

**THE IDEA OF COMPACT CITY AND ITS RELEVANCE
TO THE CURRENT URBAN DEVELOPMENT IN
INDONESIA
A REFLECTION FROM THE NETHERLANDS EXPERIENCES**

THESIS

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the Master Degree from the Institut Teknologi Bandung and
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Acknowledgement

The idea of this thesis, in fact, had been begin before I came to study in Netherlands. When I studied in Bandung and frequently traveled to major cities in Java, I felt that urban and especially traffic quality in Indonesia are decrease to the rate that annoy people. After visiting Holland, I see the contrast of environmental quality between Holland and Indonesian cities, and then realize that there is something to be done. Surely I was surprised to see sea of bike in Netherlands cities considering their high- technology and wealthiest. I wonder to realize that most of the cities are free from traffic problems and they can protect and maintain their park, open spaces and country side despite their higher population and limited areas in compare with other European Country.

In the on going process, after reviewing some literature and based on explanation from my lecturers here, I found that good urban condition in Netherlands can not separated from its planning policy that encourages compact urban development. This concept has contributed to the reduction pressure on countryside, reducing the usage of motorized and private transport and improving the vitality of the city centers that in line with sustainability goals. It is also stated that a compact city may lead to more social cohesion and enhanced community services and facilities in Netherlands..

This concept then soon attracts my attention as official in city planning agency because I am sure that it will be useful for my country, In this research, I try to find whether the Netherlands experiences in implementing the concept of compact city can be implemented to deal with urban problem in Indonesia. After reviewing some literature, and examine the characteristic of urban condition in Netherlands and Indonesia, I come to the conclusion that this concept can be adopted though certain adaptation to local context, especially in part of urban agglomeration and newly developing cities in Indonesia

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Groningen, 17 August 2006

Derry Gunawan

Abstract

The cost of sprawl is cause of concern, and has attract interest not only in more intense use of urban space, but also in greater mixture of uses in urban space that was seen as essential characteristics of a compact city. This concept is expected to contribute to a variety of goals, such as reducing pressure on countryside and reducing the usage of motorized and private transport that is in line with sustainability goals. This research tries to find an answer based on the experiences in the Netherlands, whether its experiences in implementing the concept of compact city can be implemented to deal with urban problems in Indonesia. After reviewing some literature, and examine the characteristic of urban condition in Netherlands and Indonesia, the writer come to the conclusion that this concept can be adopted though certain adaptation to local context, especially in part of urban agglomeration and newly emerging cities.

Key words: Compact city, sprawl, urbanization, urban problems, sustainability, Indonesia, the Netherlands

Chapter 1 Introduction

1.1 Background

Indonesia experiences a rapid demographic change caused by shifting from a primarily rural economy to an economy based on industry and services. It was predicted that by 2025 over 60 percent of Indonesians will be urban, while in 1975 just 20 percent were city-dwellers (The World bank, 2003). Urbanization in some Indonesian cities, as happening in most developing countries, is a necessity considering the development tendencies in Indonesia which is still 'urban bias'. In fact, the urbanization process is needed and considered as a pushing factor for the development of those cities, and it becomes more important in the decentralization era where each autonomous city and region tends to be competitive in order to attract investment. This condition encourages each city to escalate its physical development to make its city become more attractive and sophisticated, which sometimes put the environmental behind the economic consideration (ibid).

Because of the necessity of urbanization and urban growth, the medium-sized city as well as big cities, should be prepared for the rapid increasing of populations caused by migrations from other cities or from rural areas. Based on that consideration, the plan for infrastructure and environmental provision such as transportation system, transport modality, utility, buildings and open space should be designed to handle the high density population to make those cities still sustainable, healthy, and comfortable for living.

1.1.1 The Change of Indonesia's Policy Arrangement

Since 2001 many urban functions officially shifted from central ministries to local governments. The shift has already have significant effects and also influenced the spatial planning because some regions have been rearranged, then forms new administrative area. The establishment of new cities or new administrative areas in particular challenges the city planners, city managers and decision makers; and then needs a different approach to support it. The challenge of this approach is to provide a framework for regulation and management of the rapid growing urban development in sustainable way, regarding the limited resources and institutional capacity in every aspect of governance. It becomes more significant because most of the cities in Indonesia are growing without sufficient planning and regulation. Some of them just rely on general land use planning in directing and regulating the development in its area, while detailed and sectoral plans just exist in big cities. For most of them, many rules and procedures to implement legislation in urban development still have to be specified, which the issues addressed include: pollution; architectural preservation and revitalization; housing and settlement; cultural and municipal institutions; and other immediate planning issues such as public-private partnerships.

1.1.2 The Escalation of Environmental Problems in Urban Area

Because of the rapid urban growth, followed by the increasing density and land price in a city centre, housing development in many major cities in Indonesia tend to move to the peripherals, even take over the agriculture land in rural areas. Some satellite cities are established to reduce the pressure in major cities, especially in providing housing and settlement for those working in their primary city. Since it just prepared as settlement area, while jobs and main facilities still depend on its primary city, they lack of good facilities of shopping, working, educational, and leisure. As a result, the distance of housing, working and leisure area increases, meanwhile, walking and cycling as a means of economic and healthy transport are difficult to increase as sidewalks are scarce, badly designed and frequently obstructed. This condition triggered the tremendous mobility of people from periphery to central city and vice versa, especially in working days. As a result, the traffic congestion exist everywhere, both within the city center and in the way in and out of the city.

The increasing of mobility which is not followed by the availability of good and cheap public transportation is then triggering the increasing use of private motor vehicle, whereas the capacity of private motor vehicles, i.e. a car is far lesser than public transport such as bus or train. As the consequences, the space and energy needed for transporting the same number of people with the public transport are also higher. This condition, as reported by some local newspapers, was blamed for the escalating of traffic congestion and air pollution in some cities in Indonesia. Furthermore, it will then increase the consumption of oil, which has been in crisis. As congestion worsens, average vehicle speeds are slow and the travel time becomes longer, which comes to the losing of productive time that is very important in modern life.

Most of the local governments deal with this problem by increasing the road capacity, through widening existing or building new roads, but this reactive policy frequently faces difficulties because of financial and spatial barrier. As a result, the increasing of roads capacity left far below the rate of increasing motor vehicle. Because of that, another way should be done. A spatial planning approach seemingly offers lots of advantages because it can prevent those problems to be occur from the beginning, so it will be more effective and efficient in many aspects, including in financial and social terms.

1.1.3 The Problem of Indonesian Cities in the Global Context

In order to solve problems at home, learning from what happened in foreign countries is not a new idea in planning. Almost every decision making is a result of lesson learning, whether it comes from a different time and space frame. It was a fact that despite the varied histories, cultures, and governance structures of different cities, between developed and developing countries and between Western and Eastern cities, a considerable literature supports the view that cities everywhere are becoming more alike. For example, based on their research examined the growth of eleven global city regions

around the world from 1965 to 1995, Simon and Hack (2000) suggest that the outcomes of urban changes are surprisingly similar in many cities, with declining growth rates, slowing of net in-migration, and declining of net densities as population spreads into the metropolitan periphery. Cohen (1996) has similarly argued that cities are becoming more alike, not only in urban form, but also in that 'an institutional problem besets urban areas regardless of level of development.' In the case of south-east Asia, Dick and Rimmer (1998) say that globalization has reversed early post-war tendencies toward increased divergence; they find that the dominant trend in south-east Asian cities is toward greater convergence with the dominant forms and problems of cities in developed countries.

Based on that view, the problems faced by Indonesian city nowadays likely could happen or ever happened everywhere in the world, probably in different context of time and space. Thus Indonesia can learn from foreign countries to solve these problems. The impacts of sprawl faced by some major urban area in Indonesia, have also been faced by western cities. For example, urban sprawl has had significant harmful impacts on American society. It has disenchanted mass transit development, separated rich and poor, caused unnecessary travel, consumed fragile land, and generated excessive public expenditures.

In Europe, the compact, high density and mix-use city has been espoused as a counter strategy of sprawl and increasing of urban problems. In addition to loss of open countryside to suburban development, adoption of compact city development policies in Europe, starting in the late 1970s, were motivated by the desire to make cities self contained (Elkin et al., 1991). The 'evil of urban sprawl' (Beatley, 1995) is now a wide spread cause of concern, and has fueled interest not only in more intense use of urban space, but also in greater mixture of uses in urban space. This concept was widely supported because it also offers lots of advantages. The densities are high enough to support effective provision of public transport. Because it's high density and mixed use, people can live near to their work place and leisure facilities. The demand for travel then decreases and people can walk and cycle easily. Compact cities also ensure sustainable use of land by reducing sprawl and preserving countryside. It is also economically viable because infrastructure and services can be distributed effectively per capita. In social terms, compactness and mixed uses are associated with diversity, social cohesion and cultural development. (see William et al. 2000, Puskarev and Zupan, 1997).

In fact, the cities of Indonesia face the some choices to deal with their problems, just as do cities everywhere. To deal with problems caused by rapid urbanization, those cities can be directed both by the distribution of population between rural and urban areas, and at improving the quality of life in cities and strengthening urban institutions. The implementation of the first approach can be made through improving the infrastructure and facilities in rural areas , for example, by promoting agropolitan zones, where rural areas are developed as integral parts of cities nearby, usually directed as producer of agricultural and agro-industry products. Another action can be done through establishment of satellite cities, areas outside of primary city which are deliberately designed as settlement for those who work on it. But as explained before, those new

growth areas sometimes create new urban problems, both within their own area and also for its primary city, if they are not planned properly.

Those argument means that the newly growth area as well as its primary city should be directed to be a self-contained with a more compact urban arrangement. The compact city concept, which stresses on the reduction of the need for vehicle traveling through compact spatial arrangement, seemingly will provide lots of advantages for cities in Indonesia, especially for those which are still not trapped in complicated problems. In this sense, the compact city can be used as a solution regarding its success in protecting the environment and natural resources in European country, especially in the Netherlands.

1.2 Research Objective

The aim of this research is to find a suitable way to deal with urban problem and urban challenge, especially through spatial planning and arrangement by examining the possibilities for implementing the compact city concept in city planning in Indonesia. Even though the data for this research are referring to some big cities in Indonesia, but this research not aimed to solve the problem in those cities. Rather than searching medicine for cure their problems, this research was more focused as source of inspiration, to prevent the same problems occur in other cities in the future, by searching a way to adopt the idea of compact city that has proven to be effective when implemented in the Netherlands Cities.

1.3 Research Question

This research tries to find answers, based on the experiences in the Netherlands, whether their experiences in implementing the concept of compact city can or can not be adopted in Indonesia. It will be begun by the question about **what is the concept of compact city?**; followed by the question about **how the implementation of this concept in practice?**; Then finished by question on whether **is it possible to implementing compact city in Indonesia?**

1.4 Significance of the Research

The aim of this research is to find a better way in managing urban development in Indonesia through spatial planning policy. This is based on assumption that spatial planning has significant effects in directing urban development and urban growth, which significantly contribute to the social and economic condition of a city. This should be considered by government because many Indonesian cities have faced the era of urbanization causing lot of environmental problems such as flourishing of slump areas, traffic congestion, pollutions in the cities, and lost of open spaces. This becomes more

significant based on the fact that Indonesia has some limitations in relation to the human, natural, and capital resources, therefore it should be managed and used sustainably and efficiently. To solve the problem in the cities needs lots of resources; it is better to prevent its occurrence through better planning in the beginning. This research will offer a concept to prevent Indonesian cities from environmental problems in the future through better spatial planning policy, especially for those cities which still have limited urban problems.

1.5 Research Method and Research Approach

This research will use qualitative literature study approaches with the reasoning that this research will be done in a relatively short time, and because the ample of publication related to the object of the study. Qualitative approach will be used in the analysis of a certain theory and practice of compact city, and its potential implication to Indonesia, which will be based on statistical data from formal publishers.

Jakarta, Bandung, Surabaya as well as some smaller cities such as Bogor, Jogjakarta, and Denpasar will be used as the sample of general condition in Indonesian cities. Some conditions in new cities formerly developed as satellite for Jakarta will also be evaluated. The trend in those cities is have a big chance to be followed by other cities regarding its position as the central of economic, governance, and education activities, so even though they are more advanced in many aspects in compare with any other cities in Indonesia, but what happened in those cities now may happen in other smaller cities in the future parallel with their increasing growth of activities and population

In other sides, two of different cities in the Netherland, Amsterdam and Groningen will be examined in search for the practical examples of compact city. Both cities are taken as sample regarding the easily access of data by the writer, as well as their conditions that have better infrastructure and environmental condition than major cities in Indonesia.

1.6 Data Collection and Data Analysis

The data about the current urban development in Indonesia and the Netherlands were collected through internet browsing. It will be enriched by some of experiences during my study in the Netherlands as well as while I work Indonesia. Meanwhile, the supporting data related to the theory and the best practices in European country, especially in Netherlands are presented based on the literature review on several books and journal articles I have found during the research.

In this research, the theoretical framework on compact city is examined together with the practical experiences in Netherland. The result then are compared with urban planning and urban condition in Indonesia and used as baseline for assessing the possibilities for implementation of it in Indonesian.

1.7 Structure of the Thesis

The structure of this thesis can be seen as I describe below:

Chapter I : Introduction

This chapter explains the background, the research objective, the research question, the significance of this thesis, the data collection, data analysis, and research approach. The structure of this thesis is shown as well.

Chapter II : Theoretical Framework

Some theories and explanation related to the idea and practices of compact city will be presented in this chapter. It is also complemented by some theories on policy transfer to support this kind of lesson learned study. This chapter will answer the first research question; what is the compact city?

Chapter III : The Compact City in Practice

This chapter will examine the practice of compact city in Europe, especially in two cities in Netherlands; Amsterdam and Groningen. The way they implement the concept of compact city and the result they have got from will become the base for answering the second research question; How to implement the concept of compact city?

Chapter IV : Reflection of the Netherlands Experiences on Indonesian cities

This chapter describes the urban condition and current policy in urban development in Indonesia, especially that in relation with city planning. Both the existing condition and the recent policies of government will also be analyzed qualitatively based on literature review. Hence, this chapter will answer the last research questions; is it possible to implementing compact city in Indonesia?

Chapter V : Conclusion

The result of previous chapter will be summarized and extracted in this chapter. In addition, some recommendations related to follow on of this research will be formulated.

Chapter 2 Theoretical Framework

An urban area is commonly regarded as a relatively small area within a city which has a heterogeneous population with its highly and dynamic activities. In line with its physical growth, some of urban areas face severe urban problems such as slump areas, lack of sanitation, traffic congestion, pollution, etc, that attract city planner and practitioners around the world to search a better approach to deal with them.

There are many things which can be done in managing of urban problems. Spatial planning is just one of them, yet it is one of the most important things because spatial planning determines the development and activities pattern of a region or city. With its power to encourage, direct, or event prohibit a development in an area, the spatial planning then has a potential to direct the urban citizen behaviour. To solve the urban problems, there are two things which can be done:

- Reactive treatment, especially if the problems already exist. This solution can be done through increasing and widening the roads, restricting the usage of motor vehicle, using low energy consumption vehicle, traffic management, improving and increasing public transport, spatial planning, etc. This solution needs lot of money in its implementation.
- The other is pro-active treatment; it was the activities to hinder the city from urban problems through better planning in the beginning. This solution needs less cost than the previous solution.

Compact city is one of the approaches to deal with the environmental problems in urban area through spatial planning. It can be used both before and after the urban problem exists, or as reactive and pro-active treatment. But, because the cost of urban renewal and urban redevelopment is so high and sometimes are difficult regarding financial, social, and spatial constrains, it is better to be implemented in the early process of city planning, especially when built areas are still scarce and problems are not so complicated.

2.1 *What is Compact City?*

The compact city ideal is bound up with complex notions of function and form: of coming together in a clearly identifiable place (Clark M, 2005). The Language of compact cities implies that coherent, identifiable, spatially bounded settlements operate either as self-contained functional units, with relatively limited 'spill-overs' such as the mixing of labor market areas, retail catchments or administrative and service functions. These places are operated on the basis of '*complementarities or synergies between different locations*' (*Polycentric Urban Regions*), or with part or all of a wider agglomeration, conurbation or (today) 'polycentric urban unit' (Bailey & Turok, 2001)

Essentially, compact city is regarded as a high-density, mixed-use city, with clear (i.e. non-sprawling) boundaries (Jenks *et al.*, 1996; Williams *et al.*, 2000). Prescription concerning the form that recentralized compact urban development should take vary from urban infill and moderate higher densities in existing community centers, to major restructuring of cities (Down, 1994). In one of the more extreme proposals:” A quarter of a million people would live in a two mile wide, eight level tapering cylinder. In a climate-controlled interior, travel distance between horizontal and vertical destination would be very low, and energy consumption would be minimized” (Danzig and Saaty, 1973).

Even though compact city can be formed in such an extreme arrangement, a lot of literatures doubting its feasibility and sustainability. This kind of city needs a high tech and sophisticated infrastructure to be still comfortable, that event many developed country can not afford it. As mentioned in some literature, a compact city has a limit of capacity which away from it the effectiveness of compact city will decrease. Harasawa (2002) considered that a round-shaped, compact city with a population of 250,000 inhabiting in a radius of slightly less than 3 kilometers would function efficiently. This kind of city is still in reachable distance for non motorized transport and its population density still fits with its environmental capacity. Many compact cities in Netherlands can be considered as this type.

Compact city should not only identify with the intensification of various activities in city center, but also focus on the importance of connectivity of those facilities, and compact arrangement of build and non-build areas. Intense use of space, diversity, multi functionality and efficiency are seen as essential characteristics to retain in a compact city. This concept is expected to contribute to a variety of goals, such as reducing pressure on developing the countryside, enhancing more effective use of urban land, reducing the usage of motorized and private transport and upgrading existing areas by improving the vitality of the area. It is also stated that a compact city may lead to more social cohesion and enhanced community services and facilities. Provision of infrastructure and services will be economically viable and can be distributed effectively per capita since population increasing. In social terms, compactness and mixed uses are associated with cultural development and social cohesion since it encourages shared facilities and ensure accessibility for everybody. (see William *et al.* 1996).

2.2 Compact City as Spatial Concept

The crumbling of the city was a profound problem. Reduced economic function and social imbalance have negative impacts on the attractiveness and the safety of the inner cities. Similarly, in the case of suburbanization, people get less and poorer access to resources (services, employment sites) and have to travel by car to get there within a reasonable time. An influx of cars then creates great difficulties for established dense urban areas and generates substantial pressure for activities to spread out to make way for access by cars. Research on transport space consumption by the time that it is occupied shows enormous differences (up to 90 times) in space consumption between cars and public transport for a trip to work in a central business district (Bruun and Schiller, 1995).

Conversely, as recorded from some literature, high density offers the opportunity for average trip lengths to be short and to foster successful, economically viable public transport (Pushkarev and Zupan, 1977). Such high densities also promote a high level of accessibility for non-motorised modes of transport and enable cities to have low levels of energy use per person in transport (Newman and Kenworthy, 1989). This is indeed confirmed by Dutch data (see Table 1), although the impact is smaller than one might expect.

Table 1 Average number of trips per person per day according to degree of urbanization and main transport mode in The Netherlands, 1997

Degree of urbanisation	Car	Public transport	Bicycle	Walking	Other	Total
Very high	1.26	.36	0.95	.82	.09	3.48
High	1.63	.16	1.04	.67	.09	3.60
Medium	1.75	.13	1.04	.61	.09	3.62
Low	1.81	.10	1.07	.54	.09	3.61
Very low	1.84	.09	0.93	.52	.09	3.48
Total	1.66	.17	1.01	.63	.09	3.57

Source : CBS (1998)

The data shows that intensification has a close relation with travel behavior. The share of walking is indeed declining consistently with density, but the link with bicycle use is much less clear. It can be explained since the use of bicycle also depends on the supporting facilities to ensure its convenience and safety. In other side, the better quality of local public transport makes it as a competitor, then reduce the usage of the bicycle.

Compared with those in low density areas, people in high density areas are more in favor public transportation or walking as a means of transport. Consequently, encouraging more compact cities would result in significant resource saving. In fact, most European cities consume 40 % or less petrol per capita than lower density North American and Australian cities, with no loss, arguably an improvement, in quality of life. (Webster, 2004)

The ongoing urban sprawl has not only caused a considerable dependency of car use which is leading to high levels of energy consumption and emissions but also to monotonous land-use structures with poor attractiveness of the public space in some parts of our cities. The extensive suburbanization within most of the urban areas has raised the question of how to spatially allocate land-uses and activity locations in order to develop an efficient as well as less energy consuming transport system.

In a policy framework that allows for sustainable developments, the proposed land use and transport systems should not only cater for accessibility but also environmentally sound. The environmental effects of transport and mobility mostly result from the negative impacts of the automobile. In a given technological context, the more kilometers a car travels, the greater its negative external effects (pollution, noise, road surface needed, etc.). From a land-use and transport perspective, the aim should be then to have transport modes in places that reduce the number of kilometers traveled by car and, more specifically, the number of short trips made by car, as this would limit cold starts, which use comparatively more fuel. Thus, the best policy for sustainable accessibility would be to create urban structures which offer good or improved accessibility.

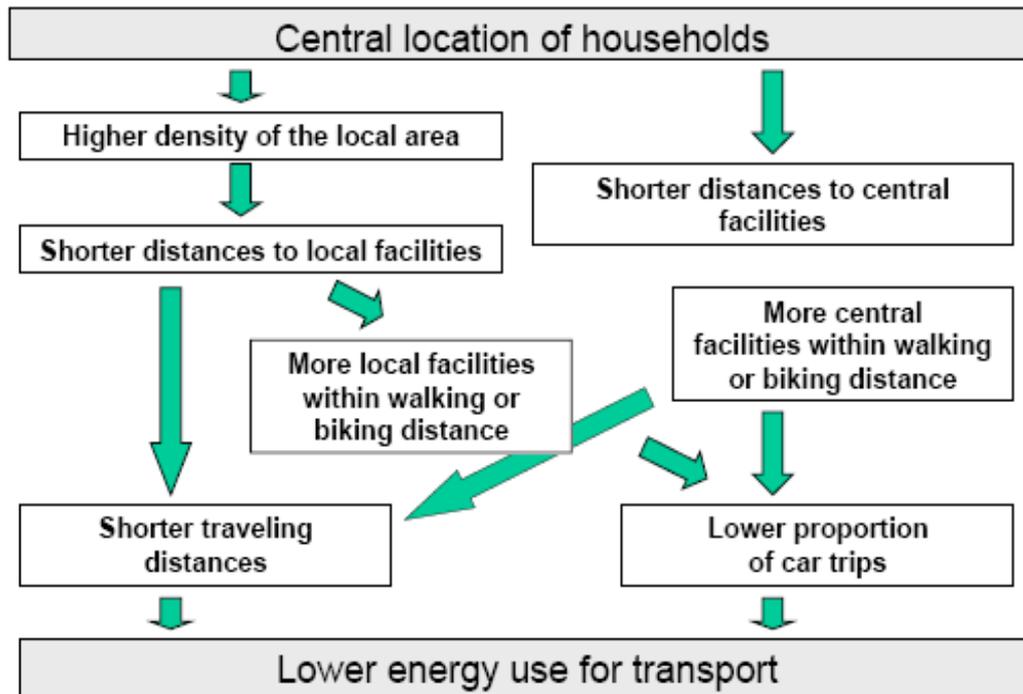
Back to the illustration in fig. 1, we can see that whether the three cities have a relatively similar amount of inhabitant, but their differences are clear. In fig. 1(A), the built area of the city is still small, so it can be explored by means of non motorized transport, meanwhile in fig. 1(B), the built area are so large and diverse, therefore it needs of motorized transport to explore it within a reasonable time (in this case, 30 minute is used as a standard). Fig. 1 (C) is in between of them. As the consequences, if the tree cities have the same land area, cities with pattern A will have more open spaces because buildings are concentrated in relatively small area, and since the open spaces are not fragmented so it is easier to be made as meaningful areas. Conversely, in urban pattern B, the buildings are spread everywhere and most of available open spaces have been fragmented into small pieces. It is more difficult to create a meaningful open space there. Urban pattern type A seem to be offer more advantages in the aspect of transportation and efficiency of resources (less energy and land usage), but it also potent of environmental problem and land use conflict caused by over crowding. Urban pattern type B has a conversely consequences compared with urban pattern type A, meanwhile urban pattern type C seems to be moderate in compare with both of them.

2.2.2 Location, mobility and the environment

In relation to the traffic problems in urban areas, there is an important relation between physical form and travel behavior. The dispersion of destinations increases the amount of energy needed to move people, goods, services and activities, and the cost of travel reduces accessibility. As land-use patterns become more dispersed, particularly when job locations and homes are separated spatially, individuals require more resources to achieve mobility, which in turn, leads to the issue of affordability (VTPI, 2003).

Apart from the socio-demographic characteristics of the traveler as well as their household contexts, the spatial attributes and service quality of the main activity places (household location, work place etc.) and their adjacent areas are assumed to have a measurable impact on individual travel behavior. In planning theory, especially the centrality of such places in respect to the city centre is believed to have considerable effects on mobility – based on the assumptions of most spatial interaction models. Hence, land use strategies focusing on the allocation of housing in central areas of the agglomerations play a major role in tackling the suburbanization problems mentioned above as well as tools to decrease energy consumption caused by motorized travel (see Figure 2 for an example of a feedback system).

Figure 2. Location, mobility and the environment



Source: Adopted from Naess (2000)

Based on the fact that housing, working, and leisure are the determinants for movement patterns, it is then realized that the arrangement of those facilities has a significant effect on the accessibility and mobility patterns of people. The placement of housing far from other daily activities such as working and shopping will cause the lengthy travel of people and has contributed to the increasing of traffic congestion. The traffic congestion then increases the travel time that has a negative effect in reducing the productive time and also consumes lots of energy, both energy consumed by vehicles such as oil and gas, and also the energy of the traveler itself. Moreover, the increasing use of vehicles and oil can trigger more pollution, increasing the noise and odors nuisance, and can contribute to global warming and climate change.

The compact city that is based on intensification will shorten the distance among facilities or activities. A compact and more close arrangement then encourages a greater use of bicycles or non-motorized transportation. Among the expected effects are the decreasing needs to use motor vehicles that will reduce the pollution and energy consumption in the city. Moreover, by building higher and doing intensification of activities in one area will create the economic of scale for provision of public facilities, thus encouraging the more efficient land use and resource by reducing the needs of land for building, roads, and parking. Since then, the rest of the land can be used as public-open space as well as for safety and protection from environmental problems (retaining area for protecting city from flooding, rooms for industrial and disturbing activities, etc). Those expected effects are very important for sustainable development.

2.2.3 The Crucial Criteria for Compact City

As explained earlier, compact city is not just a matter of intensification and mix use of activities, but more than that. It should focus on how to create connectivity of those various activities through compact arrangement of build and non-build area without endangering environment and reducing convenience of its community. In an extensive analysis of several existing urban areas of different sizes in various European countries, Dieter Apel et al (1988) in Scheurer, J., (2001), identify the following components as crucial criteria for compact city policy. They were :

- **Minimum densities** that guarantee the viability of user-friendly (ie. frequent and accessible) public transit and of neighborhood activities within walking distance. These are set at 40 residential units per net hectare, but can be raised to about 80 units per net hectare, in form of three to four-storey building with a variety of apartment types in urban areas. Maximum four storeys are used as limit for comfortable vertical mobility without mechanical help.
- **Multi-functionality through integration of land uses.** This is regarded as crucial to generate both pedestrian and stationary activities in the streets, contributing to a sense of community, social cohesion and the replacement of vehicular trips.
- **Concentration of development in nodes.** The compact city structure is ideally envisioned as hierarchical - monocentric (star-shaped) up to a metropolitan area population of about 200,000 - 500,000, polycentric (net-shaped) if larger - with each node attempting to strike a balance of housing, employment and subsidiary functions to maximise the share of activities that can be pursued locally.
- **Transformation of urban mobility.** It is recognised that urban compactness that translates into higher liveability cannot physically be achieved with current levels of car ownership and use, since the severance of highly trafficked roads and the spatial demand of parked vehicles would work to its detriment. Based on the experience of low motorisation in existing high-density, mixed-use districts in European cities, it is recommended that traffic is calmed by both speed and volume and parking provision is considerably reduced. This will deliver attractive street environments that encourage non-motorised mobility and preserve green spaces even at relatively high densities.
- **Congruence of spatial-functional structure and public transit system.** This implies a more pronounced orientation of future urban development around existing transport routes as well as their extension to cater for presently underserved nodes and travel relations.
- **Station areas as catalysts for development.** Nodes around rail stations are a viable model towards sustainable settlements even for smaller communities in the wider metropolitan region. They can enhance self-containment at a local urban ecology, innovations in housing policy and the future of cities scale and provide intermodal links, both of which feeds back into the viability of the rail system at large.

As an essential first step towards a compact and sustainable city, Apel et al highlight the importance of revitalising the existing inner cities through compact infill and adaptive reuse of old settlement and buildings. They also point to some necessary changes in the planning system as well as policy context particularly in the field of transport that are crucial to fulfil the sustainable goals of compact urban development.

2.3 The Challenges in Promoting Compact City

Some of the claims about the benefits of compact city can, and have been, contested in research. Some evidence suggests that the effects of compact in reduce trip and make public transport an attractive option may be modest. For example, Cervero and Gorham (1995) found that doubling density increased modal shift to public transit by only ten percent. In different chases, after reviewing current debates on sprawl and the compact city, and analyzes whether its theory supports the compact city hypothesis: compact is more sustainable than sprawl, Newman concludes that conceiving the city in terms of form is neither necessary nor sufficient to achieve the goals ascribed to the compact city. Instead, conceiving the city in terms of process holds more promise in attaining the elusive goal of a sustainable city (Newman, 2005).

Turning to the question of whether development, even if it is compact and mixed in terms of use, can be managed to deliver sustainability, another key set of issues emerge. A number of significant barriers stand in the way of those who are attempting to bring sustainability benefits through intensification.

2.3.1 The Compact City versus Sustainable Urban Development

In the last twenty years or so there has been an increasing interest in how the form of cities – e.g. their densities, size, building forms, configurations and layouts - can contribute to their sustainability. The main concern has been on the impacts of different urban forms on travel behaviour and transport provision, resource efficiency, social equity, accessibility and economic viability.

While the principle of compact city has a close relationship with sustainability, many researchers have identified features of this prescription which work against rather than towards the purpose of sustainability. As de Roo (2000) states, some evidence suggests that developing compact cities as a strategy for sustainability needs to be approached cautiously and not simply embraced as a planning dogma. An important lesson which emerge from the next chapters in this thesis will examine the need to recognize the complex set of relationships affecting affectivity of compact city, and the notion that general solutions seldom fit comfortably with the unique features of local situations.

With the elements of a modern city becoming more diversified, the safety and security of its citizens now include factors such as the right to existence like environmental harmony; qualitative values and ethics such as the quality of life and resident satisfaction. Furthermore, these issues also need considering from a broader perspective as aspects of global environment problems. However, de Roo (2000) point out that while from a spatial point of view, compactness might be seen as a contribution to the variety and multy-functionality of a city, from environmental point of view, it might lead to considerable conflicts between environmentally intrusive activities and

environmentally sensitive function because the small scale and mixed use of compact city make them tend to be close each other. In fact, the environmentally intrusive activities, i.e. factory, usually could affect environment beyond its physical form, thus it will need larger open spaces and remain distance from more environmentally sensitive activities such as housing. In this sense, it seems that compact city should be adopted wisely and carefully.

2.3.2 Intensification Difficulties

In the beginning all cities and towns were compact, and relied on walking and non motorized transportation. Since the population and the activity of people increase, the city growing, even in the scale that is not suitable for walking or non motorized vehicle. Some cities grow in tremendous sizes that further face lots of problems in environment and infrastructure provision.

Prescriptions for compact city living frequently mean policies that require continued or intensified use of existing building and neighborhoods, but structures and places constructed for other purposes than their current or intended uses are unlikely to meet today's standards. Either we accept that modern standards of access, heating, soundproofing, plumbing, storage, parking etc. cannot be provided, and adjust our expectations, or we invest in changes which give older urban areas an extended life (Clark M, 2005)

Intensification of activities in relatively small area can cause some paradox. For example, it was assumed that intensification can reduce the length of mobility and the demand for usage of motor vehicle that contribute to the decreasing of motor vehicle usage per people. Theoretically it can reduce the pollution and other negative impact of usage of motor vehicle, but in reality the reduction of vehicle usage per person is also followed by the increasing number of people in that area. Even though they use less energy consumption, but the effect of cumulative consumption of large number people in smaller area sometimes worse than the effect of it if people consume much more energy, but the number of them in the same area relatively small. In this case, it seems that there are limits of capacity, the rate of intensification that can be accepted by one area to make it still function well and still comfortable for its community.

Most literatures about compact city only discuss one dimension aspect of the compactness. They just focus on the intensification and spatial allocation as the focal point in the assessment of the effect of compact city on urban life. Compact cities are sometimes being confused with Central Business District / conurbation focused strategies, and so may be part of the problem: transportation concentrated at too few nodes, and restricted dispersal of employment and government functions. The concept implies a spatiality that may not exist: lifestyles are not necessarily grounded in one, pedestrian and bicycle friendly, place. We need local interdependencies to forge genuine local economic strengths. But we also need to view the individual place within a wider orbit of social and economic relationships. So the compact city is not a return to some

mythical ideal medieval city state, however attractive such places may appear to be (Clark M, 2005). It was not amazing that this simplification come to the question that doubts the effectiveness of compact city as a spatial concept.

Creating a compact urban arrangement is not a simple matter. There are many things that should be realized before we decide to implement this concept otherwise it will be misdirected. It is clear that simply increasing densities and mixing uses will not automatically lead to sustainable outcomes. It needs a more careful design that consider many aspects including safety, cost and energy efficiency, as well as beauty and comfortability. Even though the compact city is considered as spatial concept, but to make it works, focus of attention should not only on compactness of spatial arrangement, but also on the compactness of built environment including buildings, infrastructure and its surrounding areas. High quality infrastructure needs to be provided; public transport should be well managed, affordable and reliable; noise and air pollution have to be maintained at acceptable standards; basic services such as water, drainage and electricity need to be provided; and levels of public facilities such as health care and education have to be appropriate for the high numbers of city dwellers. Furthermore, urban environments have to be kept clean, safe and 'liveable'.

As Harasawa (2002) points out, "A city has various functions. The density of these functions shapes the character of the city. The compact city is not a concept that just indicates the scale of a city such as its open space, area or population. It refers to a state in which the density of the city functions are constituted adequately, neither excessive nor lacking, with the environmental loads and the growth of the city being kept well balanced and lasting". It is important to bear in mind that rather than just focus on intensification and efficiency, the compact city should also be followed by the compactness in all aspect of city planning, including the compactness between urban arrangement and urban management. Thus compactness in compact city should consider many and multi dimensional aspects, including efficiency and livability as well as sustainability.

Chapter 3 Compact City in Practice

As mentioned earlier in chapter II, the compact city ideal is bound up with complex notions of function and form: of coming together in a clearly identifiable place. Regarding its complexity and its place bounded implication, it is important to learn compact city based on the practical experiences of other countries. There are, of course, enormous differences among cities around the world regarding both their predisposition and their responses to current trends of compact city and urban management. In chapter 3 of this thesis, I will examine the concept and application of compact city in relation to the condition in developed countries. Therefore, I will focus on the Netherlands because it is something as a forerunner of compact city models spurred by strong public policy. Moreover, this is the place where I study and live now, so I have a direct relationship and experiences with this place and its community.

3.1 The Practice of Compact City in International Context

Preventing sprawl has a long history in planning thought (Houghton and Hunter, 1994). Early town planning promoters like Ebenezer Howard and Lewis Mumford advocated compact cities with clear urban boundaries (Creese, 1966). The compact city approach thus fit well with longstanding planning policies in many European countries. Sweden, Holland, Denmark, France, and Britain had long attempted to contain urban sprawl through greenbelts, and to create countries established sophisticated land use planning machinery and coordinated transport policies to carry out the vision of compact, transit-oriented urban development. With this condition, it was not surprisingly that most European cities in fact consume 40 % or less petrol per capita than lower density North American and Australian cities, with no loss, arguably an improvement, in quality of life. (Webster, 2004).

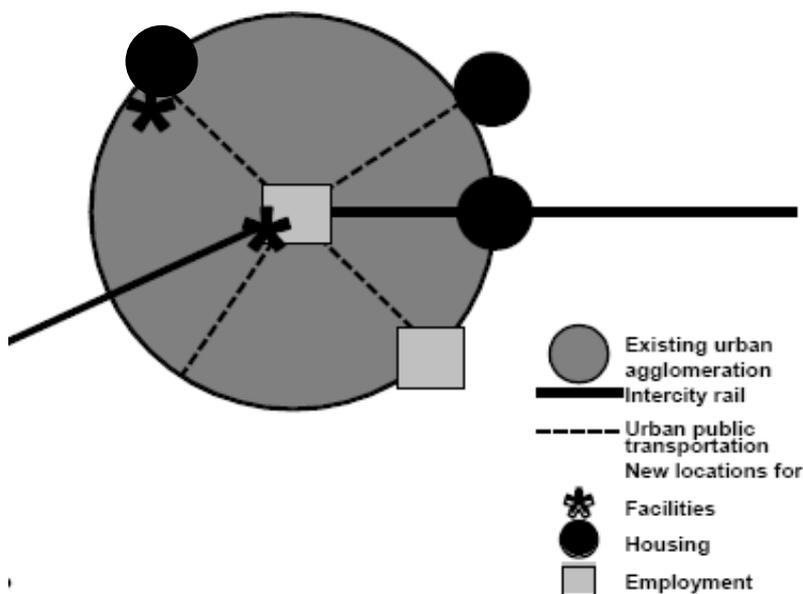
The success of compact city policies in Europe depended on two factors: the coordinated and integrated manner in which such restriction were implemented and the high value placed upon agriculture land. Many European countries have well-integrated policy decision-making and implementation processes whereby planning and control at region and national government level reinforce local-level function. Furthermore, rural and exurban landowners often support compact city policy as a way to protect their land and life style from urban development (Hall, Gracey et al., 1973 ; Bealey, 2000).

3.2 Compact City in the Netherlands

The compact city is a spatial concept with many benefits, however, the Dutch concentration policies were initially motivated by economic and social consideration. The idea of de-concentration as a concept for urban planning by post-war reconstruction during 1960-1970 was far too expensive to maintain. It was then abandoned and replaced by a policy of spatial concentration. In the Netherlands and beyond, this new concept was known as compact city (de Roo in Gert de Roo and Donald Miller, 2000). The report *De compacte stad gewogen* (The Compact City Evaluated) from the National Physical Planning Agency (RPD) in 1985 was the breakthrough for the compact city concept in the Netherlands. In this report, the RPD describes the key element of compact city idea as a ‘(stronger than before) striving for concentration of function (living, working, service and facilities) in the city’ (de Roo in Sorensen et al, 2004).

The compact city was elevated to a national planning strategy in the Netherlands while The Fourth Spatial Planning Report for the Netherlands (VINEX) has introduced the so-called compact city concept in 1988. This is basically a strategic concept that applies to the regional level. The objective was to protect valuable open spaces in the existing cities' surrounds and locate new development to minimize transport needs, that is as urban infill or, where greenfield urbanization was necessary, immediately adjacent to existing settlement areas. VINEX locations are mostly directed at one urban core, linked to major line of public transport (near station), separating residential from environment intrusive function (Drewe, 2000). Typical housing is a row house (multifamily housing). Land plot per house are small since each house consists of 3 – 4 floors. Neighborhood facilities such as park, play ground, school, and mini market are in walking distance from each house. For a simplified representation of the compact city, see figure 3.

Figure 3. The representation of compact city



Source : adapted from Ministerie van Verkeer en Waterstaat, 1995, Drewe 2000.

The compact city implies that future housing is intended to strengthen existing urban conurbations, in especial their central cities. Simultaneously, it is meant to curb private-car mobility by selecting new residential locations in the proximity of the urban core. In addition, the choice of locations for companies and facilities is to be guided by rules that aim at matching mobility profiles of firms and amenities with accessibility profiles of locations.

The conflicting policy areas of environmentally compatible urban development and of transport in the Netherlands are addressed under the umbrella of a planning policy known as "The Right Business in the Right Place". This policy is designed to reduce dependence on the growing environmental impacts of travel, in particular private car use, through integration of land use planning and traffic policy. A system of land-use planning measures aims to enable town planners to influence the volume of traffic by adjusting policy issues in the areas of housing, work, services and leisure. Land-use planning measures are designed to help to shape the pattern of urban development, to guide the location of major travel-generating uses, and to ensure a wide range of opportunities at the local level.

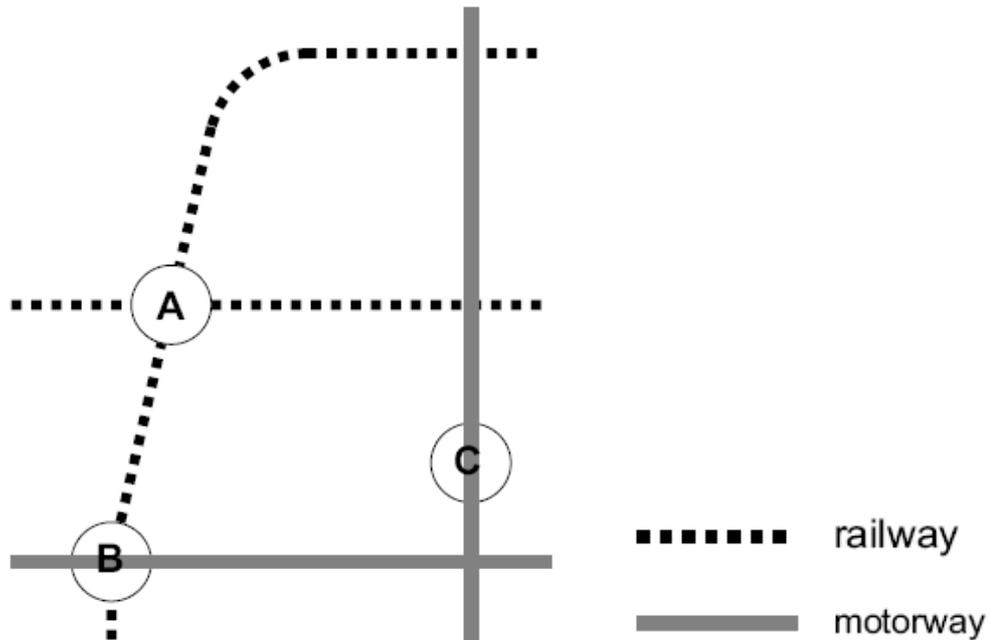
In 1989 ABC planning policy as it is known was introduced in Dutch location policy when the National Environmental Policy Plan laid the basis for drawing up procedural plans for each region. The classifications indicate the type of development and form the basis for setting priorities in development. Simultaneously, the revitalization of city center based on the concept of compact city is encouraged. The rationale of this policy is that spatial planning can play an important role in influencing the amount of traffic and the mode of transport.

Three main types of commercial/institutional uses are identified in the following three categories (see illustration in figure 4):

1. A localities are places with excellent public transport and poor car accessibility. These localities are typically suitable for offices with a large number of employees and many visitors. The sites have to be within 600 m of a national or regional railway interchange or within 400 m of a high quality tram or bus stop; and not more than 10 minutes ride from a national railway station.
2. B localities are places with a good public transport as well as good car accessibility. These locations are characteristically chosen for offices and institutions with a large number of employees which depend partly on car journeys for professional reasons. Such sites are within 400 m of a high quality tram or bus stop and no more than 5 minutes ride from a regional railway station. In addition, they have to be within 400 m of a main road connected to a national highway.
3. C localities are places with poor public transport and excellent car accessibility. In particular, such sites are suitable for car-dependent companies like hauliers, couriers or other industries. These sites are within 1000 m of a direct connection to a national highway. C locations are normally situated in the outskirts of metropolitan areas.

Figure 4. A B C location policy.

Employee and/or visitor intensive businesses are to be located at A sites, where public transport accessibility is optimal and strict parking regulations are enforced. At B and C locations an optional balance of demand and supply of mobility is also sought.



Source : adopted from Clercq and Bertolini, 2003

This classification of urban areas is designed to enable governmental institutions at all levels to define a starting point from which they can find readiness to develop a common transportation policy in co-operation with other local non-governmental institutions. It is assumed that with this backing they will be able to lay the foundations for a reasonable plan of action for the locations. As the availability of parking space is a vital aspect in the reduction of car use in a certain area, the ABC categories are linked to a fixed minimum number of car parks per classified area.

The a,b,c location policy was initiated by the national government. Although a formal evaluation concludes that the policy has failed, it recommends continuing it. The evaluation states that the policy has failed because only 15 per cent of all locations are subject to the policy, as it could be applied only to newly developed locations. As the planning is oriented towards precise planning guidelines it is likely that land use will become specialized and, thus encourage the mono-functional use of sites. Moreover, the tendency to exclude living areas from the location policy is also a permanent criticism as well as it lacking of integration with walking and cycling. Despite those problems, it has been decided to continue the policy, albeit in a more flexible manner and with a focus on areas with high concentrations of activities. (Bertolini & Clercq, 2003)

3.2.1 Urban Renewal and Urban Intensification in Amsterdam

The City of Amsterdam has a population of approximately 720,000. The city is the constitutional capital of the Netherlands and the principal city in the western province of North Holland. It is an important seaport and the city is divided by canals into approximately 90 islands joined by some 400 bridges. It is one of Europe's most important commercial centres with a major stock market, financial institutions and insurance firms.

Apart from a wealth of picturesque historic sites, the city prides itself on a swinging night life, charming shopping streets, art galleries and 40 famous museums. The compactness of the semi circular city center minimizes the need for taxis and public transport as almost everything is within walking distance. Nevertheless public transport in Amsterdam - buses, tram and metro - is efficient, modern, reliable and inexpensive.

Like most European cities, Amsterdam followed an urban expansion strategy well into the 1970s. With the objective of 'decongesting' the historic city which was seen under increasing pressure from traffic growth, demand of high-profit land uses like office development and a shortage of housing that met modern standards, a number of new towns were developed throughout the Netherlands that would meet these needs. The location of these growth poles or satellites would be well outside the established urban areas but with good connections to them by both road and rail. It was envisioned that the new towns should be relatively self-contained in employment, to enable short commutes and relieve the transport networks (Scheurer, J., 2001)

While some examples of growth poles proved successful in this regard, others didn't, many satellites became giant dormitory towns at rather inconvenient locations with regard to accessibility of jobs, education, leisure and other facilities. Large conurbations in the Netherlands then suffer from environmental pollution caused by the rapidly growing use of cars. Besides environmental impairment, the city's quality of life and the accessibility of central urban areas is negatively affected. They now display the longest commuting distances of any settlement type in the country. As response to this condition, since eighties, Amsterdam's city council had shifted away from decentralization and was ready to focus on gentle urban renewal (ie. largely preserving the old buildings, or where this was not viable, at least the historic urban pattern) and the redevelopment of central locations, particularly derelict industrial sites and docklands, for urban, high-density housing (ibid).

The compact city policy as implemented in Amsterdam in the early 1980s had two aims (Le Clercq and Hagendoorn, 1983): to increase the number of inhabitants of Amsterdam and to create a larger market for public services and amenities (i.e. shops, leisure opportunities, cultural activities) in the city, particularly in its historic centre. The elements of the policy were to build more houses in Amsterdam (and thus to find land for these) and to promote the use of modes of transport other than the car. The principle of shorter distances is applied here. It was thought better for people to have services in the vicinity of their homes rather than to have them access a number of facilities by traveling

by car. Accordingly, mixed-use developments were promoted in addition to environmentally friendly modes of transport, particularly walking and cycling.

As stated in Bertolini and Clercq (2003), the policy was successful with respect to both main aims: population size increased and the city became a desirable place to live. It is this period which made Amsterdam a pioneer in compact city policies, resulting in a reversal of the declining population trend - after having fallen from over 850.000 to under 700.000 between 1965 and 1985, the number of inhabitants has steadily recovered and is projected to rise above 800.000 again within the next five years. With respect to accessibility, a dual urban system has been created:

- The central (historic part) of the city can be seen as a concentrated area amidst concentrations of population, which can mainly be accessed by public transport at all levels (local, regional and national). For shorter trips, walking and biking have very high proportions.
- The edge of the city, with its new sub-centers, offers very good, all-round accessibility because of the access it affords to the inner city, to the employment centers and to places elsewhere in the region by both car and regional and national public transport. Employment is growing very rapidly in these fringe areas, particularly those with good access to the country's main airport (Schiphol).

The compact city policy seems to have contributed to an unintended shift in the urban system from being a single centre city to a multi-centre region. This has allowed the large-scale expansion of the commercial service sectors (offices) of the economy, most notably in the sub-centers combining motorway and railway access. The keys to this shift lie in other policies: the decision to expand the national motorway and railway systems (offering accessibility at the national and international level), and the decision to create sub-centers and to direct the overflow of business from the city centre to these sub-centers. All these decisions had been taken before the compact city policy was introduced.

Results have been achieved in the sense that the overall public transport share has more or less stabilized. This network operates very well at the various levels at which cities function (neighborhood, city, region), thus offering a complete set of activity spaces to its inhabitants and those of the surrounding cities. This condition is mainly due to the previously described shift from Amsterdam as a single centre city to a city of several centers incorporated into a larger urban network with functional concentrations at public transport nodes.

The success of the policy as regards stabilizing the modal shift must be chiefly attributed to shift in urban structure. It seems that the development of new sites for living and working in the region and the growth of these sites have been more important for the success than has the improvement of the quality of public transport services itself. In other words, the principles of creating good accessibility by concentrating activities have been more important in achieving sustainable accessibility than has the promotion of public transport.

3.2.2 Integrated town planning and traffic policy in Groningen

Groningen is the sixth largest city in the Netherlands with some 170,000 inhabitants. Businesses and organizations in Groningen provide work for about one hundred thousand people. Half of them commute from the surrounding area. In addition, traffic is generated by customers in the city centre as Groningen is also the main shopping centre of the North.

As described in True (1994), Groningen is a bicycle commuter's Utopia. It's a place where cyclists get short-cuts, not cut off - where bike paths lead to advanced stop lines at traffic lights, and one-way streets are two-way for two wheelers. Since the 1970s, attempts have been made in Groningen to promote bicycles and local public transport, and to reduce individual motor vehicle transport through a fair allocation of street space among those on the road, through minutely detailed urban planning and integration of town and traffic planning. The city's integrated travel management policy aims to reduce car traffic while maintaining a good level of accessibility related to concepts of compact and mixed urban developments.

The new plan was adopted in 1993. As extracted from SURBAN (2001), It has a holistic goal of integrating transportation, economic, and public concerns in the city center. The new city center plan aims to find "a balance between accessibility and livability" in three ways: 1) using a compact city model, planners will work to limit distances between residential areas and businesses, 2) creating special facilities for environmentally-friendly transportation alternatives like bicycles and public transportation, and 3) integrating traffic and transportation policy measures, economic issues, environmental concerns, planning and public space needs.

The Municipality's Department of Town Planning, Traffic, and Economic Affairs had various instruments to achieve these goals. First, the town planning policy has to be based on the model of the compact city, with short distances between residential areas, working, and shopping locations. Second, priority has to be given to the building of special facilities for environmentally friendly transport alternatives like bicycles and public transport. Finally, the philosophy of the integrated approach has to be adopted in order to implement measures in various areas of policy in a co-ordinate fashion.

The integrated town planning techniques then developed in city planning in Groningen. This concept is developed based on thinking that the idea of compact city should be followed by some policies and practical implementation that restrict the usage of motor vehicle and encourage non motorized transport such as walking and cycling. High residential densities within a city, or an individual district have the potential to increase the scope to make contacts or pursue activities without resort to motorized transport. In Groningen, the planning of new parts of the city has to stick to this principle as an increase in daily use of the bicycle in municipal transport has to be attained through consistent user-orientation in planning and implementation. In the first place, this

requires the construction of a closed, safe, and comfortable network of bicycle paths, secure parking facilities for bicycles, and rights of way.

Bicycle use largely depends on a cohesive network of bicycling routes. In Groningen, this bicycle structure consists of separate bicycle paths along main roads, bicycle lanes, and of roads with little motorized traffic. It is important that the structure is as compact as possible, thus reducing distances and traveling time. One way to do this is to construct special bridges and cut-through for cyclists and pedestrians only, so that cyclists and pedestrians get shortcuts while cars have to make a detour. Another effective measure proves to be the use of almost all one-way traffic streets as two-way roads for cyclists. Comfortable standards for cyclists have been upgraded by asphaltting the main cycle paths. Other measures are concerned with facilities near traffic lights, such as waiting spaces in front of cars, cycle paths passing the lights, and allowing cyclists at some places to turn right against the red light. Infrastructure facilities in the city centre or at junctions of public transport have been equipped with bicycle racks and clamps and guarded bicycle shelters have been opened.

From the town planner's point of view, this means that new residential areas are built close to, or in the existing city. This keeps the distances between home and work, or home and school relatively short, so that the use of these means of transport should form good alternatives to the private car in terms of traveling time.

Similar criteria are applied to the location policy for new plants and offices. Offices have to be situated in places which are readily accessible by public transport and bicycle - particularly if the companies concerned employ a lot of people. Only firms that are reliant on good access by truck, or are less labor-intensive are allowed to locate elsewhere. This location approach has to pay attention to the fact that the new sites should be easily accessible by bike or public transport, and that the space of the car-park is limited. This creates an additional motive to use other means of transport than the car. Such a balanced package of carrot-and-stick measures is essential for an integrated approach.

The location of shops and shopping centers should follow the principle of a spread of retail outlets throughout the city. The residents should have the opportunities to shop for their everyday needs in their own neighborhoods, while the inner city serves as the main shopping centre. So-called "Greenfield," or "out-of-town" shopping centers are not permitted.

This arrangement implemented by the recognition that the traffic volume is also affected by the integrated planning approach for the improvement of the quality of the city centre. As Groningen's city centre comprises a great many functions in an area of less than one square kilometer, it offers accessibility and livability in a concentrated form. This is applied for heavily used facilities like shops and department stores, housing, local and provincial council offices, university buildings, courts of law, cafés and restaurants, markets, theatres and museums, as well as for valuable historic buildings which are the tourist attraction of the Groningen city centre. In order to maintain an

active access to these facilities and secure the space they need, an integrated approach is crucial. In its plan called, "A Better City Centre", Groningen council has put forward such an approach. As mentioned in SURBAN (2001) , some key measures of this plan are: Make the pedestrian areas larger and more attractive. This creates chances for improving the shop amenities, both in quality and quantity.

- The car-free zone is expanded. In the future, motorists can only park their cars in multi-storey parking on the edge of the city centre, or they can leave their car at the outskirts of the city. Here are parking and bus facilities from where the bus to the centre of town can be taken. Street parking will be abolished in the city centre.
- The use of bicycles and of public transport is encouraged through the expansion of the number of parking facilities for bicycles and by introducing new bus routes with environmentally-friendly buses.
- With the removal of the cars, there is more room for pedestrians and cyclists. It also creates an opportunity to clean the streets of superfluous furnishings and to reconstruct the road surfaces, which over the years have degenerated into a patchwork blanket of different styles and materials. A plan has been designed to arrive at a cohesive, logical, and clear layout of streets, squares, and marketplaces.

The technique of integrated town planning is becoming more and more natural in the current land-use planning policy in Netherlands, and it is termed "The right business in the right place". New buildings are required to include bike parking and there are many thousands of bike spaces dotting the city, 3,000 at the central train station alone. Bicyclists are privy to special overpasses and short-cuts, guarded bicycle shelters with lockers, and their wheels are protected through an anti-theft campaign. As a result, almost half of Groningen's residents bike between home and work, thus giving Groningen the title of the "World Bicycle City.

In 1990, the modal transportation split in Groningen was 17% walking, 48% bicycle use, 5% public transport, and 30% car use. Trains, regional and local busses, and taxis are networked through central commuter stations to make travel easier. Bus drivers carry electronic transmitters, so with a click, traffic lights do their bidding. Cars are discouraged by low speed limits (30 km/hr in residential areas), car-free zones, and limited street parking, which will be eliminated completely under the new city center plan. In their effort to achieve balance, Groningen's citizens have not made automobiles completely taboo. Their use is put into perspective through programs like "Call-a-Car," a borrowing system which promotes an alternative to car ownership. (True, 1994).

To reinforce the city center as the main retail core, malls and shopping centers outside the city are banned. Essential purchases can be found at small retail stores in the residential areas. Downtown business owners who complained of lost income before the 1976 plan was implemented have seen an increase in sales, and the majority support the new planning efforts. "This is not an environmental program, it's an economic program," says Gerrit van Werven, senior city planner. "We are boosting jobs and business. It has been proved that planning for bicycles is cheaper than planning for cars." (quoted in True, 1994).

Chapter 4 Reflection of the Netherlands Experiences in Indonesian Cities

In order to adopt the idea or concept from foreign countries, Robertson (1991), suggests that both transfer and the success of transfer, are more likely if the policy is consistent with the dominant political ideology in the 'host' country. Certainly, ideological similarities between countries can be a key factor when actors look for lessons. However, even desirable programs will not be transferred if implementation is beyond a nation's technological abilities. Economic resources are another critical constrain for agent engaged in policy transfer since implementation cost money (Dolowitz and Marsh, 1996).

It was reasonable that regarding to the historical relationship between the Netherlands and Indonesia, there are many aspects, including in city planning and urban development in Indonesia that were influenced by the Dutch thinking. Town planning concept, zoning regulation and Building code for example, were adopted from the Netherland rules, and still used until recently in many cities in Indonesia. Some urban forms in Indonesia that can be seen in Bandung, Jakarta, Malang and Semarang are formerly created during the colonial era, where the touch of Dutch architect-planners such as Thomas Karsten and his Delf classmate Maclaine Point were remarkable. The influence and involvement of Dutch planners are also clearly seen in the preparation of initial concept of Jabotabek (Jakarta Metropolitan Area) and new Kebayoran Baru in South of Jakarta (see. Cowherd in Sanyal (2005). Although Indonesia has passing transition from a Dutch to an American influenced planning culture since the end of Suharto era, and even more after globalization and reforms, the long story of relationships and influences make the transfer of idea from the Netherland should be easier to be adopted.

But it is also clear from previous explanation that transfer of policy or idea is not a simple process. Therefore, the question of the appropriateness of the compact city model to deliver sustainable urban environments in different contexts with those in European countries is extremely important. Even though the argument for more compact urban living is grounded in comparisons with practice in a range of context and cultures, yet comparative planning studies suggest that there may be dangers in basing policy prescriptions on inappropriate analogies (Faludi & Hamnet,1975). However, there are huge differences among cities around the world. It was clearly seen that the most successful policy approaches are in the region that is the most sensitive to its spatial realities.

4.1 Urban Condition in Indonesia

Unlike in Holland that tends to maintain its compact, small and accessible urban scale and urban form, the Indonesian cities have changed rapidly with diverse urban

form. The compact urban form in Netherland comes to the some advantages such as comfortable living environment, high rate of public and non motorized transport, preserving of farmland and open spaces, and better housing and public facilities provision. Meanwhile, the diverse and unregulated urban change in Indonesia in fact brings the cities and its citizen into lots of problems. Some of them will be explored in next explanation.

4.1.1 Rapid Urbanization and Physical Development

In contrast with the trend in a developed country such as the Netherlands which shows that urban population is relatively stable and just growing smoothly, the urbanization process in Indonesia should be considered seriously since many studies showed that the level of population concentration in large cities had been increasing over the time, yet the number of small cities is enormous compared to medium and large cities. In 1990, 55.4 million people lived in urban areas that were 30.9% of the nation's total population. About 40% of these dwellers lived in Metropolitan areas (urban population greater than one million) and large cities (500,000 to one million inhabitants), 20% lived in medium size cities (100,000 to 500,000 inhabitants) and another 40% lived in small size cities (less than 100.000 inhabitants). Urban population have been reaching 82,5 (40,34 %) million in year 2000, and it has been predicted increase into 167,4 .million (60,7%) from the total population of 275,6 million people in year 2025 (sunarno, 2004).

Table 2 The population of major Indonesian urban area year 2000

	City	Population
1	DKI Jakarta	8,384,900
2	Surabaya	2,588,800
3	Bandung	2,141,800
4	Medan**	1,899,300
5	Palembang	1,441,500
6	Semarang	1,345,100
7	Ujung Pandang	1,091,600
8	Malang	749,800
9	Bogor	743,500
10	Bandar Lampung	743,100

Source : Population Census 2000 , Indonesian Statistical Bureau

There are tendencies among several large cities to keep growing larger, and then form the so-called metropolitan cities. Further growth of these cities will pose formidable problems of urban management, finance and provision of services. In other side, small cities that grow around the central city are not self sufficient; they suffer deficiencies in urban infrastructure and services urban transportation problems, environment degradation, slum areas, industrial pollution and inefficiency in urban land use as well as poor access to housing for new migrants.

Population and industrial growth create a concentration of various forms of pollution created by human and commercial activities, which threatens to lower the

quality of human life and destroy the natural resources which many economic activities are urban based on. Urban environment degradation is increasingly being recognized as one of the serious side effects of Indonesia's economic development.

4.1.2 Land shortage, dispersed and fragmented urban development

Land prices in urban areas in Indonesia are expensive. It is because those areas are attractive for business and other economic activities. Not like the situation in Netherlands where the land prices and land stock are influenced more by public involvement (see Faludi in Sanyal, 2005), the land prices and land supply in Indonesia are more influenced by market mechanism. Different with condition in Netherland where lands for development are mostly supplied by local government, the land stock or land banking is still not exist in Indonesia, and land is still considered as object of infestation and speculation. This situation makes the steep rise of land prices, which is not only result in an increasing in prices for dwellings, but also seriously threatens the capacity of local governments to implement the development plans in the public interest (see Cowherd in Sanyal, 2005). This condition was worsened by the fragmented parcel of land in urban areas in many small and irregular plots, which make the compact arrangement of its buildings which normally follow the form of land is difficult to be reached.

Rapid urbanization has changed the land use in urban areas. Many urban forests, parks and open spaces in city centre have changed to shopping malls, business centres, or high rise apartments, yet they are very important for urban environment. Even in peripheral, which is usually used for agriculture or retain areas, the vacant lands now are scarce. The situation threatens the balance of ecosystem and then will endanger the city dwellers because these open spaces have functions as a retaining area, protecting city from flooding during high rain. Moreover, they have a function as water storage and can absorb air and noise pollution from their surrounding area.

Rapid urbanization and housing shortages in major urban in Indonesia usually countered through establishment large residential areas in urban fringe. Because the land price is not so high, the houses are designed with large land plots and large distance each other. Single storey and detached houses are predominant features. The distance from house to neighbourhood facilities became longer and compactness of buildings and its surrounding areas are still not considered since the house-dwellers are assumed to use motor vehicle to do most of their daily activities. Attention for walking and cycling as modes of transport are rare, and shared facilities are not popular. Since the facilities in the new settlement is not considered seriously, then their dwellers still depend on the primary and big cities nearby to support their daily life. These conditions then trigger traffic problems within this new settlement and in the way in and out of the city which can be seen in Bintaro, Kebayoran Baru, and Depok which was previously developed as satellite city for Jakarta. Even in a relatively new comer such as in Bumi Serpong Damai (BSD), Tangerang- a self-contained city in fringe of Jakarta which was claimed by its developer to be settled by almost 100.000 population in 2005 (wikipedia, 2006) – face severe traffic problems within and in the way in and out of this area, especially in working hour.

High land prices, particularly in strategic urban locations, and limited land availability for housing encourage the growth of informal shelter in urban areas. On the other hand, high income groups usually have more than one house with large plot areas that in turn cause inefficient use of land. Areas which are previously used as housing then converted to be commercial or office centers in a tremendous scale. Buildings and facilities are separated each other by safety wall so they reduce the accessibility and permeability over it. Streets, pedestrian, and public space are not comfortable and safe, especially for those walking and cycling. As the result, the dependency for motor vehicle, even for shorter distance increases rapidly.

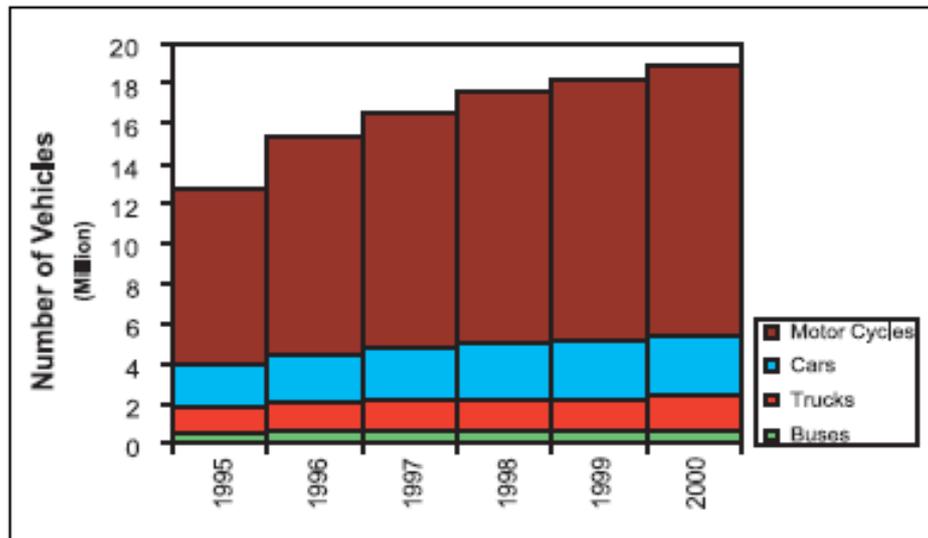
4.1.3 Increasing Dependency on Private and Motorized Transport

In most cities in Indonesia, there is a trend for the design details of much new development to be oriented to be accessed by private vehicles, even though densities remain high overall. Many new housings, offices or shopping complexes built in the recent boom decade (1986 to 1997), and targeted at the newly prosperous middle class, have designs predicated upon private vehicle access rather than public transit orientation. These cities run a risk of building traffic disasters into their urban fabrics. This is because densities are still too high to cope effectively with many private cars but the pro-car design features tend to encourage private transport and make the provision of public and non-motorized transport facilities somewhat difficult (Barter, 2000). It should be considered seriously regarding that traffic congestion could cause losses to communities, indicated by longer traveling time between home and work and increasing of air and noise pollution.

The increasing of travel distance and increasing population of motor vehicle in some major cities can not be separated from the tremendous economic growth of those cities which attract people to come there. The housing area then spreads out to the peripheral area, causing longer distance from source areas (home) to the destination areas (working, school, shops, leisure, etc). Meanwhile, the increasing of income per capita also increases the purchase power for private motor vehicle. Those aspect, combined with the poor public transport service and badly city planning then triggered the tremendous increasing of motorcycle usage in some major cities in Indonesia. The rapid increasing of motor vehicle population then triggers traffic congestion in some city streets, not only in big cities such as Jakarta, Bandung and Surabaya, but also in other smaller city such as Jogjakarta. While previously this medium size 'student city' where remarkable with its large number of biker, currently transfers to be motorbike city and then faces severe traffic problems in some of its major streets.

Because of those conditions, Indonesian people are then more dependent on motor vehicle. According to the data from Indonesian Statistical Bureau in year 2001, during the latest seven years the population of motor vehicle in Indonesia has increased 2 times with the average increasing rate 14 %. (see fig. 5). This is an interesting phenomenon because the number of vehicles and the vehicle-kilometers maintains its high growth despite the economic down-turn during the crisis.

Figure 5. Number of Motor Vehicles in Indonesia (1995-2000)



Source: Indonesian Natural Environment Statistic, 2000.

4.1.4 Inefficiency of Energy Usage

Indonesia's economic growth surpassed expectations in 2004, and accelerating growth has continued into 2005. Indonesia's real gross domestic product (GDP) grew at a rate of 5.1 percent in 2004, up from 4.9 percent in 2003. Real GDP growth is forecast to be 5.5 percent for 2005, although imbalances in the macroeconomic picture, such as increasing budget deficits caused by oil price subsidies on the local market, could lead to future problems. While Indonesia is still a member of the Organization of Petroleum Exporting Countries (OPEC), it became a slight net importer of oil in 2004, and its oil production has continued to decline. The current government is reported consider leaving OPEC, but no decision to do so has been announced (EIA, 2005).

The huge amount of source of energy in Indonesia during the past decade and its price that relatively lower compared with that in other country makes Indonesia become not efficient in energy usage. According to data from geocities (www.geocities.com), the efficiency of energy consumption in Indonesia during year 1998-2002 is the lowest in comparison with six other Asian countries. The indicator is the ratio of the growth rate of energy consumption compared to the growth rate of Gross Domestic Product which shows that Indonesia has 1.93, meanwhile Thailand 1.23, Vietnam 1.01, Malay 0.93, Pakistan 0.90, South Korea 0.79, Philippine 0.62, India 0.61, China 0.59. The high score shows that the usage of energy is not efficient.

Similarly, for a country with Gross National Income lower than 1000 U.S. dollar in 2002, the efficiency on energy consumption in Indonesia also tends to decrease. During 1990-2002, Gross Domestic Product of Indonesia per unit of energy declined

from 4.3 to 4.1, meanwhile China increased from 2.1 to 4.6; India increased from 4.0 to 5.0; Pakistan increased from 3.9 to 4.3; and Vietnam from 3.3 to 4.2. The decline of the score, again, shows the inefficiency of energy usage (ibid).

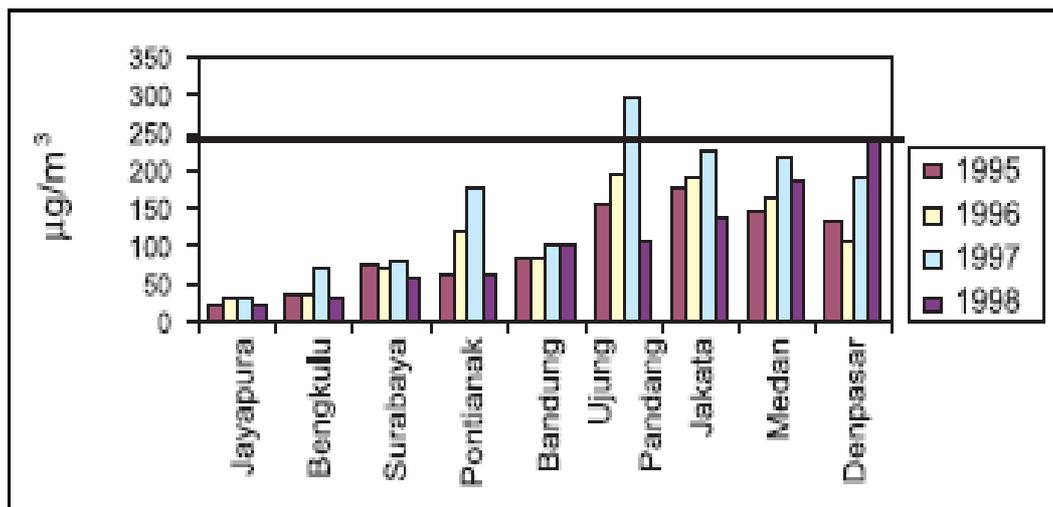
While previously the consumption of energy was dominated by industrial activities, nowadays it was more affected by the consumption of energy for motor vehicle. According to Oemry (2003), the usage rate of oil in Indonesia increase approximately 10% per year. Transportation sector consume more than 90% of them, whereas it is limited and non renewable resources.

If the government of Indonesia does nothing to reduce the consumption of energy nationally, the import of oil is estimated to reach 441 millions barrel in year 2020. The high rate of energy consumption will also affect the environment. Every 1 liter of gasoline we use for motor vehicle will produce around 2.24 kg carbon emissions, which are dangerous for our health and they are blamed for global warming. (Elyza et al, 2005)

4.1.5 Increasing of Air Pollution

Air pollution is perhaps Indonesia's most severe environmental problem. According to an official at the World Bank office in Jakarta, "air pollution imposes costs of at least \$400 million on the Indonesian economy every year." It also has very a serious impact on public health. For example, inflammation of the respiratory tract, which is directly linked to air quality and Total Suspended Particulates (TSP) was the sixth leading cause of death in Indonesia (after accidents, diarrhea, cardiovascular disease, tuberculosis, and measles). The increasing of polutan does not only happen in Jakarta and other big cities, but also in medium cities such as Denpasar and Pontianak (see figure 6)

Figure 6. Average Annual TSP Concentration, Indonesia



Note: TSP Standard is 230 µg/m³ (24 hour averaging time)

Source: The report on Indonesian air quality (1994-98), Bapedal 2000

Motor vehicles are one of the chief sources of air pollution in Indonesia. Between 1995 and 2001, the number of vehicles in Indonesia grew from 12 million to almost 21 million. Many of these vehicles are motorcycles or scooters, which lack the catalytic converters required for cleaner emissions. Moreover, almost no motor vehicles in Indonesia use unleaded gasoline. Instead, the vast majority of these vehicles rely on either leaded gasoline or diesel fuel, leading to unhealthily high concentrations of airborne lead which potentially adversely affect cognitive development, especially for children.

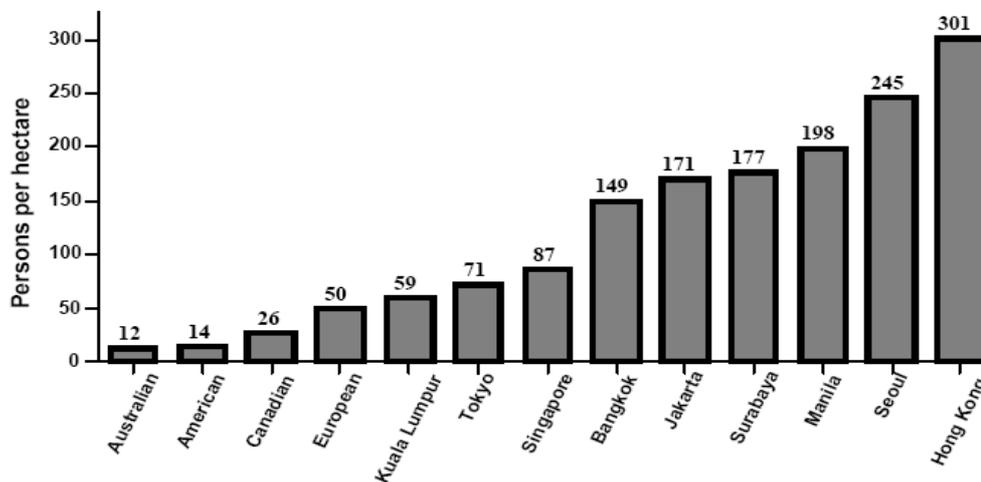
4.2 The Differences in Characteristic that Challenge the Implementation of Compact City in Indonesia

The dominant idea of the compact and well-connected city prevails to some extent in most planning and city management policies in developed countries. Now, increasingly, these ideas are being investigated and adapted in other contexts too. Planners and urban managers internationally, and particularly in developing countries, are researching if there is anything in compact city theory or practice to help alleviate urban problems. However, the effectiveness of urban intensification policies for less developed country comes into question. If cities are to become more like the compact city model, this implies a process of urban intensification. This is commonly understood as a process whereby new buildings in cities are built at higher densities, vacant land in urban areas is developed, and high-density redevelopment takes place. Urban intensification is also associated with increases in the amount of activity that takes place within cities – both increases in the population density, and the extent of economic and social activity. Therefore, the ability of this type of urban policy to deliver more sustainable cities in less developed country raises some important questions.

4.2.1 The Differences in Physical and Demographic Characteristics

A first major issue is the difference in the physical and demographic characteristics of cities globally. In the European context, the compact city model focuses on maintaining or increasing urban populations (which have been steadily declining) and making urban living popular again. The focus is on providing a high quality of life in city centres, developing on infill sites and generally revitalising towns and cities. However, clearly the international context is quite different. In developing countries in particular, cities are characterised by rapid urbanisation in fast growing cities and regions (see Richardson *et al.*, 2000). Based on the data from world bank, it is clearly seen that cities in Asian Country, for example, Jakarta and Surabaya, are far more dense than those in Europe, Canada, or USA .(see figure 7)

Figure 7. Urban densities in Asian cities and for other regional groupings of cities in 1990.



Source : Barter, 2000

Bearing these figures in mind, the issue of existing density patterns is significant. As can be seen from the table below, which shows population densities in key cities around the World, if a policy of intensification is advocated, then cities have starkly differing starting points. Perhaps to seek to intensify Groningen from a starting figure of 2.274 persons per square kilometer, or even Amsterdam (4.500 persons per square kilometre) might be feasible, but to seek to increase the population of Jakarta, which already hosts 17,000 persons per square kilometre, might seem ill advised. In fact, many commentators have argued against the transferability of the compact city model on these grounds alone. For example, Hardoy *et al.* ask ‘what is the sense ... of further densification given that densities are already high and associated with a range of problems including infrastructure overload, overcrowding, congestion, air pollution, severe health hazards, lack of public and green space and environmental degradation?’ (quoted in Burgess, 2000).

Moving on from the issue of density, there is also the question of variations in land uses, and their spatial distribution. The European compaction model which can be seen in Amsterdam and Groningen is heavily in favour of Brownfield development on vacant and derelict land within city boundaries. It also places a strong emphasis on mix of uses. However, major cities in Indonesia are not characterised by the same land use patterns. Hence, there is often less vacant land within urban areas and little spare ‘capacity’ for population growth. Also, the undeveloped land that does exist is often highly valued for urban agriculture, and losing this land would affect the very poorest urban dwellers.

Cities in Indonesia often already have an extremely mix of uses, not because of planning strategies, but because unregulated development has taken place, that reflects the diversity of the social, cultural and economic activities within urban areas. Hence, in a single street, on different levels, commercial uses, religious buildings, homes, health facilities, industrial and agricultural uses can all be found. However, this mix does not lead automatically to a more sustainable urban environment. As previously explained in previous chapter, while there are certainly benefits of such arrangements, there are also often problems of health, safety, noise and air pollution, and poor quality of life: conditions that have more to do with general levels of wealth than land use factors. So, it seems that in the urban context, its extremely high density and mix land use raises important questions about the sustainability of urban intensification in major Indonesian cities.

4.2.2 Contrast in Transport Policies

Policy settings aimed at exploiting the intensification opportunity are likely to reap rapid and significant benefits, as demonstrated to some extent by the experiences of the Netherlands. The compact cities in Netherlands are supported with traffic management policy which are not pro non motorized and public transport. In Netherlands, restraint on private car ownership is a response to upsurges in traffic (from low base-lines). Usage restraints soon followed, such as increased petrol prices, higher annually tax for car ownership, and parking restrictions. These policies, along with the implementation of compact city policy, dramatically slowed motorization in the country despite tremendous increases in per-capita incomes.

The approaches of many cities in Indonesia which have attempted to accommodate private vehicles, contrast strongly with those of Holland. The main emphasis of urban transport policy and practice in Indonesia has long been on efforts to increase the flow of traffic. Vehicle ownership restraint has been rejected around the country. Public transport and non-motorized transport have been neglected. Indonesia has long had the lowest gasoline prices of the Asian group (Dreesbach and Wessels, 1992).

There are also important contrasts in public transport policies and trends. The experiences of some European cities show that, even with their high-density land-use patterns, there is still potential and a need in dense cities for land use policies to explicitly favor public transport and non-motorized transport. Explicit policies in Holland, for example, are encouraging land-use patterns to become increasingly transit-oriented. Meanwhile, in most cities in Indonesia, there is a trend for the design details of much new development to be oriented to access by private and motor vehicles, even though densities remain high overall. Many new housings, offices or shopping complexes built in the recent boom decade (1986 to 1997), and targeted at the newly prosperous middle class, have designs predicated upon private and motor vehicle access.

Experience shows that the most successful transport policies in dense cities are those that are compatible with the spatial realities of such urban areas. Theoretically, the

land-use patterns in some Indonesian cities which have been intensified are potentially highly suited to the non-automobile modes of transport that can provide high accessibility at low-cost and in an ecologically sustainable way. In fact, there are severe traffic problems in those cities. This condition is worsened by the fact that city planning, as well as buildings arrangements and landscape design are not suited with non motorized transportation, and they even encourage the use of motor-vehicle. The current traffic condition in Jakarta and Bandung illustrates that a 'traffic disaster' can arise very quickly as motorization increases in a dense city with no traffic restraint.

4.2.3 The Differences of Culture and Behavior

The differences in culture and behavior will become a natural barrier for the promotion of compact city. It seems that compact cities were successfully adopted and accepted by the Dutch people. This succeeds because the national commitment supported by their culture and behavior that make them just face a small difficulties in implement it. Dutch people are remarkable with its pragmatism. This character has been exist since a long time ago and seems to be a way of life. The concentration policies in Netherland for example, were initially motivated by economic and social consideration. The policy to encourage bicycle in Groningen actually is a result of economic thinking. As Gerrit van Werven, senior city planner in Groningen says. "This is not an environmental program, it's an economic program. We are boosting jobs and business. It has been proved that planning for bicycles is cheaper than planning for cars." (quoted in True, 1994)

Despite the fact about their wealthiest, egalitarianism has been a dominant force in the Netherlands. In Hofstede's (1980) comparative study of cultures, it is argued that the Dutch find it difficult to accept social inequalities. Consensus and communal life become a norm. Not surprising that it is difficult to judge the social status of Dutch people just by their physical appearance. Whoever they are, living in the same type of house (row house) is not a matter. Bicycle has been a vehicle for every body. A mayor, or even Prime minister, still uses bicycle to support his activities.

Since the disparities of income between poor and wealthy people in the Netherlands is not so high, there are so little differences in their way of live. The form and floor area of high and low income house in Netherlands are almost similar. Due to the small number of family they have, Dutch house doesn't need to be large. Living in a small house or using bicycle is just a matter of choice, and most of people do it because they think it is functional and efficient, not because they can not afford the better one.

In contrast, the extended family in Indonesia makes their house tend to be larger. A house and vehicle in Indonesia are still considered as a property to show the social status of the owner. Living in large single standing house and having many vehicles are considered as a way to improve their social status, something that is important for Indonesian people. Cycling and walking are done just as part of hobbies or sport activities, not to support daily activities. Those who do it to support their daily life is just in chase because they can not afford the better one, and mostly because they are very poor.

It's reasonable that walking and cycling are easier in Western countries since there are no so hot weather and heavy rain like in tropical country. The attitude of Western and Indonesian people toward weather is also different. While most Western people seek for sunshine and enjoy outdoors activity during summer, most Indonesia reject it because they don't want to be dark. That condition makes people prefer to use a car or motorcycle, even for a shorter distance. It is a rational choice because despite its speed, they offer more protection from hot weather as well as heavy rain.

4.2.4 The Weaknesses in Planning and Control Over its Implementation

Another equally important issue is the extent that development can be controlled and managed in a way that supports sustainability objectives. Two key questions are, first, can the extent and location of development be controlled to produce a smoothly functioning compact city? Second, can that development then be managed in a way that maximises the benefits of intensification and minimises the negative impacts? There is some evident in different contexts.

In Europe, particularly in the Netherlands where very mature planning systems exist, only a very small proportion of development is illegal or informal. Planning has become very much of Dutch culture. It is conducted through a very systematic and formal hierarchy of plans, from national to local level, which coordinates public sector activities across different sectors but focus more specifically on spatial coordination than economic development. (Faludi in Sanyal, 2005). Despite its National Planning instruments, which have clear spatial dimension, every part of its cities has been planned into detail. Furthermore, there are the regulation instruments, which control or promote development. Hence, development is certainly largely controlled and directed to the desired locations. Coordination within the large bureaucratic apparatus is effective and in the same time people respect their works and believe in them (ibid).

In Indonesia, the situation is often quite different. Indonesian planning is subject of to much political and economical interference, often as part of the patronage that the electorate expects as a mater of course. Many regulations are made just for benefits of businessman of political actors (see Cowherd in Sanyal, 2005). Because of that, not so many cities have an attempt to make detailed plans and even fewer cities can implement it as it such be. In other side, higher level of plans and regulation are too general and not focus so much on spatial aspect, especially in local levels. The level of control over development varies greatly. In many cities the amount of informal development exceeds that of regulated development and land use change become normal practices. In these cases, even managing simple growth areas and infrastructure provision can prove difficult. It is hard to see how many of the compact city benefits can be achieved with this lack of control over development.

4.3 Possibilities of adoption the concept of compact city in Indonesia

In the Netherlands, the compact city is seen as the answer to the two main problems that the country are facing – fast urbanization of open space and continues increase of mobility. It would contribute to the spatial quality of both urban and rural areas. High demographic growth, urban sprawl, land and housing shortage, increasing traffic problem and air pollution, and crisis of energy that have existed in every major cities and some smaller cities in Indonesia should be managed and can be used as a reason for the adoption of this concept. Meanwhile the differences in physical and demographic characteristic, kontras in transport policies, the differences of culture and behaviour, and the weakness in planning and control over its implementation will challenge the implementation of it.

Traffic problems in Indonesian cities are mostly countered by widening or increasing roads capacity, sometimes by developing expressways, multi-decked or underground roads, all of which are extremely expensive. Financial and spatial condition usually can be constraint for this network density. A spatial planning approach to reduce the travel distance and travel needs can be used as an alternative. This is an effective and efficient approach, regarding the limited financial capacity of national and local government to do investment in infrastructure.

It can be argued that the low levels of economic development, high income inequalities, small urban budgets and shortages of environmental infrastructure, shelter and basic services in one side can be a barrier for the implementation of this policy in Indonesia. However, this argument can be reversed as the reasons to implementing this concept since it was claimed that compact city can encourage the efficiency use of resource and public service provision. Momentum of economic crisis and oil crisis can be used as trigger for promotion of this concept. Based on this view, the usage of public transport and non motorized transport should be encouraged, while restriction on the usage of private and motorized transport should be done through spatial and financial policy. Of course it should be facilitated, through making facilities scloser and provide facilities that make usage of public transport, as well as walking and cycling more comfortable. In this sense, the concept of compact city can be useful to meet those requirements.

4.3.1 The Establishment of New Cities and Housing Area

The Dutch compact city paradigm is suffered from its implicit assumption that urban administrative entities remain largely functionally self-contained, i.e. their users would be naturally inclined to organize as many activities as possible within municipal or metropolitan limits. This notion simply does not appropriate in a highly interconnected agglomeration like Jakarta-Bogor-Tangerang-and Bekasi (Jabotabek), where commutes and leisure trips across regional boundaries have become the norm.

A 'compact' new residential district at the fringe of the urbanized area with conveniently accessible from the freeway network and, served by public transport such as train or bus may appear a mobility-conscious concept, especially if the primary city provides most destinations. Unfortunately, this offers simply inferior conditions for non-car mobility on a regional scale. An alternative model like what now gaining ground in Dutch national planning policy is therefore based on supporting an urban form that reinforces existing regional movement patterns and accepts their dynamic instead of prescribing them, and facilitates such movement by public transit and non-motorized modes. Multi-modal transport nodes should become focal points of social and economic activities, reconfiguring settlement areas around them in a polycentric, network-shaped manner. This type of development can be adapted by urban agglomerations in Indonesia such as in Jakarta, Bandung and Surabaya, which grow tremendously and face severe traffics and environmental problems.

In other side, despite major and giant city which are already dense and growing tremendously, there are much more middle and small-scale cities in Indonesia. According to data from the National Population Census 2000, even though urbanization in Indonesia is still characterized by the high concentration of urban population in a few large cities, notably Jakarta Metropolitan Area (Jabotabek), the populations on the outskirts of large cities are growing rapidly, while those in core areas have a very low rate of growth. The small towns and intermediate cities on the outer islands are experiencing higher population growth compared with those in Java, which might suggest that those towns and cities are playing a more significant role in regional development. Their economic development grows significantly but still faces relatively less problems of environment. Together with the increasing number of large-scale housings or satellite cities that developed by private developers, they can be a target for the compact city project as well.

4.3.2 Urban Renewal and urban intensification

Alternative action to solve the land and housing shortage in existing urban agglomeration is by intensification of buildings. Actually, many Indonesian cities have already had the requisite density standards to make the compact city work, but they need high levels of investment in infrastructure and urban management to make the model function sustainable. Many Indonesian cities are familiar with the concept of 'ruko' (shop-house), which are almost similar to row house in Netherlands' city centers. They can be regarded as model of compact building which focuses on efficient use of land. Unfortunately, many of them are badly designed, monotonous in form, and not integrated well with its surrounding area. Whereas, they can be a comfortable living and working environment if they are designed properly.

The benefits offered by compact city to make inner city become more comfortable and livable are clear, and it is still rooms to implement it in part of those major cities. Attention to develop high density and high rise housing areas in the city centre, which have commonly tended towards commercial and office mono-structure should be increased, and should not just focused on wealthy people as what happened in major

cities in Indonesia. Older residential neighborhoods in the inner districts can often accommodate further densification if this is done in a sensible manner. On the other hand, a further agglomeration of office development in Central Business District (CBD) or CBD fringes should be restricted until the job-housing balances are reached.

Of course the concept of compact city that come from Western country cannot be implemented in Indonesia such as it be. It will need some modification and adjustment to the local condition. The different climate, weather and behavior should be considered in designing compact city in Indonesia. Because of that, it is important to make a design that fit with the hot-humid climate and also suitable for the behavior of its people that mostly reject the sunlight. In this view, the dense and compact building arrangement, equipped with comfortable connector among them seems to offer better circumstances for walking and non motorized transport.

Chapter 5 Conclusion and Recommendation

5.1 Conclusion

How we live determines our impact, but as some literature demonstrates, the relationship is complex. There is sometimes a tension between attempts to contain and direct urban life, and the socio-economic condition through which intervention takes place. In this context, compact city can be viewed as two sides of the same coin. In one side, the concepts of the compact city are claimed to be compatible with the sustainability agenda, promotes a culturally appealing, innovative and dynamic urban area, and takes active measures against socio-spatial segregation. It is also handling issues related to complexity of urban transport and land use. Conversely, compact urban areas may come to some faults. The myth of functional efficiency and assumptions about sustainable living through intensification sometimes miss the lengthening communications and growing energy needs of modern society, whatever its build form. Intensification and mix of activity sometimes come to the increasing conflict of land use and even triggering the traffic congestion and environmental problems if it is not carefully planned and well managed.

5.1.1 What is Compact City and Why Focus on It?

It is important to realize that a compact city is not just a city with high density and mix use activities, but more than that it is the arrangement of the built environment in such a way so it can reduce the need to use a motorized transportation and reduce the need of land for building. To do so, the creation of a compact arrangement and correlation of build and non-build area is a necessity. It can be achieved by intensification building and activities in urban area, build more high and compact, share open space, and create easy and comfortable connector from one building or from one activity to the others. However, the intensification in compact city has limits. It should be done in balance with the environment carrying capacity so it still can perform well. All of it is made to realize its main goals; efficient use of resource, improves environment quality, and encourages social cohesion.

While much of the professional and planning literature is truly international, it may fail to recognize local differences and particular circumstances. What works in one place, and at one time, may not transfer easily to another situation. Here, compact cities may also have to be designed with regard to the local context; otherwise high density may prove to be counterproductive in terms of sustainability or environmental objectives. For example, some ways must be found to provide and promote local outdoor pursuits, including leisure activities such as sporting and gardening, or compact city dwellers will lose the benefits of fresh air and healthy food, thus may have to travel some distance to afford it.

Among the lessons from previous explanation are that sustainability is complex, that we need to be aware of both the cost and the benefit of proposed solution, and that general compact city policy must be adapted to local condition before we are in position to assess these cost and benefits. The notion that compact cities would be sustainable by itself seems to be a naïve belief. Cities are complex systems with so many problems and actors involved. Reduced mobility for example, may not solely result from compact form but more related to the integral correlation between transport policy and urban planning. However, it was clear that there is important correlation between physical form and travel behavior. It means that every effort, for example in line with a low-traffic city, no matter how modest, is to be encouraged.

5.1.2 How it is implemented?

The momentum of a compact city paradigm may generate can only begin to be powerful enough to bring about real changes if embedded in a broader, 'holistic' policy approach. The example of Groningen and Amsterdam shows that it is not the policies as such that are the key to these sustainable developments, but rather some principles of land use and transport development directed to achieving sustainable accessibility. These principles include aiming for improved accessibility, primarily by concentrating activities; seeking ways to reduce travel distances (e.g. by the proper arrangement of activity locations); and stimulating environmentally efficient transport modes (e.g. public transport and the bicycle).

It is also important to stress that compact city concept should be interconnected with other supporting policy. Such interconnected measures include reforms of land taxes, withdrawal of subsidies to road users and peripheral homeowners, statutory planning instruments to encourage density and functional integration, municipal land banking and the creation of metro-regional governments. In order to achieve the transportation goals, integrated town planning has to address the infrastructure of all means of transport simultaneously: bicycle facilities, public transport networks, and traffic access for cars.

The conclusion that both the land-use patterns and the qualities of the transport system are relevant to sustainable accessibility is supported by evidence from the Amsterdam case. While most of the policies have been based on single considerations (i.e. improving the attractiveness of the city as a place to live in; improving public transport; encouraging people to use public transport), they have become success only as part of the way the urban patterns of Amsterdam and its region have evolved, that is, from a mono-centric city with a historic centre, into a network of centers stretching out into the region, interconnected by good public transport and well-connected to the national highway system – thus offering both businesses and people a variety of locations in which to settle.

Diverse environmental problems and structural features call for particular strategies for promoting sustainability. Rather than outlining single over-riding policy

(such as the high density compact city) for achieving sustainable cities, we must use diverse strategies and tailor the approaches and policies to individual circumstances. However, we still can learn from the success of other country and search for the possibility for adopting their approach in our setting. As reflection of the Netherlands experiences in implementing compact city, several prerequisite should exist. Among them are:

- The better circumstances and attitude toward planning
- Attention to the different context and social condition
- Design that suitable with local condition and behaviour
- Integrating land use and traffic policy
- Strong Law Enforcement
- Support from authority as well as community

5.1.3 Is it possible to be implemented in Indonesia?

Many Indonesian cities have already had the requisite density standards to make the compact city work, but they need high levels of investment in infrastructure and urban management to make the model function sustainable. High demographic growth, low levels of economic development, high income inequalities, small urban budgets and shortages of environmental infrastructure and basic services in one side can be a barrier for the implementation of this policy, but in the other side, this condition can be used as the reasons to implement this concept since it was claimed that compact city can encourage the efficiency use of resource and public service provision.

Based on the experiences in Netherlands, and compared the cities of both countries, it is clear that urban compaction achieved only through a process of intensification is wholly inappropriate for major cities in Indonesia. They are rapidly urbanising anyway, have high proportions of informal development, and lack the infrastructure and urban management structures to make the model work. This could be so, but the implementation of it in already developed, unregulated and crowded area, seems impossible in the short or medium term. Hence, another urban form or physical arrangement should be sought that might be more sustainable in this context. It may be that the 'polycentric city', or the 'linear, transport-oriented' model. Integrated compact city and transport policy that is remarkable in Netherlands cities then can be promoted as part of this arrangement. Other 'pathways' to sustainability that focused on, for examples, technological improvements and political processes are the ways forward.

However, the benefits offered by compact city are clear, and it is still rooms to implement it in part of those major cities through urban revitalization and urban renewal project. Besides of that, despite major and giant city which has already densed and grown tremendously, there are much more middle and small-scale cities in Indonesia. In line with the decentralization and economic improvement, some new administrative area will continuously emerging. Even though their economic development growing significantly, but they still face relatively less of environment problems. In other side, they need sufficient plans and regulations to manage their urban area, otherwise they will fall on the

same problems faced by most big cities nowadays. Together with the increasing number of large-scale housing or satellite city developed by private developer, they can adopt compact city approach in their city planning.

5.2 Recommendation

It is likely that the most successful policy approaches were those that are most sensitive to the local spatial realities. The different climate, weather and behavior should be considered in designing of compact city in Indonesia. The aspiration of local people as well as support from multidisciplinary profession such as urban planners, architects, landscapers, engineers, and policy makers is another important thing to be considered to make this concept applicable and acceptable. Based on the experiences in the Netherland, it is clear that this policy was supported and embedded in the broader policy; in national, regional, and municipal level. It is interesting to see that most people respect and support this policy, and use it as part of their live. We can see the compactness are practiced in many aspect; their land use policy, their building design, their transport policy, and almost in every aspect of their life. Good circumstances and attitude toward planning; policy and design that are suitable with the local context and social condition; integrating land use and traffic policy; strong law enforcement; and support from authority as well as community were the prerequisite for the success of implementation of this concept in the Netherlands.

Translated it into Indonesian context, the proponent of compact city, especially those who work as researchers, urban planners, or government officials then should make some action to promote this concept, i.e.:

- Inform the community and policy maker about the cost of sprawl through newspaper and other publication, and ask them to encourage the National and local government as well as private developer to adopt this concept, in forms of policy and action.
- Encourage further research on compact urban design that fit with local condition in Indonesia.
- Encourage urban planner and architect to use compact design in their work, and linkage their work in broader aspect of urban planning
- Campaign for the restriction of motor vehicle, while in other side support cycling and walking as more sustainable means of transport.
- Strengthening the capacity, capability and integrity in urban design and urban planning, especially for those who are responsible to make urban planning and those who assess development permit.

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