpublished documents, statistical data, and government reports. Collecting data from secondary data useful to meet the data required to analyze the research problem.

4. Analyzing Data

This study uses a comparative analysis. As described above, the method may include a comparative analysis of qualitative comparison of the social entity that is based on multiple lines of national and cross-regional comparisons (Mills et al, 2006). However, this study used a method of analysis based on the results of qualitative comparative analysis to increase the use of bicycles from private vehicles. Methods focus on finding similarities and differences between the two case studies and also try to find the gap between the two cases. then be able to identify lessons to be learned from Netherlands country to increase interest in cycling in Indonesia .

5. Conclusions and Recommendations

This step concludes the results of the analysis. Accordingly, this measure proposes guidelines to increase interest in cycling with policies that support the cycling promotion of private vehicles in order to create a sustainable transportation.

CHAPTER IV. OVERVIEW OF CASE STUDIES

4.1. Introduction

This section is intended to provide a general overview of the geographical location, the initial strategy conducted by the government or the people of each case study (the Netherlands and Indonesia), and cycling conditions in Yogyakarta (Indonesia) at the moment. After knowing the characteristics of each case study, then in the next section describes the theoretical analysis based on the discussion in accordance with Chapter II.

4.2. Netherlands

4.2.1. Geographical location

Netherlands has 12 provinces. One of those provinces in Netherlands is Groningen province. Province of Groningen became the seventh province on February 17, 1595. The figure below shows a map of the 12 provinces and the province of Groningen in the Netherlands.

Source: Wikipedia, 2013

Figure 4 Map The Netherlands

Source:Wikipedia, 2013

Figure 5 Map The Province Groningen

Red dots on the map above shows the Dutch provincial capital and the black spots are the main cities in the province. Groningen province is divided into 23 cities, led by Commissioner King named Max van den Berg. Land area of 2,329 km² with a population of about 579,000 souls so that it has a density of 248 people/km². One of the cities in the province of Groningen is the city of Groningen. The economic center in Groningen there are six poles, the city center, the university complex (Zernike), University Hospital (UMCG), Europapark / Kempkensberg, Martini Hospital, and the central railway station (Aken, E,V and Engels, D. (2012).

4.2.2. Groningen as the best cycling city in the world

The city of Groningen has the highest population of bike use in the Netherlands. According to the data described by Van der Klaauw, C (2012) that in 2010 out of a population of about 190,000 people as much as 57% of trips made by bicycle in the city. Bike lanes number 46 pieces, traversed by 216,000 trips every day. Parking facilities were given custody increased from approximately 20 bicycle parking starting in 1982, then increased to 30 bicycle parking in 1995, and then in 2006 increased 15 bicycle parking. In addition, bicycle parking located at the central station and the bus terminal around 7000 parking spaces (John Pucher, 2010). This data may be evidence that the city of Groningen deserve to have

the title as "the world's best bike city". Mikhail Colville-Andersen convey the message that "Groningen is sitting on a gold mine as the world's best bike city" when he visited Groningen in the month of June 2013 (http://www.letsgro.nl/en/programs/the-worlds-best-bicycle-city 2013).

Aside from being the world's best bike city, Groningen is a student town and a compact city. The number of students in Groningen is approximately 50,000 people (Van der Klaauw, C. 2012). This means that nearly 40% of Groningen population consists of students. Thus, Groningen called as student city. City of Groningen has one city center with the area of 1 km². Therefore, Groningen also called the compact city. Distance between the city center with the suburbs along 4 kilometers (Aken, E, V and Engels, D. (2012). Automatically, all can be done with a cycling trip.

4.2.3. The early history embarked on a strategy to promote cycling policy

In 1930s, Dutch is the dominant city using bicycles as a primary means of transportation. But during the period of 1950-1975 the Netherlands has decreased the use of bicycles. This is due to the rapid population growth and income increases so that road users switch to cars. Therefore, infrastructure policy is more focused on automobile traffic and road construction built 2.9 times larger than the size of the previous path. In the 1970s, the use of a moped (like motorcycles and pedal low-power (Wikipedia, 2014)) increased.

Godefrooij, (2012) explains that the Netherlands has increased road safety issues in 1972. The level of death and injury on the street reached 250% from the list of accident that counted from 1950. Meanwhile, for bicyclists itself, the percentage of death level is 17% and 32% from the level of listed injury. Moreover, Netherlands is starting to experience bottleneck traffic in every city center, and there is air pollution and bad living quality (Dutch Cycling Embassy). As a result, the government should immediately take steps for the safety of road users because it is already become a national disaster.

The government made a national policy in the 1980s that includes subsidizing the construction of bicycle paths, and procurement pilot project to promote cycling in Tilburg and Den Haag (Godefrooij, T. 2012). The success of the sampling project in the city is creating paradigm shifting at street users from car to bicycle. However, Netherlands Government has not stopped here, but increasingly seek to restore the use of bicycles by taking big steps to promote cycling. These steps according to the Dutch Cycling Embassy are:

1. Decreasing accessibility of car to the city center.

2. Creating car free day
3. Determining more expensive parking cost in the city center
4. Building cycling lane.
5. Decreasing street room for car users.
6. Providing cycling facility through networking planning cycle, street design, signal, parking, and legal empowerment.
7. Decreasing maximum speed for car users, especially at city streets with speed less than 30 km/hour.
8. Encourage people to use bicycles and prevent the use of cars

All of these can be successfully executed because they are not separated from the political influence. Socialist party which won elections in the Netherlands at 1970s has a paradigm to give more priority a friendly city and social face (Bangun,T. 2010). This is true in the city of Groningen especially, which is led by the Green Party.

4.3. Some factors that support and encourage people to use bicycles

Based on section 4.2.3, which describes the measures to promote the bicycle as recommended by Dutch Cycling Embassy, in this section will explain in detail how the points no. 8 can be done well. It also refers to the basic theory first described in chapter 2 discussion in this section is only a case study in the city of Groningen.

4.3.1. Built Environment Factor

There are three categories that support the development environment to encourage cycling community. The three categories are:

4.3.1.1 Urban Form Factors

The city of Groningen has a flat ground structure and geographic location which lacks hills. Groningen is a compact city (Aken, E,V and Engels, D. 2012). Spatial neat and orderly. City land uses are grouped according to function. Residential areas, entertainment venues, markets, shops, campus, office area, supermarkets, town center, station and bus terminals are grouped into a single region according to function. Distance from one point to another are very affordable by bike. A short distance along the normally expected bike 7.5 kilometers (Rietveld et al, 2004). This short distance is also influenced by the area of the city of Groningen is not so wide, so the policy of the Government in preparing the urban spatial development at the time was well planned, done by classifying areas according to function.

4.3.1.2 Infrastructure Factors

If we see with the naked eye when we go for a walk in the city of Groningen, we can clearly see that the government policy of Groningen city has provided all facilities with good cycling infrastructure. Bike paths are restricted for use by pedestrians and other vehicles such as cars or buses. Parking facilities are available at both, especially in public places such as stations, shopping centers, schools, workplaces, and every corner in the house where lived until infrastructure that can link road under the highway that shows that people who are not cycling will lose his journey with the use of private vehicles such as cars. They can penetrate travel to neighboring areas such Groningen Haren, Leuwenborg, Ten Boer, etc with cycling. There is also a security feature that calculated by the government in building infrastructure in the street at the intersection or turn and bridge crossings to ease travel as written by Stinson and Bhat, 2005 Above all, the government provided infrastructure in the traffic signs consisting of signs, traffic signs which consist of a stop at a red light on the road, symbols and signals are needed as a means of visual information. Groningen is very responsive city government to provide bicycle facilities needed by cyclists. Facilities that support bicycle facilities in the city of Groningen as below.

Source: Nienke de Jong, (___)

Figure 6 Procurement traffic signs and bike stop at a red light

4.3.1.3 Facilitate at work

Provision of facilities in the workplace can be seen on campuses or libraries that provide lockers for all students and lecturers. Automatically, the bathroom in the building is available which is not far from the place of our goods storage like in the library RUG (UB).

4.3.2. Natural Environment

The natural environment of each country is different. In some countries such as Indonesia, there are only two seasons. Otherwise, there are also countries that have 4 seasons, for example in Netherlands. There are several factors of the natural environment that can affect a cycling trip in the city of Groningen.

4.3.2.1 Hilliness and Landscape

According Aken, E, V and Engels, D. (2012), the city of Groningen is very flat with the highest point which is the end point of a sandy ridge at 7 meters above sea level. Plains were almost even on every street in the city of Groningen making people happy to travel by bicycle, especially at short distances. There are only a few roads which are a bit uphill but not so much. One example, cycling out of Groningen towards Van Houtenlaan, the bike path climbs uphill on a bridge or something along those lines. Also, when approaching toward Van Iddekingeweg road, cycling will experience reduced speeds due needed to add exertion by the time we passed the road which is a little climb.

Source: Collection Author

Figure 7 Facilitate bike parking on central shopping and front of housing

4.3.2.2 The Seasons and Climate

Parts of Europe have four seasons, spring, summer, autumn, and winter. Because the city of Groningen is located continental Europe, hence the 4 seasons are experienced in this city. Furthermore, Groningen has a marine climate with relatively high rainfall Aken, E, V and Engels, D. (2012).If observed closely, the number of active cycling on the road during the summer will be much more than in winter. This shows the truth of the theory in Chapter II which has been described in section 2.5.2. This is supported also by the habits of

Europeans who like to sunbathe in the summer because they want to change the color of the skin to be more chocolate so much that cycling to take this moment and go to the hot areas like the gardens, lake, windmill, etc.

4.3.2.3 Weather

Most of the people in the city of Groningen use bicycles as everyday transportation with the weather good or bad conditions. They will continue their activities as usual. All private facilities in anticipation of bad weather are already experienced. For example, everyone is ready to go out cycling with supplies umbrellas and raincoats when it rains or snows. So the road infrastructure provided by the government is able to rapidly absorb water by the time winter arrives and the the government provides the facilities to lower the workers directly to the street with the task of cleaning the roads of snow thickness by using a machine or manually every few hours. Therefore, people feel safe to use the bike in bad circumstances though.

Temperature in Groningen can be said to be cool in the existing two seasons, ie spring and autumn. Average temperatures in both seasons ranged from 4°C - 9°C. Cold temperatures make cycling more fun while enjoying the fresh air and good weather. So do not feel tired or sweaty when cycling. It is highly expected by the immigration of people from other countries, especially in the country that has the dry season, such as Indonesia.

4.3.3. Socio Economic Factors

With direct observation, cyclists not only from the lower middle income people but several different socio-economic levels as well as city officials continue to use bicycle for transportation. Between women and men also look balanced in order using a bicycle. For example, every morning or evening in the Zernike region, many lectures will be seen using bicycles turers use bicycles as a mode of transportation that brought them into the workplace. And not infrequently seen are also older professors who use bicycles, even a university leaders also use bicycles. From this example, it can be concluded that cycling in Groningen does not conform to one status, income, and gender, where between one the other interlinked. As noted by the Ministerie van Verkeer en Waterstaat, (2009) that the social status of cyclists is the same for almost every population group. Cycling reflects the sporty and environmentally conscious lifestyle.

4.3.4. Psychological factors

Based on the theory of TPB and TIB are already described in section 2.5.4 in Chapter II, it can be classified into three important parts, namely:

4.3.4.1 Attitudes and Social Norms

The introduction of early cycling is done by people of the city of Groningen, where we can see on the streets, children aged 3-5 years have been taught by their parents using wooden bike no pedals so that the child can maintain balance. Once the child grows bigger, they are accompanied by parents cycling along the highway so that they have understood the signs traffic cycling. And then, automatically, after adolescence and adulthood, the vehicle used to go to school is a bicycle.

4.3.4.2 Perceived Behavioural Control

Groningen society is very appreciative of cyclists and road users. Bicyclists have precedence over motor vehicles. For example, if at a crossroads, a motor vehicle such as a car or public transport will stop for any bicycle users and pedestrians that are going through the same path. Behavior like this will be reflected while on the highway in Groningen.

4.3.4.3 Habits

For a matter of habit, the government may perform a firm stance to enforce the existing rules. When we make a mistake in an event, the authorities handle it firmly. For example,there are rules that people can not be cycling in the area which is a public road for the pedestrian or roads is made from paving as winkel or regional shopping center in the centrum. If a cyclist infringes on rules, then that person will be subject to severe sanctions such as expensive fines. Due to strict rules, can cultivate the habit of people to obey regulations. So is like the example in section 4.3.4.2 behaviors that put cyclists and pedestrians more important becoming urban habit that needs to be emulated from Groningen.

4.3.5. Factors Supporting

There are still supporting factors in cycling activities in the city of Groningen as:

4.3.5.1 Safety

There is guarantee of safety in cycling in Groningen. Each traffic sign and the infrastructure built aims to improve safety for cyclists. Infrastructure is built in such a way to maintain the safety of cycling. For example, development roundbout made to prevent accidents because there are four intersections that meet in one location. There are clear division lines between cyclists, pedestrians, and other vehicles such as buses and cars. Due to the high level of security, Groningen in the cycling community does not require the use of a helmet for safety. But the use of helmets for young children are still frequently seen on as they walked along with their parents.

Source: Collection Author

Figure 8 Path Bike

4.3.5.2 Transportation Cost

One of the reasons people Groningen use bicycles as a means of transportation in doing daily activities is the enforcement of expensive parking facilities parking tariffs for motorist who want to enter the downtown area, as well as traffic patterns which force them to circle the ringroad. Therefore, in doing short trips, people prefer to use a bicycle that is economically cheaper than using public transport and other motor vehicles.

4.3.5.3 Travel Time and Effort

The travel time required for cycling to various places in the city of Groningen is more efficient compared with other vehicles so that nearly 60% of the people in this city using bicycles as a primary means of transportation. So the effort expended is more effective. No need to spend extra effort and cost with the rotating ring road trip and spent fuel at the time wanted to travel to the city center with a motor vehicle.

4.4. Bicycle policy strategy in Dutch

Dutch towns designed to reducing motor vehicle traffic. Many citizens have the opinion that downtown must be seen such as a “living room” for citizens of the city. development for increased bicycle use is done in two ways : hardening car access and easier bicycle access to downtown. Car traffic lane made by turning highway while Pedestrians want to central town, then street inner city made one way so car did not goes by, except bicyclist.

For car drivers, parking provided by the Government located in the downtown made policy with given costly rate. For example, in Amsterdam, car parking place as the most expensive rate in the world. About two hour parking, driver must pay 10 euro or IDR 17,000.

This location is found near Amsterdam Central Station where free bicycle parking is also found.

Cause of this policy, since 1980s bicycle usage has gone up, especially in Groningen city. Groningen have sufficient time change right wing party government, but bicycle policy still get support," said Jaap Valkema, employee of traffic sector and transportation of Groningen city (Tempo magazine, 2010). Jaap told , even in economic crises present, his office always be prominent by the government. "If my division asked fund for bicycle means, always available. While if other division asked it, they got budget tightening," he said with smile. (Tempo magazine, 2010).

The city government continues to advance the use of bikes in Groningen with the steps that have been described above. While policies are needed to improve the cycling community should consider several aspects, among others:

4.4.1. Financial

City of Groningen provide a special fund for the construction of new infrastructure, maintenance of infrastructure, new bicycle parking facilities, and bicycle parking control (Van Aken, E and Engels, D. 2012). There are several sources of budgetary policies cycling in Groningen. Sources by different proportions. More detail can be seen in the table 4.1 below :

Table 4 Sources of financing for the construction of cycling facilities

Type	Source	Costs were prepared	Type of development
Finance (Reguler)	BDU	Maximal 50%	Infrastructure (safety and accessibility)
	Region Groningen-Assen	Maximal 50%	fietsroutes plus chain mobility and parking
	Strengthening Touristic Infrastructure		Infrastructure (cycle path, bridge, etc)
Finance (Project)	Facelift Regional Stations (project)		Bicycle Parking
	Park and Ride (project)		Bicycle Parking

Source: Van der Klaauw, C (2012)

According to research conducted by Van Aken, E and Engels, D. (2012)the overall infrastructure development funding comes from the general budget that can be submitted for

funding through the province with funding from the city by 50%. Unlike the source of funds for the construction of city bicycle parking near the railway station comes from the national government. In fact, the source of funds for the construction of a new bike path from the European Union. And there is also funding from other policies that participate to invest in creating a sustainable city such as the Department of the Environment. This shows good coordination in determining policy has been structured financing.

4.4.2. Regulation or Law

As already described in section 2.6.2 that the Road Traffic Act has arranged all trips by bicycle, and even have the right safety same priority with the other riders. Terms of riding a bike is one of the efforts to prevent road accidents. Therefore, when cycling must consider several important things, such as headlights and taillights should be lit when it was getting dark. When bringing younger children are required to use special seating designed for children. When going to turn right or left at a junction, never cut the bike in front of our vehicle, because if there is an accident, we will be blamed. There are many more other regulations. All are described in (www.transport.wa.gov.au).

4.4.3. Role of Actors

As seen in the description section on financing, many actors are involved in development cycling facilities. Starting from the central government, provincial governments, and local governments, and even the European Union. The private sector and the community also participated in increasing the number of cyclists. Together they realize the city environmentally friendly and sustainable cities. Local government itself has a strong vision and mission so that the implementation of the city be realized perfectly healthy. Policies implemented by local governments to the needs of cyclists are monitored by giving questionnaires to people's complaints encountered when cycling. This proves that the government does not only make the original program but has been calculated carefully to tens of years into the future. Good cooperation exists between the government, communities, the private sector, and non-government, even by EU governments. They interact with one another without any inequality of duties and responsibilities that may result intersect.

4.5. Indonesia

4.5.1 Geographical Location

Indonesia is an archipelago state that consists of 33 provinces. There are 5 big islands in Indonesia, those are Jawa, Sumatera, Kalimantan, Sulawesi and Papua. Others are islands small categorized according to its area width. The population spread in Indonesia is not spread evenly. Most of the population is concentrated in Java. According to BPS, 2013 (Statistical Center Agency), around 57% from the total Indonesia population is in Jawa island. The population on 2010's in Indonesia is 237,64 millions people.

Source: ***http://www.indonesia-tourism.com***

Figure 9 Map of Indonesia

Many cities in Indonesia have moved to make the bike as a means of transportation. The cities that already improve the number of cycling is Jakarta, Bandung, Semarang, Yogyakarta, Surabaya, and other small towns that are not exposed through the mass media. However, most cycling movement implementation is performed by communities that loved bike. Meanwhile government has not have power to make policy and meet all the facilities for bicycle users. City that chosen in the case study of this research is Yogyakarta city because it is seen from the structural side of the city is almost similar to the city of Groningen. The red dot indicates the 33 province in Indonesia. And the point numbered 15 is the province of Yogyakarta Special Territory (DIY Province).

DIY Province is the smallest province of the four provinces located on the island of Java. The province is divided into 4 districts and 1 town, among them are Progo Regency,

Sleman, Bantul, Gunung Kidul, and the city of Yogyakarta. And when seen from landmass area, the city of Yogyakarta is the smallest area when compared with the other four districts. This city is the densely populated city. According to data from BPS (2013), the provincial population of DIY in 2010 approximately 3.48 million inhabitants. Meanwhile, the city of Yogyakarta itself has a population of approximately 400,000 inhabitants with a land area of 32.5 km ². The province is the special because it was led by the provincial head of the region as the Sultanate (almost similar to the kingdom) (BPS, 2013). While all provinces in Indonesia, led by the Governor as the head area.

Source: ***http://www.indonesia-tourism.com***

Figure 10 Map of Province Yogyakarta Special Territory

4.5.2 Yogyakart as a city of students

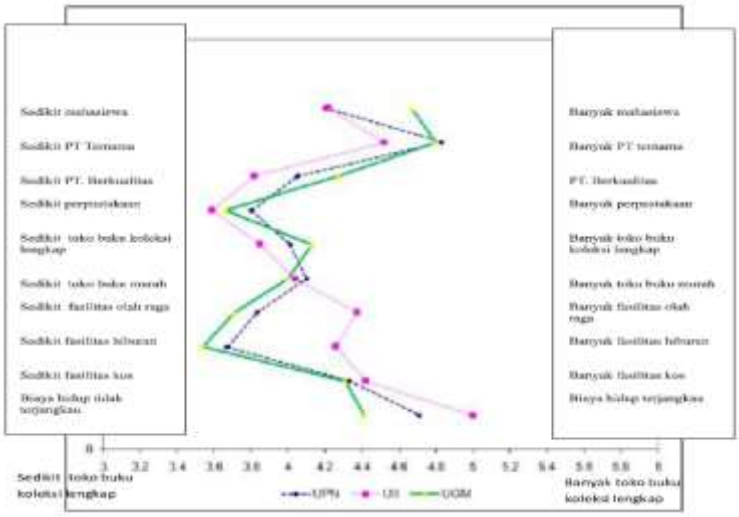
Yogyakarta is famous as a city of students. Most of its population consists of students who came from all vary region to digging knowledge in several famed universities in Yogyakarta, among others, Gadjah Mada University (UGM), National Development University (UPN), and the Indonesian Islamic University (UII).

According to research conducted by Haryono (2009) there are several factors that affect the brand image of a person to express a city imaging, institutions, goods, and so forth. Factors used by Haryono (2009) to assess the brand image of the students city, as follow:

1. Lot of student / students from all over Indonesia
2. Lot of major universities, many qualified college national / international

3. Lot of libraries are
4. Lot of bookstores are the complete collection
5. Lot of bookstores are cheap
6. Plenty of sports facilities are
7. Lot of entertainment facilities exist
8. Lot of facilities are residential / boarding
9. Affordable cost of living

And the result stated that all of these factors in Yogyakarta (see Figure 4.8 below).



Source: Haryono, 2009

Figure 11 Snake Diagram of Jogjakarta Brand Image as Student city according Student of UPN, UGM and UII

In addition to their title as "student city", the city of Yogyakarta is still a lot of other predicate, such as "bike city", "city of culture" and "education city" (Supriyoko, 2002). "Bicycle city" can be proven by a study conducted by Sari and Herawatih (___). The research was carried out by them by way of sampling and population via an online questionnaire to the bicycle community calling itself Gowes JLFR (Jogja Last Friday Ride). The number of community JLFR Gowes around 311 people so that samples taken 80 people. If we look at the population of the city of Yogyakarta, described above means it can be concluded that the majority of the population of Yogyakarta is JLFR Gowes community members. Which means, the people of Yogyakarta are very concerned about the use of environmentally friendly transport.

4.5.3. Current condition of Cycling in Yogyakarta

History of cycling in the city of Yogyakarta is almost similar to the Netherlands. Dutch who brought the bike to Indonesia at the time of colonialism (Beckendorff, J. 2012). Twenty to thirty years ago, a bicycle is the main means of transportation. As has been suggested by Bike magazine Rudiyono in Europe that the bicycle is a means of transportation that is most commonly used in Indonesia from the 1930s to 60s (Beckendorff, J. 2012). Every morning and evening we can see that most of the activities cycling through the streets of Bantul, Wates, Godean, Parangtritis, Wonosari, and others roads heading towards the city and vice versa (Prihandaya, 2012). They use a bicycle to work and go to school. Cyclists usually meets the road like the convoy. That's a brief overview the city of Yogyakarta in advance so got the nickname as the "bike city". Yogyakarta is a small town so can be easily reached by bicycle.

However, this changed with the passage of time and the changing times. Increasing economic growth that higher causes people start to switch from bicycles become using motor vehicles. As a result, urban space that it is not wide with narrow streets make the city of Yogyakarta increasingly congested by users of motorcycles and cars. Yogyakarta start eliminating bikes as a mode of transportation.

In 2008, Yogyakarta begin aware on eco-friendly environment. Many bicycle communities to re-promoting bicycle. One of today programs that promoted by Government is SEGO SEGAWE “sepeda kanggo sekolah lan nyambut gawe”. Means, bicycle used to school and to work (Regulation of Mayor Yogyakarta Number 57/2012). According to Antara News and Indosiar, SEGO SEGAWE program validated by Yogyakarta Municipal Government on October 13th 2008. Local government hoped through this program can invite Yogyakarta people using bicycle in daily activity towards transportation that eco-friendly.

4.6. The factors that support and encourage people Yogyakarta to use bicycles

4.6.1. Built Environment Factor

Built Environment factor is divided into 3 categories as described in the Dutch case study (see 4.3.1), namely:

4.6.1.1 Urban Form Factor

Yogyakarta Province has varying soil structure. There are flat and also mountainous soil structures in Yogyakarta. Slope of 3-8 degrees to over 25 degrees. While the height of land at 100-500 meters above sea level (Bappenas). But mostly in the city of Yogyakarta has

a flat ground. Therefore, this condition allows the people of Yogyakarta city to use bike. This is evidenced by the nickname of cycling in the city of Yogyakarta. And the last few years, many cycling community appears to generate community interest in cycling. The city also allows cycling because it is a city with a relatively small area compared to other major capital cities of each province, so the cycling mileage can be affordable.

4.6.1.2 Infrastructure Factor

In the city of Yogyakarta, most of streets look the bike path that is only limited by the dotted line in each lane right and left of the main road. Infrastructure bike path is made as wide as half a meter. Each 10-meter length of road visible image bike and on the bike path marked with yellow road markings. But people still do not feel safe using the bike because it is still not enough true facilitating infrastructures. This is evidenced by Andreas Soeroso who told to People's Sovereignty News that the infrastructure in the city of Yogyakarta for cycling still minimal (Sujatmiko, 2013). One example of inadequate infrastructure is a barrier to cyclists on the road while on the road is still very apparent. This means that there is no space limit or block the bike lane with motor vehicles that are still often intersect with one another. Lane road markings are only limited by a dotted line. Bike paths that have been physically separated its boundary with the motor vehicle can be seen at Malioboro street, Mangkubumi, and Ahmad Yani. While on the road Cik Ditiro bike lanes are restricted virtually so that they can mix with other vehicles. Way for bike users can still become one with another vehicle as shown in the picture. Moreover, not only limiting the virtual path for cyclists, but also no signs or traffic lights available for cyclists so that when the green light shows, all vehicles will be running simultaneously. No doubt that many cycling community wants to take action to improve cycling facilities but they are hampered by the circumstances that have not received support from the government in a transparent manner.

Source: Greenmap Yogyakarta

Figure 12 The bike path is only limited by the dashed line (A) and a bike path that is limited by a physical barrier (B)

4.6.1.3 Facilitate at Work

According to the theory in chapter 2 that explains that there should be a facility that supports cyclists to work, still has not been seen in the city of Yogyakarta except in schools that have begun providing bicycle parking places, while the lockers or bathroom as a special dressing cyclists yet there. Bicycle parking facilities were just sober, still not consider the level of security and convenience of parking.

4.6.2. Natural environment

Different with the countries in continental Europe which has 4 seasons, the Indonesian state is part of the Asian continent has only 2 seasons, namely dry season and the rainy season.

4.6.2.1 Hilliness and Landscape

Yogyakarta city is close to the location of Merapi volcano that is still active. This proves there is some way that would look like uphill, but it is possible to use the bike for most of the way flat. And supported with an area that can be reached with little cycling from one location to another so that the short travel time. For example when we walked to the gate of Yogyakarta city from the west, less than 30 minutes we had reached the gate of the city of Yogyakarta in boundary east. The spatial urban are shaped of Empire. This area has a special area as a residence hall and the people of the palace. Urban spatial shape of Yogyakarta, mostly in the form of the imperial territory, has special areas such as the area of the "Keraton". Kraton is king's territory is used as the residence of the king and the subordinates so as to form a special region of Yogyakarta.

4.6.2.2 The Seasons and Climate

Most countries in Asia have a tropical climate as it is influenced by two seasons: the rainy season and the dry season (dry season). Indonesia is a tropical country which is good because it is located at the equator and the monsoon winds that blow every 6 months to change direction so that changes each time the season is appropriate, for example in April to September will be dry, and while in October to March is raining. Looking at the state of the climate of Indonesia such as the above, of course, the city of Yogyakarta will experience the same thing. According to documents Bappenas Yogyakarta had a climate with wet months and dry months 5-6 months 2-3 months. While the annual rainfall in the province of Yogyakarta varies between 1000-1500 mm per year to about 1500-2000 mm per year spread evenly throughout the County and cities except GunungKidul and KulonProgo (Bappenas). Based on the above data do not be surprised if the people of Yogyakarta no cycling during the rainy season, except for a small community that was forced to make a living in any climatic conditions. In the dry season, there are still many people prefer to use motor vehicles rather than cycling, especially in the rainy season that still do not have adequate facilities and state of the climate that can not be predicted precisely by BMKG.

4.6.2.3 Weather

According to the Meteorology, Climatology and Geophysics (BMKG), Geophysics Station Class I, in 2012, the city of Yogyakarta has an average air temperature of 27.21 ° C higher than the average air temperature in 2011 was 25.96 ° C, with a minimum temperature of 21 ° C and 33.42 ° C maximum temperature. Rainfall ranges from 38 mm - 409 mm with the rainy days per month between 0 times - 28 times. Wind direction was recorded between 60 ° - 240 ° and the wind speed from 0.0 knots to 26.00 knots (BPS, 2013). Extreme weather conditions such as the above data can be one important factor for Yogyakarta people prefer motor vehicles rather than cycling. With temperatures so hot that makes people reluctant to use bicycles for many things. First, people are not comfortable using a bicycle with a motor vehicle into one, resulting in pollution of the vehicle that makes the body become dirty and excessive sweating. Secondly, there is no facility for the locker room, lockers, and showers or when we have exhausted cycling. While in the rainy season, people will be more comfortable using a personal vehicle rather than cycling because there is still no adequate facilities for themselves to prepare before leaving the house. For example, the weather forecasts are not precise and accurate, then people will be less preparation, which occurred in the Indonesian rain may last for days so sometimes have flooded, minimal cycling equipment to cope with the situation in an unexpected way as a flat tire or a leaky.

4.6.3. Socio-Economic Factors

Before the advent activities bicycle lovers, cyclists usually seen on the road are the ones who are not able to or from among the poor and this can be seen only in the suburban areas. Culture is what distinguishes the perspective of people in European countries such as Indonesia Groningen. Indonesian society in general still see the social status of one's vehicle used in the activity. Therefore, often seen many motorists are more concerned itself with no respect for cyclists on the road.

4.6.4. Psychology Factors

4.6.4.1 Attitudes and Social Norms

The majority of Indonesian people are not accustomed to introduce something that is worth more to their children. For example, at the time was aged 2-5 years they are often introduced to cycling only as a means of entertainment and toys for the child. After growing up around the age of 12-18 years, the child is spoiled by her parents with the use of motorized vehicles such as motorcycles and cars rather than cycling. One reason is that cycling is considered unsafe vehicles used on the road because there is no mutual tolerance as fellow road users.

4.6.4.2 Perceived Behavioral Control

As explained in section - the previous section, that the number of cyclists in the city of Yogyakarta, are minimal, so the rider more underestimated than the other riders. There is no tolerance and mutual respect for the non-motorized riders. In addition, there are no regulations that support for prioritizing bicycling than other roadway users.

4.6.4.3 Habits

Habits of Indonesian society that is more concerned with his ego than the public interest. This can be seen when using the roads simultaneously consisting of several types of vehicles such as impatience in driving a vehicle with people honking the barge, vehicle speed control in the middle of the city, using haphazardly parking, and vehicle users underestimate the weaker. Meaning of weaker vehicle users are considered vehicles and dominant slightly smaller than the vehicles in large quantities and large size, such as a bicycle is considered lower than that of a car or other motor vehicle.

4.6.5. Factors Supporting

4.6.5.1 Safety

Yogyakarta city still has no clear signs of cycling, bike lanes are not perfect because there are some paths become one with the other riders, there are no rules that explain cycling safety,

signs or signals may be additional information on the current cycling, infrastructure is still not available in full, and a plan for the construction of bicycle users has not been realized in full. All of that are necessary for the safety factor of cyclists who are heading to environmentally friendly transportation.

Source: ***http://atmajayanews.files.wordpress.com/*** ***Source:*** ***http://atmajayanews.files.wordpress.com/***

Figure 13 Safety Signs in Yogyakarta

4.6.5.2 Transportation Cost

Although the city of Yogyakarta small with an area estimated to be narrow and short distances with, there are still many people who continue to use private vehicles like cars and motorcycles and even public transportation such as public transportation and buses that spend more than if using the bike's daily activities days. This can be affected by extreme weather and climate as well as habitat and attitude of society as described in section 4.3.4. In addition, all roads can be used by all riders without any limitations and exceptions such as the A to the B can be used by all riders, ranging from non-motorized vehicles to motorized vehicles with cheap parking fees and parking lots free of charge. Thus, the use of bicycles did not significantly affect the cost although still the cost of fuel, but it is considered to be reasonable because of the use of motor vehicles is more efficient in terms of time and effort.

4.6.5.3 Travel Time and Effort

There are many cities in Indonesia, including Yogyakarta city streets that are free to use without regard to the width of the road is used. That is the way that small and dense population can still be used in conjunction with various types of vehicles, such as the small path not only for cyclists but buses and even cars can get into that area. This proves that cycling is no longer efficient and effective in its use but provide energy spent in excess because it needs time to wait when stuck in the narrow streets. Or otherwise as described in

section 4.3.5.3 which explains that the expenses are deemed to be reasonable when compared with the energy and time spent when using a bicycle than using motor vehicles.

4.7. Bicycles policy strategy in Indonesia

In general, Indonesia has been making a lot of inroads in improving cycling as a means of transportation. Many of the things that make community groups, governments, and private or non-governmental organizations have started to realize the importance of clean environment and reduce congestion continues to increase from year to year. They begin to think about how to divert the public's attention to use bicycles in their daily activities.

According to news from Gowes JLFR community has tried to do things that can increase the use of bicycles continuously. For example, this group invites residents of Yogyakarta cycling together on every holiday or special days, giving direction to the school children to use bicycles as a means of transport that needs to be improved, as well as providing advice and contribute to the local government in order to manifest the presence of environmentally & friendly transport control of the city of Yogyakarta.

Based on the theory in chapter 2, then the policy can be viewed from three different aspects to support the use of bicycles as a means of sustainable transport, such as:

4.7.1. Financial

Financial policies to increase interest in cycling is not incorporated into the government budget. This resulted in the absence of certain parties to govern the government budget. But, according to the news and newspaper circulating in Indonesia that began a few years ago, the government has begun to pay attention for the policy on cycling. This issue will have an impact to achieve the bicycle as a mode of transport for sustainable.

4.7.2. Regulation or Law

Law of the Republic of Indonesia Number 22 Year 2009 on Road Traffic and Transport just discuss a little bit about cycling. Of the three hundred and twenty six (326) article, there are only seven (7) chapters which talks about cycling. The material is not specific. Strategic policy at the local level have more detailed regulations concerning cycling in Yogyakarta. The policy is, the Mayor of Yogyakarta Regulation No. 25 Year 2010 on the Motor Vehicle Not in the city of Yogyakarta.

4.7.3. Role of Actors

Emerging issues due to congestion problems make the whole actors involved. Congestion is a problem for all those who live with excessive pollution. In Yogyakarta there

is still no clarity in the policy that played a role in increasing interest in cycling to the community. In fact, an entire community who often play an active role in promoting bicycles in Yogyakarta and surrounding areas. For example, a community that launched the Sego Segawe obligation to use the bike on a weekend, invites people cycling together around the city of Yogyakarta, and gives the award to the children who use the bike when going to school. This promotion is almost similar to that done by some countries also want to implement cycling.

Source:http://4.bp.blogspot.com/ ***Source: http://edorusyanto.files.wordpress.com/***

(A) **(B)**

Figure 14 Roles of Actors: (A) Community Participation; (B) University Participation

4.8. Conclusion

The Groningen geographical condition is almost similar to the geographical condition in Yogyakarta namely the flat contour and small size area. This geographical conditions support the implementation of cycling as an important transportation modal.

In the policy strategy aspect, the strategy is used to manage or conduct specific interventions, particularly as it relates to the factors that influence the increased interest in cycling in urban transportation. Cycling policy is influenced by three aspects that have been described above, namely financial aspect, aspect of regulation or law, and role of actor. These three aspects are interrelated. If there are no costs, then the construction of cycling facilities cannot be done. Likewise, if there are no clear rules, then the funding cannot be allocated. In the next chapter it is explainedwhat the lessons learned about cycling from the city of Groningen to be adopted by the city of Yogyakarta.

CHAPTER V. COMPARISON BETWEEN GRONINGEN CITY AND YOGYAKARTA CITY

5.1. Introduction

The five factors discussed in the previous chapters are the basic consideration in the policy making. Each of these factors should be viewed from three aspects namely financial, regulation and role of the actors because these three aspects always emerge as noticeable aspects in the development of the five factors.

The answers of the research questions are provided in the following sections. In the analysis will describe the implementation of policy strategies to increase the use of bicycles in Indonesia to learn from the Dutch. Implementation in the case of the Netherlands, particularly in Groningen is influenced by several factors and policies. End of this chapter will explain a little about the supporting factors and obstacles faced by Indonesia in promoting sustainable transport bicycles. Wish there was a lesson taken from this case in the form of policy strategies to increase interest in cycling.

5.2. Data Comparison in Groningen and Yogyakarta

From data collecting, either statistic and document via internet can be summarized like table below :

Table 5 Data between Groningen City and Yogyakarta City

Description	Groningen City	Yogyakarta City
Width of area	78,5 km^2	32,5 km^2
Population	198.108 people	390.553 orang
Density	2.538 people/km^2	12.017 orang / km^2
Cars	75.000 cars	45.410 mobil
Motor cycle/moped	3.4 bicycles per household (estimated)	340.350 sepeda motor
Other vehicle	800 bus and taxi	15.247 kendaraan
Bikes	300.000 bike	Tidak tercatat di Indonesia Statistik

Source : combination from some combined data, 2011

In general, through both data above mentioned that condition between Province of Groningen and Province of Jogjakarta Special District is not too differ significantly. But, if seen from population density per km^2 can be said too far difference. Also with number of

vehicle is relative dense in Indonesia. In this case cause Indonesia have jamming such as explained in early chapter of this research, therefore, this research will be seen what strategy that can be taken from Dutch efforts by promoting bicycle as sustainable transportation tool.

5.3. Results Analysis Comparison between the City of Groningen and the city of Yogyakarta

These factors are grouped into five basic sections as described in section 2.5 in chapter 2, where in each of these factors have common factors that will be described in sub-section below. The common factors are described in accordance direct observation by the author and some of the sources obtained from literature, documents, searching the internet, etc.. Then from the results of observations and materials were gathered into one combination to get comparative analysis between of Groningen and Yogyakarta.

Based on the theory of research performed by Heinen et al, 2010, which has been described in chapter 2 and described one by one in chapter 4 in accordance with the decision in the case study of the city of Groningen and the city of Yogyakarta, the results obtained are as follows:

Table 6 The Similarities and Difference of Factors that support between Groningen and Yogyakarta

Factors that support		*Similarities*	*Differences*
Built Environment	Urban Form	Groningen and Yogyakarta has a flat structure and the land area of nearly the same	• Yogyakarta greater number of population density (person / km) compared to Groningen • the city of Groningen has a regular and compact neat because it embodies the city, while the city of Yogyakarta is random because the zoning system is not structured
	Infrastructure	Groningen and Yogyakarta already have a bike lane on roadway	• Yogyakarta there are many bike paths that are constrained by limiting false. • Yogyakarta is still lacking in the provision of infrastructure in other areas such as parking lots, traffic signs and signals as well as additional information for users of bike
	Facilities at work	-	Yogyakarta still doesn't has cycling facilities in the workplace because the implementation is done by the government still has not fully considered
Natural Environment	Hilliness and Landscape	Groningen and Yogyakarta has an up and down road, although only partially.	Yogyakarta near the active's volcano so it can change the soil structure during volcanic eruptions.
	The Seasons and Climate	Groningen and Yogyakarta have summer	• According to BMKG, Yogyakarta city experienced heavy rain fall in the rainy, while the Groningen experiences now fall during winter. • In the city of Yogyakarta is not yet available the needs of cycling equipment such as waterproof gloves, waterproof boots, and safety when it rains.
	Weather	The number of bicycle users is reduced during the winter in the city of Groningen or the rainy season in the city of Yogyakarta	In the rainy season often flooded due to drainage systems which are less good in Yogyakarta, whereas in Groningen, at the time the snow fell, the government has provided all facilities in order to remain safe for cycling, for example, every few hours there are officers who cleans piles of snow from the road .

Socio economic and household characteristic		-	Yogyakarta society has: • Cultural seen the degrading status of the use of vehicles • People who are able to usually want to have a motor vehicle more than one vehicle. gen community has: • Culture has a vehicle to meet the needs of even though he's a wealthy man, but when he considers a more efficient use of the bike, then the bike is used regardless of the level of economic degrees. • People who use a bicycle on the road ranging from the rich to those who cannot afford regardless of economic status and even the Queen of the Netherlands was using the bike.
Psychological Factor	Attitudes and social norms	-	Society at large in Yogyakarta introduced to his motor vehicle at the time of entry to the juvenile level at the age of 12-18 years whereas people in Groningen introduce children to cycling from an early age from the age of 3-5 years.
	Perceived behavioral control	-	In general, people in Yogyakarta do not have an attitude of tolerance and mutual respect to non-motorized vehicles together when using the road, while the Groningen community very empathetic at all for putting people cycling than motor vehicles.
	Habits		Indonesian people's habits: • There is no patience in using the vehicle at the time on the road, for example if there is a blocking of vehicles used, then the car horn as soon as possible. • Using the road at high speed in the city center • Use of the facility is not fit its function, eg parked haphazardly, not in the parking lot that has been provided
Factor Support	Safety	Groningen and Yogyakarta already available bike paths	In Yogyakarta still has: • Signs and signals in cycling as safety information

			• Procurement of infrastructure less • Regulations and policies that support safe cycling While in Groningen cycling safety level has no doubt started to predict road safety and ensure the safety of the weather when it snows have been taken into account by the government.
	Transportation Cost	Expenses cycling certainly much cheaper than using a private vehicle or public.	Yogyakarta society still choose to use private vehicles such as cars and motorcycles with cycling although obviously much cheaper. Government policy Groningen to make tariff of car parking is very expensive, so people feel more efficient use of bicycles instead of private vehicles
	Travel Time and Effort	-	The condition of Yogyakarta city has a shorter travel time if there is a barrier between the road bike users with another vehicle explicitly as if still in a shared road traffic snarls will affect also the power that would come out. • In contrast to Groningen almost totally invisible congestion because it has a clear bike paths.

Table 7 The Similarities and Difference of Factors that support between Groningen and Yogyakarta

Aspect	*Similarities*	*Differences*
Financial	Both cities should be prepared providing funds to build a lot of cycling facilities (infrastructure, traffic signs and signals / signs, road crossings, bicycle parking, etc.)	***The existence ofintegrationfundingfromthe central government, provincialgovernments, andlocalgovernmentsin the development ofcyclingfacilitiesinGroningen. Moreover, there isgood cooperationrelationsbetween departmentsandprogramssupporting thecityin creatinga sustainablecity.*** ***In Yogyakartais still notseenas atransparentdealinvolvedrolein supportingcyclingpolicy***
Regulation or Law	Both cities have rules about cycling	In the Netherlands has been seen as a clear and present national policy contained in the Road Traffic Act Road In Indonesia, Law No. 22 In 2009 only mentions cycling regulations in some chapters only, and even then it is not clear.
Role of Actor	Both cities already have the role of government and the private sector to work together to increase interest in urban cycling	Groningen good government of the central, provincial, and local have the same duties and responsibilities to continue to defend the use of bicycles as a means of transportation Yogyakarta government is still trying to make a breakthrough in promoting bicycle in the region itself driven by a group of bike lovers, one of which is a community of JLFRGowes community.

Any attempt by the government to make the public feel safe and not worry about the journey by bicycle. For example, there are clear rules and policies for traffic signs cycling. Safety cycling in the city of Groningen has been arguably better. Groningen city government firmness makes the surrounding environment into pollution-free. The use of private vehicles is reduced. Bicycles can be environmentally friendly transportation because there is no fuel then it does not cause air pollution. Moreover, the advantage of a more effective and efficient bicycles to travel anywhere without seeing a traffic jam and was anxious to inhale smoke pollution caused by automobile issued by motor vehicle.

5.4. Lesson Learned

The results of the comparison will be used to discuss what lessons can be taken in implementing the policies. It is supported by the identification of factors that have been described in Chapter IV**.**

5.4.1. ConceptLesson Learned

Based on Dolowitz and Marsh (1996) to review the literature on how to compare and transfer policies. This review provides a comprehensive study of the transfer policy, including the actors involved in the transfer, the reason why the transfer should happen, what needs to be transferred and how the transfer should occur. Therefore, it is expected to serve as guidelines for countries wishing to transfer policy of the state other. For more details, please refer to the table below:

Table 7 Guidelines for policy transfer study

Guidelines in comparing and transferring policy	
Who transfers the policy	Elected officials, political parties, bureaucrats, pressure groups, policy entrepreneurs/experts and supra-national institutions
Why transfers the policy	- Search for lessons (voluntary transfer); - Part of monetary funding schemes (direct coercive transfer); - Need to developed partnership with other countries especially in coping with externalities resulted by neighboring countries (indirect coercive transfer).
What to transfer	Goals, contents, techniques, ideas, concepts, lessons (positive and negative) and instruments of policy
How to transfer	Copying, emulating (modification of copied policy), hybridization and synthesis (mix of policies learnt from various countries) and inspiration (getting new ideas by watching other countries).

Source: Dolowitz and Marsh (1996)

5.4.2. ResultsLesson learned

The purpose of a comparative study conducted to compare the cycling policy case study between the Netherlands and Indonesia**.** The selection of the two cities based on different cycling policy and supporting factors to increase interest in cycling as urban transportation**.** Both countries will be examined by the method described in the previous chapter based Dolowitz and Marsh (1996***).*** From the comparison which is conducted in section 5.3, some lessons learned can be drawn as shown in table 5.5.

Table 8 Characteristic Planning Culture between Netherlands and Indonesia

Characteristic	**Netherlands**	**Indonesia**
Planning System	**Comprehensive integrated approach (mix between top down approach with strong regulation; bottom up approach with community involved)**	**Comprehensive integrated approach (mix top down and bottom up)**
Context	Land use pressures of regulation	Cultural diversity, clientalism, and underdevelopment
Doing Planning	Intervening of Uni Eropa to Local Government	National Government to Local Government

Source: Lecture Woltjer, 2014

Differences varied looks of the factors that drive increasing cycling between the two cities**,** the city of Groningen and the city of Yogyakarta**.** Based on those guidelines provided by Dolowitz and Marsh (1996***),*** there search can be analyzed and examined such what**,** why**,** by who mand how the transfer policy in cycling can be done**.**

Table 9 Possible transfer of cycling policies of Groningen to the city of Yogyakarta

Comparing and Transferring Policy	
Who transfers the policy	Local Government
Why transfers the policy	The motive to transfer policy is mainly can be categorized as voluntary transfer because it is from community interest (look for a lesson that can be provided by its daily routine)
What to transfer	Policy strategy which is classified as a policy instrument
How to transfer	Transfer policy by copying the policies of Groningen strategy that can be implemented to Yogyakarta.

Source: Dolowitz and Marsh (1996)

The process of cycling policies of Groningen transfer to Yogyakarta which has been summarized as table 5.6 provide a strategic policy lessons that are based on three aspects such as financial policy**,** regulation or Act**,** and the role of the actors involved**.**

5.5. Conclusion

From cycling policies of Groningen transferred to the city of Yogyakarta, is expected to increase interest in cycling promotion can be realized in Indonesia. If the city of Yogyakarta can implement a policy strategy of the city of Groningen is well, then it is possible for cycling policy can transfer to other cities in Indonesia. Of course, this is not easy as it would go according to plan because there are barriers faced by Indonesian in preparing for the transition from the old policy to the new policy. These barriers are described in the chapter conclusion, precisely in the reflection.

CHAPTER VI. CONCLUSIONS AND RECOMMENDATIONS

6.1. Introduction

This chapter aims to provide a conclusion of the analysis, provide recommendations to the City Government of Yogyakarta to improve cycling partners to Indonesian society towards sustainable transport. It is expected that, after the city of Yogyakarta to implement policy strategies that are transferred through the Netherlands, it can be followed by other cities in Indonesia. End of this chapter will reflect back from this research.

6.2. Conclusion

Indonesia is one country that has the densest population in the world. In the last five years, Indonesia increasingly concerned with the growing number of vehicles that continue to grow from year to year. Automatically, it is no longer a problem for government alone, but the wider community been affected. Therefore, one way to reduce congestion is to use the means of transportation that is environmentally friendly and sustainable. For example is cycling.

The previous chapter mentions that the decision in the case study of this research is based on the condition of geography, size of city, and the similarity in the form of government between Groningen and Yogyakarta. Groningen can be used as a case study which is Groningen as "*the best cycling city in the world*". Therefore, the data were collected in both cities that will be expected in this study is Yogyakarta can learn from the contributed factor in Groningen by implementing cycling as a primary transportation in urban areas. So the ultimate goal of this research is to provide recommendations about policy cycling to Indonesian by learning from the Dutch materialized.

Based on the theory in Chapter II, this study has defined the concept of cycling in urban transportation planning. There are two basic concepts to increase interest in cycling to the community. The first is sustainable development concept that can be used to determine community needs for transport for a healthy, environmentally friendly, and can be run continuously. The second is the concept of integrated continuous and necessary to support policies that will be taken by the government in promoting bicycles to the public. One of the concepts that need to be considered is the integration of land use for cyclists. Of the two concepts are mutually bound to recognize the factors that affect the public in determining the choice of

cycling as a means of transport in urban areas. The concept of this cycling means for answering the research question number one, namely: "*What is the main concept of cycling transportation planning?*"

Determination of modal choice bike for transportation can be compared to identify the factors that have been detailed in Chapter IV Comparison between the city of Groningen and the city of Yogyakarta can be done by using lessons learned as described in Chapter V. This study uses secondary data as the basis of analysis. After comparing the factors that influence cycling, then the results of the study are expected to find lessons from the successful implementation of strategic policy in Groningen. Then, this study tries to sort out the transfer policy that can be adopted by Yogyakarta.

Policy-making can be done by looking at the impact of which is influenced by each factor as described in Chapter IV case described in section 4.3.2.3 is one of the government's efforts to provide an environment that attracts people to remain cycling within the time and in any condition. That is, the government guarantees the safety of cyclists by giving full attention to what is needed in cycling although it is not considered a problem that how to other countries. But people are satisfied and do not be afraid anymore to take a decision in cycling with certain conditions and situations. This is the one examples of how to improve the public interest so happy for cycling. It can answer the research study number two, namely: "*What aspects influence in bike use in urban cities of the?*"

Case studies in Groningen and Yogyakarta have been described in detail in Chapter IV. This chapter describes the circumstances of each case study, namely Groningen and Indonesia, so in this section has answered the question number three and four, which reads: "*What type of policy is formulated and Implemented in Groningen*?" And "*What is the situation in Indonesia concerning policy to promote bike use?*" Equation of state wide area and local forms of government led to the transfer of the policy through the comparison method so that it can formulate relevant policies to see the difference of each city.

6.3. Recommendation

From the discussion of Chapter V the lessons learned that have been described before this chapter, result in possible transfer of cycling policies of Groningen to the city of Yogyakarta based guidelines discussed on Chapter II and V. To get this recommendation, there are four

relevant questions, namely: "*Who are the transfer of the policy it?*"; "*Why to transfer of the policy?"*; "*What to transferred from lesson learned?";* "How to transfer of the policy?

Local government transfer policy was due to implementation of policy strategies in the local area, so local government can encourage cycling in the public interest on urban transport for. This transfer is done voluntarily because the interest of society started to realize the need to achieve sustainable cities. Policy strategies are to be achieved in the transfer policy that is classified as a policy instrument. How to get this policy through a copying strategy as based on table 5.4 that describes characteristics of the planning culture through comparisons between Netherlands and Indonesian State. In this table there are similarities concrete views of "*planning system*" and "*doing planning*" Both of these countries have a comprehensive planning system with integrated approach, in which a mixture of top down to bottom up. And judging by doing the planning, the two countries also have similar in government involvement from the top level (the EU intervening for the Netherlands and the National Government for Indonesia) to the bottom of the Local Government level.

After the analysis and comparison of strategic policy to increase interest in cycling is done by Dutch and Indonesian, then as has been described in the previous chapter, the main factor in the successful implementation of strategic policy Groningen case is the support of the Regional Government. All planning policies are supported by regulations set by the local government. Based on the examination in the analysis, there are several recommendations can be made to increase interest in cycling in a sustainable urban transport, such as:

a. The central government takes an active role in bringing about the bicycle as a sustainable urban transportation by making guidelines and standards to provide a budget plan through the State Budget in the development of cycling facilities.
b. Local governments make land use plan in the construction of the facility City cycling through coordination of the actors involved.
c. Local governments along the cycling community together giving lessons early to build a sense of want to use the bicycle as a means of transportation in daily activities.
d. Government set the furthest distance that can be reached by bicycle users are modeled on the city of Groningen policy that provides for the longest distance cycled provisions of 7.5 km.

e. The government is expected to implement the concept of integrated land used to integrate the use of bicycles with other transportation modes such as land-use Park and ride facilities, bicycle parking at train stations or bus terminals.

f. Yogyakarta government can replicate the successes of Groningen government to provide a means of communication between the community and the government in the implementation of cycling. For example, in continuous period (e.g. once a month), the government gave questionnaires to the public to get input or perceived grievances during cycling.

Through some of the recommendations mentioned above, the number six research questions have been answered, namely: *"What lessons can be learned from the Dutch practice?"*

6.4. Relection

Implementation of policies through policy transfer results cannot directly be granted. It is not easy. Transfer policy takes time and space sufficient urban planning. It takes quite a long time because they have to prepare for the availability of urban space to build all cycling facilities, good infrastructure procurement, signs and signals, providing bicycle parking, as well as expensive cost availability.

In previous chapters, all relating factors that support cycling has been described in detail. From the comparison of these factors obtained through the transfer policy lessons from Groningen to Yogyakarta. However, upon learning that any policy can be transferred turned out to see the current condition of Indonesia had to face several obstacles such as:

a. No funds are available to build infrastructure and cycling facilities. This is due to road construction budgets prioritize motor vehicle users than figuring out how to build cycling infrastructure and facilities. In addition, the narrow space to add bike lanes as one of cycling facilities. Because collided with funds and space infrastructure is inadequate, it is very difficult government can implement cycling as a sustainable means of transport.

b. The mover or group of bike lovers lack support from local and central government was not ready to change the transfer from motorized to non-motorized. So the public is still not confident to use bicycles as a means of transportation because there is no clear policy to protect cyclists from other riders.

c. Culture that is often underestimated because people are accustomed to seeing the economic status of the vehicle used. Therefore, the discrimination often occurs in driving a vehicle that is considered weak road users who are not on par with that was driven by another person.
d. Lack of recognition using the bicycle as a means of transportation. It should start early to be taught to recognize the means of transportation that is environmentally friendly cycling. There should be special education or teaching from parents to recognize their children towards sustainable transport.

Adopting transfer strategies and policies from one country to another is not easy. The thesis must consider external factors, different systems of government and also the characteristics of planning in each country. Although, the policy strategy has been carried out with a good plan, it is also necessary to identify the barriers to implementation in order to run well.

Literature review has provided a lot of views related to cycling. This literatur become basic literature were used to construct a policy for the city of Yogyakarta who learned of the City of Groningen. Thus, this study can be found supporting factors for the cycling community. Promotion is conducted by various parties, both government and community groups in need of cycling policy.

This study wants to get a proper literature but because in each case study have different problems in data collection, making it hard writing. In this study difficult to find a document in the form of laws and regulations from city of Groningen, resulting in the discovery of this writing many rules through international journals. The difficulty of collecting data in Yogyakarta is a lack of literature international that discusses cycling in Yogyakarta, which the data is found only in the form of the opinion in the blog. But, access internet easy used in Netherlands, so this problem can addressed.

The conclusion that can be drawn for this reflection is research carried out to obtain the learning of the city of Groningen in the form of cycling policy. However, not all policies can be applied in Yogyakarta due to differences in the supporting factors in cycling. The focus of the research can put the factors that have been identified in detail in chapter 4 to support the existing policy in Indonesia.

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