FACTORS INFLUENCING THE WALKABILITY OF KUALA LUMPUR CITY CENTRE

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DEDICATION

This thesis is dedicated to my beloved family.

Haji. Bilyamin b Haji. Sadullah, Hajjah. Halesh bt. Haji Daud,
Harmayanti, Nor Miswari, Hasifah, Siti Zaleha, Saidin Shukri,
Mohd. Masrul Mazwan Mazuki and family members.

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ABSTRACT

Walking is the most basic form of transportation which is getting less popular and lost its function as the contributing factor towards creating good social interaction and urban space. Urban spaces, such as those in Kuala Lumpur city centre have been dominated by high volume of motorized vehicle, which has subsequently caused the pedestrian space being discriminated by vehicles. Besides, the concept of "Walkable City" is able to create a walkable urban environment i.e encourage the public to walk in to the city centre. Hence, the objectives of the study are; to identify the problems that the public face to walk in the city centre; to examine factors that influence the public to choose to walk in the city centre and to assess the characteristics that make the city centre walkable. The focus of the study is only on those who does daily activities in the Kuala Lumpur city centre. As the objectives of the study implicate quantitative and qualitative data, "mixed method" is utilized for data analysis. The main data of the study is collected through questionnaire survey, while the supporting data is collected through field observation and content analysis of written documents. The sampling method of "Multistage Stratified Cluster Sampling" was utilized, comprising 400 respondents. The quantitative data was analyzed using SPSS version 18, through interpretations of the value of median, percentage, frequency and factor analysis; while the qualitative data was analyzed using descriptive analysis and self-interpretation techniques. The findings show that the psychological factor is the main influential factor towards those who walks in Kuala Lumpur city centre. However, the physical factor also plays a pivotal role in moulding the urban environment to become more walkable. As a conclusion, the Kuala Lumpur city centre will achieve the concept of "walkable city" when these two influential factors are applied.

ABSTRAK

Berjalan kaki merupakan pengangkutan asas yang semakin kurang popular dan hilang fungsinya sebagai faktor penyumbang kepada pembentukan interaksi sosial dan ruang bandar yang baik. Ruang bandar, seperti di Bandaraya Kuala Lumpur yang telah didominasi oleh jumlah kenderaan bermotor yang tinggi, telah mengakibatkan ruang pejalan kaki didiskriminasi oleh kenderaan. Sehubungan itu, konsep "*Walkable City*" mampu menyediakan persekitaran bandar yang menggalakkan orang ramai berjalan kaki di dalam kawasan pusat bandar. Oleh itu, objektif kajian ini adalah untuk mengenal pasti masalah yang dihadapi oleh pejalan kaki di pusat bandar, menilai faktor fizikal yang mempengaruhi pengguna pusat bandar untuk berjalan kaki di dalam bandar dan menilai karektor yang membuat pengguna memilih untuk berjalan di dalam bandar. Fokus kajian hanya kepada pengguna yang melakukan aktiviti harian di pusat bandar Kuala Lumpur. Kajian ini mengaplikasikan kaedah "*mixed method*" kerana objektif kajian yang memerlukan data dari jenis kuantitatif dan kualitatif. Pengumpulan data utama dilakukan dengan menggunakan borang soal selidik dan data sokongan diperolehi daripada pemerhatian di lapangan serta analisis kandungan dokumen yang barkaitan. Kaedah persempelan yang digunakan adalah "*Multistage Stratified Cluster Sampling*" yang terdiri daripada 400 borang soal selidik. Data kuantitatif dianalisis dengan menggunakan perisian SPSS versi 18. Data kuantitatif dianalisis secara interpretif dengan menghuraikan nilai median, peratusan, frekuensi dan faktor analisis. Manakala, bagi data kualitatif ianya dianalisis menggunakan analisis deskriptif dengan teknik intrepretasi. Penemuan menunjukkan bahawa faktor psikologi merupakan faktor utama yang mempengaruhi pengguna untuk berjalan kaki di dalam pusat bandar Kuala Lumpur. Namun, faktor fizikal juga memainkan peranan penting untuk membentuk kepada persekitaran yang mendorong untuk berjalan kaki di dalam pusat bandar Kuala Lumpur KL. Kesimpulannya, pusat bandar Kuala Lumpur akan dapat merealisasi "*walkable city*" apabila kedua-dua faktor tersebut dapat dipraktiskan.

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LIST OF ABBREVIATIONS

DBKL	Kuala Lumpur City Hall
JPBD	Department of Town and Country Planning
KL	Kuala Lumpur
DPN	National Development Policy
GTP	Government Transformation Program
KLCP 2020	Draft Kuala Lumpur City Plan 2020

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Walkability in this research revolves around the definitions given by certain literature. Walkability is associated with the qualities of walking area based on an individual's ability and reaction which are influenced by the psychological and perception of the physical features (Ewing *et.al*, 2006). Based on the statement, the focus of this research is to identify the problems that the public encounter to walk in the city centre, to examine the factors that influence the public in choosing to walk in the city centre and to assess the characteristics that make the city centre walkable. This research is vital in making urban space, generally, and walking environment, specifically, liveable to encourage and allow active lifestyle among the public in the city centre.

The first chapter of this research plays an important role to get a clear direction of the overall thesis structure. Therefore, this chapter is divided into five parts. The beginning of this chapter explains the research background and issues that trigger the research. The second part discusses the research agenda that is generated from identified issues and assumptions of the study. The third part briefly describes the research methodology. The next part continues with the study area, scope, limitations and significance of the research. The final part presents the overall structure of this thesis.

1.2 Research Background

All the time around the world there are people walking. Walking is the most basic form of human mobility and the traditional means of transportation. Humans have walked on earth since the beginning of time and have continued to do so until the present day. Walking plays an important role for people to meet their needs and daily activities. In rural and urban areas, people walk every day to carry out economic, social and cultural activities. Walkability not only functions as human mobility but it is also one of the transportation modes and indeed the most sustainable transportation (Banister, 2005 and Shuhana *et al.,* 2012).

In the 20th century, travel patterns have changed from the traditional mode of transportation to automobile transportation. The travel patterns in most developed countries are increasingly dependent on the car (Banister, 2005; Shuhana, 2011; Shafii and Shareh Musa, 2011). By 2001, the level of vehicle usage in the EU15 had reached approximately 629 vehicles per 1000 population (238 million vehicles for 378 million populations) which is similar to the mid-1980s level in the United States. Besides that, about 70% of all vehicles are in the OECD countries (North America, Europe and Pacific) whilst 30% are in emerging and developing countries. However, over the next 25 years, the distribution will change as the number of vehicle increases up to 75% in OECD countries and 43% in developing countries in the year 2020 (Banister, 2005). As a result, the car is therefore a city icon and it affects the urban environment in the forms of pollution within the urban heat island.

Many writings and documentaries demonstrated that the dominance of the strategic urban planning systems was based on the automobile and showed its impacts on people's lives. The urban transportation systems were then argued to become unsustainable. The issues concerned included energy saving, minimizing the instability of fossil fuel, limiting emissions, reducing noise, protecting the local and global ecology, maintaining human health, supporting safety, creating economic vitality and pursuing social equity. It is crucial to make sustainable city through liveable city (Sustainable Transportation Vision, 2006; and Why sustainable choices are smart, 2009 and Shuhana *et al.* 2012).

The transportation system was consuming energy, affecting health, contributed to drastic population increase and negatively influencing policymaking (Sustainable Transportation, 2009; Shafii and Shareh Musa, 2011). The transformation of development creates a distance to achieve sustainable development.

1.2.1 Malaysia Development in General

In the past 20 years, Malaysia has witnessed expansion and development process especially in the Kuala Lumpur city centre which is the capital of Malaysia. The city centre plays an important role especially for economic activities. The accessibility component is the main supporter in which to achieve a successful economic development, population growth, social interaction and other activities. Good accessibility in the city centre can develop more high-quality economic activities in the city centre. Since the 19th century, streets in Malaysia give more priority to the automobiles circulation (ETP, 2010). Instead of more people utilising the public transport in city centres, the opposite is true when compared to the use of personal cars (Shuhana *et. al,* 2012). People started to become dependent on the car or automobile as an alternative to move in the city centre.

As a result, in the mid-21st century, the automobile has started to become an ironic icon travel pattern in the city centre. Walking is our oldest and most basic form of transportation which is now being forgotten. Currently, people seem to prefer to drive rather than walking even for short distances.

Indeed, Malaysia has also developed more drastically in transportation development compared to the other Asian countries (Foon Weng Lian, 2010). Table 1.1 shows that the total number of registered vehicles in Malaysia according to the Malaysia Automotive Association (2010) increases over four decades.

Table 1.1: Total number of registered vehicles for Malaysia from 1980 till 2009

Year	**1980**	**1990**	**2000**	**2009**
Total number of registered vehicles for Malaysia	97,626	165,861	343,173	536,905

Source: National Urban Policy and Malaysia Automotive Association, 2010

However, there are only 10% to 12% public transportation users in the year 2009. On the same note, Dato Sri Ong Tee Keat (Minister at the Ministry of Transportation) stated that the target would be 25% in the year 2012 and 30% in the year 2015 would be made up of road users (RMK10, 2010 and ETP, 2010). The choice of travel pattern that is most popular is to use private vehicles. The problem is that they have no choice but to use public transportation (Shuhana, 2011; Shafii and Shareh Musa, 2011)

Besides that, compared to the years 1970 until the year 1980, the issues of pollution by automobile transportation system and travel pattern has become more serious in the city centre recently and especially during peak hours (Shafii *et al*, 2011 and Foon Weng Lian, 2010). As mentioned earlier, when job opportunities increase, the population, traffic congestion and pollution will also increase. In contrast however, the total public transport user gets lower.

Thus in 2010, the 10th Malaysian Plan launched a new policy which is the Malaysian Government's Economic Transformation Programme (ETP) or *"Pelan Hala Tuju Program Transformasi Kerajaan"* (GTP, 2010). The last objective of the Malaysia Plan is creating conducive environment towards improving the Quality of Life. It is significant because recently, 67 percent of the population in Malaysia live at the city centre area. This statement also stressed that Malaysia is committed to get conducive urban development and develop it in a systematic way in terms of the economic and physical growth to be in the top 20 liveable cities by 2020.

To improve the quality of life and achieve the 10th Malaysian Plan objective which is supported by the National Development Plan, the creation of a conducive and liveable urban environment with identity is carried out. It was stated in both the NUP22 and NUP26 which encouraged people walking through sustainable development to improve the quality of life and urban heat islands. It is vital to enhance the most sustainable transportation through walking in the city centre to create a more sustainable city.

In the meantime, the National Urban Development also supports in creating more liveable environment that can balance all development aspects, namely the physical, economy, social and environmental. The new sustainable development

concept begins with new focuses on sustainable transportation in terms of sustainable mobility. Walking is one of the traditional transportations that will not produce pollution as well as having many advantages to benefit people's health, social and quality of life aspects that will lead to the opportunity to reduce pollution by vehicle movement.

1.2.2 Kuala Lumpur Development

Growth in Greater KL / Klang Valley economic activities will increase total employment from 2.5 million in 2010 to 4.2 million by 2020. Additional aspirations include increasing per capita GNI from RM40, 000 to RM70, 000 per year, achieving a top-20 ranking in the EIU Liveability Index survey and growing the population from 6 to 10 million, with a focus on growing the foreign talent base from 9 percent to 20 percent of the population.

Greater KL, September 2010

The Kuala Lumpur city centre is an engine of economic growth, which serves a vital role towards attaining the national vision of a developed nation status by the year 2020. During the last two decades, the increase in population has mostly been concentrated on major conurbations, especially in the Kuala Lumpur city centre (National Urban Policy).

This is because when the 19th century technology was developed, there were various job opportunities created in the Kuala Lumpur City centre. In order to fill the vacancies, the urban population increased too. At the same time, the total number of vehicles increased as well as the urban population and houses units built in the Kuala Lumpur city centre (see Table 1.2).

Table 1.2: The Total of Population, Jobs and Units of Houses

From Year 2005 until 2020

	2005	**2020**
Population	1.6 Million	2.2 Million
Jobs	729,300	1,419,600
Units of House	464,996	626,317
Area (km^2)	**242.2**	

Source: Kuala Lumpur City Plan 2020

This situation has given rise to various urbanisation issues such as environmental pollution, traffic congestion, lack of social amenities and green areas and these affected the quality of urban living.

Based on a joint venture research between the Department of Environment and the Japanese International Cooperation Agency - JICA, Malaysia's rising carbon emission will contribute to greenhouse effects in the future (Foon Weng Lian, 2010; Shafii H. and Shareh Musa, 2011). In fact, in the year 2008, 18 million vehicles were producing about 4.9 million matrix tonnes of greenhouse gases. Table 1.1 shows the total number of registered vehicles in Malaysia which increased every year according to the Malaysian Automotive Association (2010). Indeed, based on the Kuala Lumpur City Plan 2020, there was pollution in the years 2000 until 2003 in which 81% of pollution was caused by vehicle movement (see Figure 1.1). Other pollutions were contributed by industrial activities and activities from outside of the Kuala Lumpur area. Even though recent patterns of urbanization have brought many benefits, they have also created many problems and are close to becoming unsustainable development.

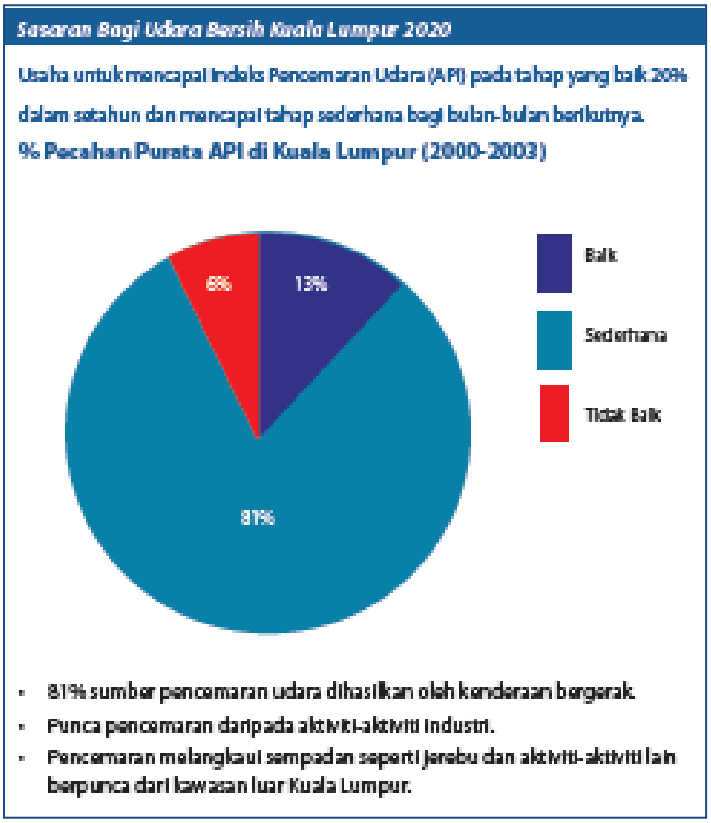

Figure 1.1: The Projection Pollution in Year 2020
(Source: Kuala Lumpur City Plan 2020)

However, these phenomena happened because the government is encouraging private transport facilities. Since the 19th Century, transportation development is always concerned with the solution of the total amount of vehicles in city centre per day such as providing more lines for private car users for convenience or providing more car parks. However, recently, the government has realised the potential transportation problems. It is not only about the transportation development but it is also related to the development of the people who live and carry out their daily activities in the city.

The Kuala Structure Plan 2020 starts to increase public transport user in future with the cooperation of other departments. The Kuala Structure Plan 2020 also concerns with the quality of environment in the Kuala Lumpur City Centre. To achieve the Kuala Structure Plan 2020 objective, the Kuala Lumpur City Plan encourages integrated land use and transportation system, mix use development, less congestion during peak hours, urban quality life and at the same time, to reduce environment pollution.

Therefore, one of the ninth Government Transformation Plan Program (2010) and Kuala Lumpur City Plan 2020 also encourages a more walkable city in the future. This is because the increased population in the cities create traffic congestion, negative impacts on the quality of life in Kuala Lumpur and to achieve a 'World Class City" through a walkable city. At the same time, the city will be more liveable and achieve sustainable development.

Although recent patterns of urbanization have brought many benefits, they have also created many development effects as people become more dependent on automobiles. As a result, walking, which is one of oldest and main transportation modes is forgotten and loses its function as urban space for human interaction. Lack of pedestrian user is identified as one of the urban design issues concerning the city of Kuala Lumpur. Drawing upon the previous statement, this research attempts to explore and evaluate factors influencing the walkability characteristics in a city centre. The significance of the research is further increased by the fact that walkability is one of the key sustainable transportation modes in improving the economic, social and cultural aspects of a city centre.

1.3 Problems Statement

There are several problems that are important to highlight on the significance of walkability in cities, such as the following:

1.3.1 Rapid Urbanisation Creates City Centre Design That Gives Little Priority for Pedestrian

Streets in Malaysia today give priority to vehicular circulation and no longer function as an urban space for human interaction (Shamsuddin et al, 2008). Besides that, according to the Government's Economic Transformation Programme or ETP (2010), the 19th century transportation development is concerned with providing solutions to solve traffic congestion such as providing more lanes in city centres. It is more related to designing cities for vehicle first and pedestrians later (Hanani, 2009; Kosmo, 2010). For example, job opportunities in the city centre create high population in the city which unfortunately encourages the "Free standing pavilion" or 'large scale' or higher floor area ratio development. Therefore, the development generates high traffic volume. At the same time, the large scale development automatically gives priority to vehicle circulation and greater profits from higher floor area ratio without concerning the pedestrian linkage between the large scale development (Hanani, 2009 and Bilyamin, 2010).

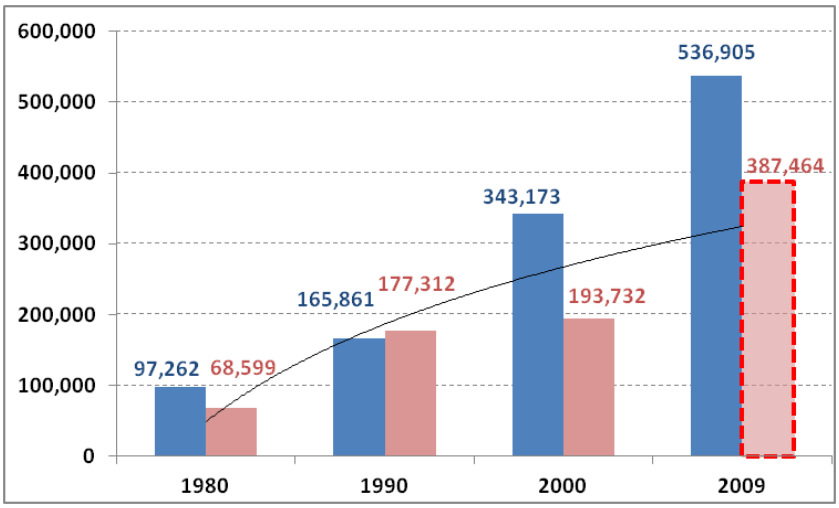

Figure 1.2: The Number of Registration in Year 1980 to 2009
(Source: Malaysia Automotive Association, 2010)

Based on Figure 1.2, the Malaysia Automotive Association (2010) mentioned that the total number of registered vehicles increased from the year 1980 to year 2009. In 1980, the number increased up to 68,599 compared to the year 1990. About 177,312 vehicles were registered in the year 2000 and 193,732 in the year 2009. However, there are assumptions that the number of registered vehicle will drastically increase up to three times in the year 2020. As a result, in the mid-21st century, automobile becomes the major transportation mode in the city centre (Berita Harian, 27 Disember 2010). The rapid growth and population growth in Kuala Lumpur city centre also has led to an increase in the number of vehicles on the street. The large number of vehicles can also lead to the streets being unfriendly to pedestrians (Shuhana, 2001). She stressed that the effects of rapid urbanization in Kuala Lumpur have compromised the priorities of pedestrian in the city centre to be more dependent on automobile transportation (Shuhana, 2010).

Significantly, this issue may affect the public health, liveable city, functions, sense of belonging and community, safe and enjoyable with a high-quality of life in a city (Walkability Checklist, 2000; Draft Pedestrian Network Planning and Facilities Design Guide, 2004; Owen N. *et al.,* 2004;Mayor of London, 2005; Southworth, 2005; Ewing *et al.,* 2006; Shore, 2006; Caterina *et. at.,* 2008; Donovan, 2008; Stoner, 2010; Taylor *et. al,* 2010; Litman, 2010).

This is because people become more dependent on automobiles even for short distances. This dependency happens since the lifestyle has changed in the middle of the last century which leads them to become more dependent on machines (Schmitz and Scully, 2006). Besides that, 38% of death related to vehicle accidents in the city centre increased in the year 2009 compared to the year 2008 (mstar, 2009). This however, seldom happens during peak hours which are between 7am-9am and 5pm-7pm.

Besides that, according to the Malaysian Health Ministry, they are encouraging people to walk in the city. Less active lifestyle becomes a critical issue when vehicle-oriented development combined with poor health has resulted in a dramatic rise in the population of overweight patients. The ministry has also launched a 1,000 foot walk per day exercise campaign (Berita Harian, 2010).

Prof. Dr. Mohamad Ismail Noor (President Club of Malaysia Obesity Research) also said that this lifestyle will affect future development because Malaysia's next generation will become a passive community and is less active in affecting the development pattern (5th May 2010). This issue cannot be solved only by the Malaysian Health Ministry itself, but it can be collaborated with the Department of Town and Country Planning, too.

This issue is also related to the location that people live and their activities (Mingguan News, September, 2010). Built environment must start focusing on new designs to eradicate inactive lifestyle. People must have a reachable destination with clear factors to encourage people on choosing to walk in a city and change to positive lifestyle.

This issue is crucial to achieve the Kuala Lumpur 2020 vision to become 'A World Class City' which highlights four principles of a world class city in terms of working, living, business environment and world class governance. Therefore, the Kuala Lumpur City Plan 2020 is moving towards 'people priority' in terms of emphasizing on the Pedestrian Priority Zone. The KL City Plan 2020 proposes a comprehensive pedestrian plan as part of the effort to increase the connectivity and mobility of people in the city. However, this can only be done if the public is willing to change their travel pattern and lifestyle in terms of choosing to walk or still dependent on automobile transportation to move in the city centre.

1.3.2 Pedestrians Being Deprived of Having Walkable Streets

Recently, there are 10 million populations in the year 2020 with focus on high value jobs in the Kuala Lumpur city centre and there are 2.2 million private vehicles in the Kuala Lumpur city centre district especially at peak times (Greater KL, 2010). Therefore, Greater KL (2010) highlighted that there are four characteristics towards a great city which are a liveable city, great people, great connectivity and the best quality of service. However, the great connectivity character only focuses on transit development. To be a great connected city, it is also vital how the transportation form will be connected to pedestrian linkage and other transportation options.

The statement is agreed by the Assessment Development Strategy Kuala Lumpur City Plan 2020 in which the main objective is to reduce private transportation users. This has not been achieved even though the Kuala Lumpur City Hall (KLCH) provides a top pedestrian network (Aniza Zainudin, 2010). The main factor of this failure is because of the lack of integrated forms of transportation and separated land use. The main land use activities in this area are shopping malls, retail shops, and business district (Kuala Lumpur Structure Plan 2020).

On the other hand, it is also mentioned that the pedestrian walking environment such as pedestrian environment is not connected well in terms of the form accessibility which is not linked to other forms, small quantity of the mix land use and building use, distance between 'free standing' which is not considered for human scale and not integrated between private and public transportation (Kuala Lumpur Structure Plan 2020).

Besides that, the pedestrian walk way is not safe and uncomfortable (Mstar, 13 September 2007; The Star; 2010). It is also not comfortable and not safe in terms of crime prevention, climate and landscape maintenance. The pedestrian is not interested as it is without creative street furniture landscape (Kuala Lumpur City Plan, 2006).

The statement is supported by Hanani (2009) and Zaly (2011) in which they argued that Malaysia is located in a hot and humid tropical zone, which means a hot and humid environment all year round. In addition, the Malaysian city centre receives heavy rainfall which also causes flash floods. The hot and humid environment also means that the Malaysian urbanites have to tolerate the sweaty, dusty and glaring atmosphere from the rain and sun. The issue regarding the local climate concerns with climatically insensitive design either in architecture or urban design. Current trends in building design and skyscrapers excessively clad in glass and steel which increase heat and glare effects to urban heat island.

City blocks with a fine grain offer more access and linkages (Bentley *et al.*, 1985; Moughtin, 2005). In contrast with the old city blocks built during the British rule, tall monumental buildings in today's Malaysian city centers offer less or no access and linkages at all. Large parking lots and dead spaces between the buildings

are also common scenarios which put less emphasis in creating a pedestrian friendly environment in the Malaysian city centre (Ahmad, 2004). This is because these spaces create opportunities for mugging and snatch thieves where there is no casual surveillance or "eyes on the street" which is essential in creating a safe walkable environment (Jacobs, 1960; Brisbane City Council, 2003; Shuhana *et al*., 2004; Office of Urban Management, 2006).

In the meantime, pedestrian facilities and access give less emphasis on ensuring the pedestrians' comfort (Hanani, 2009 and ETP 2010). This is because insufficient provisions of pedestrian facilities such as shaded walkways, bus stops, taxi stands and transit transportation expose pedestrians to elements. Likewise, street furniture such as seats, benches, drinking fountains and public washrooms which are inadequately made available or well-distributed compromise the pedestrians' comfort. Walkability in city centre is further hampered by the poor and dangerous conditions of existing pedestrian networks which are uneven, not continuous, littered with debris or obstructed by various objects (Hanani, 2009).

Indeed, the pedestrians should compete with the traffic and they find difficulties to access other pedestrian routes. It does not protect the pedestrians from the weather, poor physical condition of the pedestrian way, lack of pedestrian crossing, and poor accessibility to public transportation (Kuala Lumpur Structure Plan 2020). Highways, major roads and busy intersections become a common sight in the city although these elements, along with the large-scale buildings have created problems of severance, thus compromising the priority of pedestrians and pedestrian enjoyment while they are walking (Hanani, 2009). The environment affects their experience while walking.

1.3.3 Lack of Understanding of the Factors That Influence Walkability

The National Urbanization Policy 2006 (NUP) was formulated to increase the effectiveness of the quality of urban environment in order to create safer and attractive towns which include Kuala Lumpur itself (JPBD, 2008). One of the challenges mentioned in the NUP is inefficient transportation system which claimed that urban dwellers prefer to use private vehicles than public transports. This is because the current public transportation system could not provide competent

services which incorporate safety and comfort principles for its users. It also has failed because of the lack of connectivity between pedestrian walkway and other transit transportations (Kuala Lumpur Structure Plan 2020).

According to the Kuala Lumpur City Plan in 2006, it only mentioned walkability based on the neighbourhood concept and based on the urban village concept. However, currently the Kuala Lumpur City Plan in 2009 started to highlight on the importance of 'people's priority' in terms of being a pedestrian-friendly city. It is realized that a walkable city is important. The local government should plan a well-designed pedestrian environment to encourage active lifestyle in the city centre as well as planning not only for the city form but also considering the people's needs. These problems emerged due to poor city planning in responding to the people needs (Kuala Lumpur City Plan, 2009).

Besides that, the pedestrian environment is hostile for pedestrian needs. The pedestrian way must facilitate their needs such as pedestrian roof top along the pedestrian walkway. The lack of pedestrian facilities such as street furniture also affects the pedestrians' perceptions such as activities, comfort, safety and convenience (Kuala Lumpur Structure Plan 2020).

The Kuala Lumpur City Hall takes an initiative to build air-conditioned pedestrian walkway. In early 2012, the Prime Minister of Malaysia launched the air-conditioned walkways in two areas within a focus area which are the Kuala Lumpur City Centre (KLCC) and Bukit Bintang areas. Their lengths are 562 meters and across Jalan Pinang, Jalan Perak and Jalan Chulan for the convenience of pedestrian (Mingguan Malaysia, 2012). However, will the public in the Kuala Lumpur City Centre choose to walk in the city centre?

Based on the discussion above, there are many previous researches and documents that highlighted that the KL city centre is not ready for people to walk pleasurably and the researchers limited their focus on the street physical character (Shuhana *et al*., 2004; Shuhana *et al*, 2008; Hanani, 2009; Aniza Zainudin, 2010).

It is also found that none of the research works discussed relate to the perception of the public on the walkability factor and characteristics. Therefore, this research is more concerned on encouraging active lifestyle and sustainable

transportation especially to encourage walkability in a city. This is important because currently the public or people in the city are the main focus discussed in health and transportation researches (Ewing *et.al*, 2006, 2009; Donovan, 2009, Hanani, 2009; Steve, 2005, 2009; Shuhana, 2004; Mayor, 2005). Therefore, this study attempts to provide a complete understanding of the phenomena by research work across the urban design and environmental psychology fields.

1.4 Research Agenda

In order to achieve the research agenda, there are four aspects that must be highlighted such as the research aims, research question, research objective and research assumption.

1.4.1 Research Questions

The main research question is:

"Why is the city centre not walkable"

The sub-research questions are as follows:

Sub-Quest 1: Why do the public find it difficult to walk in the city centre?

Sub-Quest2: Why do the public choose to walk in the city centre?

Sub-Quest3: What are the features that encourage the public to walk in the city centre?

1.4.2 Research Aims

The aim of the study is to investigate the walkability factors that influence the public to choose to walk in the city centre.

1.4.3 Research Objective

There are three research objectives in this research which are as follows:

Objective 1: To identify the problems that the public face to walk in the city centre.

Objective 2: To examine factors that influence the public to choose to walk in the city centre.

Objective 3: To assess the characteristics that make the city centre walkable.

1.4.4 Research Assumption

"Kuala Lumpur City Centre becomes more walkable when the linkages are connected, the environment is safer, comfortable, pleasurable and when the uses as well as activities are enjoyable."

1.5 Research Methodology

There are five levels of study that are planned in conducting this research. The phases are;

i. Stage 1: Preliminary study
ii. Stage 2: Literature review
iii. Stage 3: Data collection
iv. Stage 4: Method of analysis
v. Stage 5: Findings and summary

1.5.1 Preliminary study

The early stage of this research is to identify the issues and problems in advance. This will determine the design of the study and the methods to be adopted when carrying out this research. In addition, the objectives and research questions are designed to guide the study.

1.5.2 Literature Review

The literature review is also known as documentary research and holds a wide range of resources and topics of discussion even on urban design itself. Therefore, there are two aspects which will be taken into consideration in regards to the literature review of this research:

i. Definition and Concept of Walkability, City Centre and Sustainability

This literature review is done by reviewing the definition written by knowledgeable experts in the field of walkability. This study will also include concepts relating to the scope of this research.

ii. Theoretical Study

This literature review is also done by reviewing the theories by knowledgeable experts in the field of walkability. This study will include theories relating to the issues of traffic congestion, unsustainable development, unsafe, uncomfortable, consideration to pedestrian needs. The study will also look into walkability factor in the Kuala Lumpur City Centre and walkability characteristics and concept of urban environment to ensure the need of public and encourage the public to choose to walk in the city centre.

According to Stephen (2004), a better urban design of cities is close to sustainable planning. Besides, Shuhana *et al.* (2010) mentioned that a sustainable city depends on transportation, economic and culture factors. Besides that, in "Creating a place more enjoyable and easy to reach by foot to cut many short trips by car, but pedestrian friendly development become more common and result is people still enjoy to drive everywhere even for a short distance" (Schmitz and Scully, 2006). Hence, the walkability concept is an implementation that encourages the citizen to have a quality lifestyle as mentioned in the KLCP2020 in which the aim is to be a liveable city.

1.5.3 Data collection

This stage involves the collection of primary and secondary data;

i. Primary Data

There are two techniques used to collect the primary data which are;

- **Technique 1: Questionnaire Survey**

These techniques will be performed by selecting 400 respondents from the Kuala Lumpur City Centre district who are involved in the implementation of the walkability concept. The selection of questionnaire respondent is focused on the public as users of the Kuala Lumpur City Centre.

- **Technique 2: Physical and Observation Survey**

An observation technique will be done systematically in analyzing the implementation of walkability concept in the Kuala Lumpur City Centre. This technique is important to allow the researcher to get an overall picture of the study area. Elements that are to be observed during the process include the pedestrian pattern, uses and activities as well as the urban morphology. For this research, the observation is recorded by using photo documentation and sketching. The data from the field observations will be culminated with other data collection techniques for comparison.

ii. Secondary Data

The data are obtained through the reading of issues related to the research. References used are the government report, plan, map, books, journals, newspapers, reports and websites. Information on the history and background of studied area, agency, walkability problem and walkability concept by the government will be gathered as secondary data. Some studies on local authorities in other countries that practice the walkability concept in their city will be selected and will be used as a comparison with the walkability study done by DBKL. Evaluation of the effectiveness of the walkability concepts by DBKL will also be determined.

1.5.4 Method of Analysis

The research involves a mixed method approach where analysis will be done on both the quantitative and qualitative data. A triangulation method and cross analysis between different techniques and the literature review will be done to identify the characteristics that influence the walkability interest. This triangulation will also establish the relationship between factors that influence people to choose to walk and walkability characteristics. There are two methods that will be used to formulate the data obtained in this study. The following techniques are;

i. Quantitative Method

This method will be analysed based on the factors that influence walkability and characteristics of walkability. This analysis will be completed by using the SPSS technique to identify the significance of this study.

ii. Qualitative Method

"Qualitative data extremely varied in nature. It includes virtually any information that can be captured that is not numerical in nature (Willian, 2006)*."*

The technique of qualitative method is used to gather the understanding of human behaviour and the reason that governs such behaviour. Data collected in this study is in the subjective form which is related to the element of understanding and effectiveness. Such technique is used by qualitative methods to analyze the data. Major categories or types to collect the qualitative data have been cited by Willian (2006) such as direct observation and written documents.

1.5.5 Findings and summary

The findings will identify the implementation of walkability factor in its relationship to a sustainable city. The findings should also gain the answer to the factors that influence people to choose to walk and key characteristics towards walkability that can influence the sustainability of the city centre design. Lastly, this study will answer whether "City centre becomes more walk able when the linkages are connected, environment is safer and comfortable in the future"

1.5.6 Operational Framework

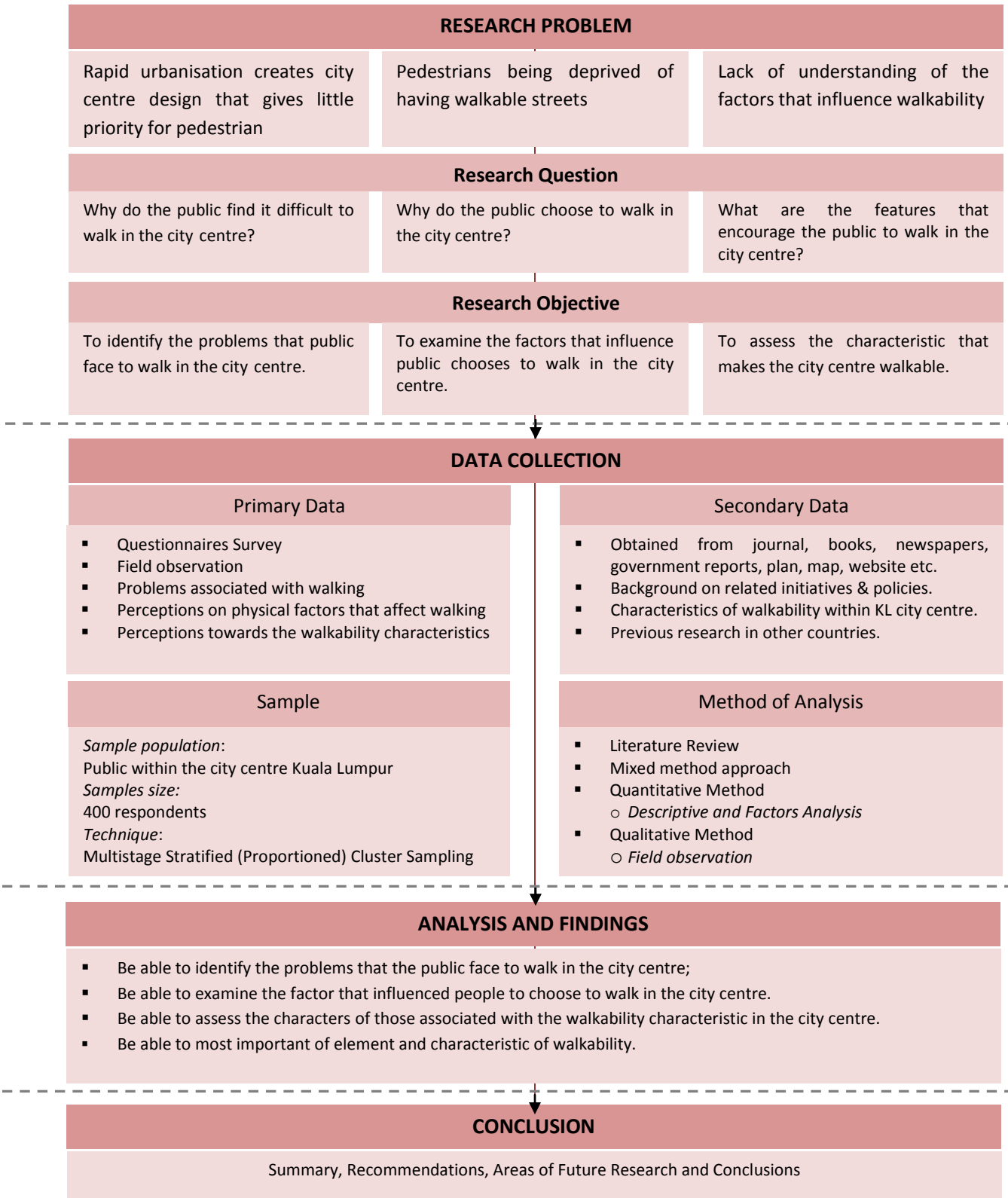

Figure 1.3: Factors Influencing the Walkability Characteristic of Kuala Lumpur City Centre

1.6 The Study Area

The study area is located in the city centre of Kuala Lumpur. It is chosen as the setting of investigation. Kuala Lumpur is the capital of Malaysia. According to the Kuala Lumpur Structure Plan 2020, the population target in the year 2020 is 2,200,000 populations with 243km^2 land area. The Kuala Lumpur City Hall has defined Kuala Lumpur into six areas which are known as strategic zones as shown in Figure 1.4. The strategic zones are; City Centre (Study Area), Wangsa Maju – Maluri, Sentul – Manjalara, Damansara – Penchala, Bukit Jalil – Seputeh and Bandar Tun Razak – Sungai Besi.

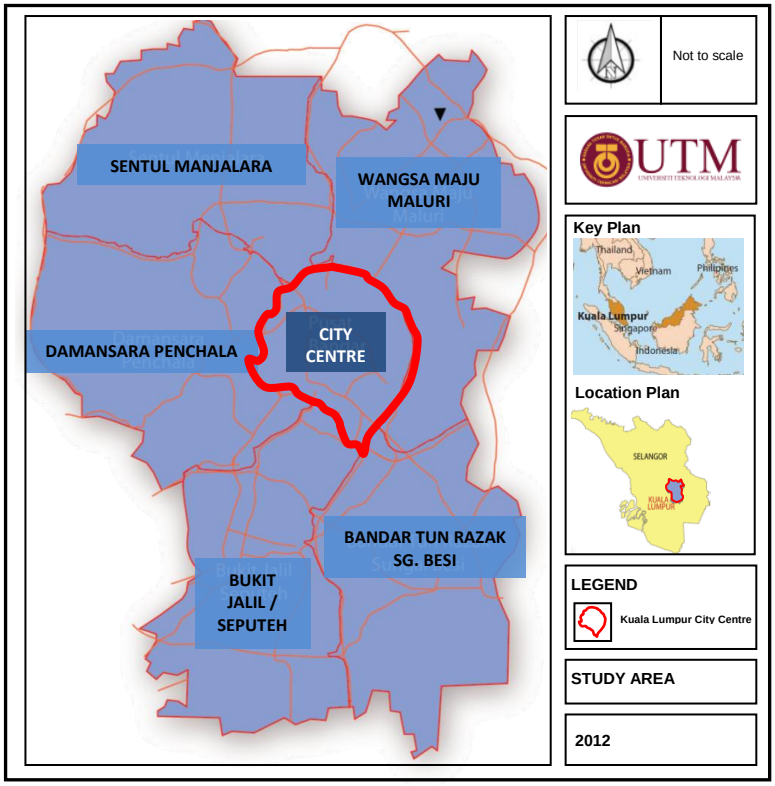

Figure 1.4: Kuala Lumpur City Centre
(Source: Kuala Lumpur City Plan 2020)

The main focus of the case study is the City Centre strategic zone with 1,813 hectare of land area and the target population by 2020 is 245,600 people. With the significant number of population and employment rate which are, 438,000 employees by 2020, traffic congestion may become a major problem if the walkability aspects are not taken into the development consideration. Due to the KLCP 2020, the vision to become a developed country by the year 2020 as liveable environment that could balance all development aspects will also serve as a factor in contributing to the success of the country.

1.7 Research Scope

The scope of the research is limited to several aspects. Firstly, the study area is only focused on the Kuala Lumpur City Centre. The area within the city centre of Kuala Lumpur has been identified as the place related to the issues and appropriate to be examined to achieve the research objective. Besides that, the Kuala Lumpur city centre is selected for case studies because they embrace a significant history and value in terms of the functional, economic, social and cultural facets of Kuala Lumpur city centre. The Kuala Lumpur City Centre contains high concentration of pedestrians and high concentration of transit transportation area. The selection of the streets is also based upon the urban revitalization initiatives dedicated to the area by KLCH (2004) and Kuala Lumpur Structure Plan 2020. The study areas and the selection criteria are further explained in a section in Chapter 4.

Secondly, the public within the city centre of Kuala Lumpur has been identified as the respondents to this research. This research is focused on the public in Kuala Lumpur City Centre who are the main users and it excluded the disabled user in the city centre. According to Dolbani (2000), there are seven types of user who used the public open space in the city centre of Kuala Lumpur namely: shopper, visitor, pedestrian, street vendor, street musician, student and fix user. In this study, the questionnaire survey is distributed to the pedestrians as users of the Kuala Lumpur city centre. This is important to show that many of them use the city centre for their daily needs and activities and they are exposed directly to the impact of development such as using their private vehicles to work, the percentage of accidents also increased from year 2008 to 2009 and the pollution is higher during traffic congestion at peak hours.

Thirdly, this research focuses on the problems that the public face to walk in the city centre. It is important to get an in-depth understanding of the publics' perception while walking in the study area and answer the first research objective.

Besides that, this research also examines the factor that influenced the public to choose to walk in the city centre. Based on the literature review, there are psychological and physical factors which are considered as main factors that influence the public to choose to walk in the city centre. The physical factors are

related to the characteristics of a walkable city. There are six physical characteristics to be considered which are the access and linkages, uses and activities, safety and comfort, and enjoyable and pleasurable that influence the factors of why people choose to walk (vice versa). The research studies the physical qualities of walkability in the city centre of Kuala Lumpur. The physical qualities are tangible factors that influence the public to walk such as measurement in terms of the distant conducive for walking, the connection form of the pedestrian accessibility and the condition of pedestrian facilities and provision of street furniture.

Lastly, the research is limited to the physical qualities of walkability for normal people who are the majority of the public in the Kuala Lumpur city centre. This was decided in order to have a good understanding of the public of the city centre whose lifestyle is exposed directly to the impact of development. The justification is that if the outcome of the study shows that the physical qualities are not walkable for the normal public to walk then, it may be more challenging for the public who are physically challenged to do so. Indeed, there are many psychological requirements to fulfil their needs in the different interpretation to walk in the city centre, so that the public will be accepted as the research respondent. Otherwise, according to the Foon Weng Lian (2010) there are many people who live in the city centre who work or carry out their daily needs and activities in the city centre.

Consequently, it is hoped that the research will be able to provide a foundation for other researchers to explore and evaluate the physical qualities of walkability especially for the physically challenged people in future research.

1.8 Significance of Research

The result of this research will benefit and assist the parties in connection with the implementation of walkable city concept in Malaysia. It also determines the factors of walkability, good walkable characteristics for Malaysians and the public in Kuala Lumpur especially those who are involved in making the walkable city a sustainable city.

1.8.1 Benefit to Kuala Lumpur City Hall

It is also anticipated that the research will be able to aid in the development and enhancement of urban design in city centres located in the tropical zone in terms of walkability particularly, Kuala Lumpur. The research looks forward to provide guidelines for Kuala Lumpur and other cities alike towards creating responsive urban design as well as bringing home new knowledge and valuables ideas on walkability. The result of this research will assist the Kuala Lumpur City Hall in improving the effectiveness of the walkability concept and walkable city using an accurate method by DBKL.

1.8.2 Benefit to the Public

The author hopes that the research will be able to contribute to urban design practice on the improvement of walkability in the city centre. Though the study of physical qualities that are conducive for walkability, the research will consequently help increase the pedestrian accessibility, comfort, safety, activities, enjoyable and the pedestrian environment as a whole. It is also vital to obtain an active and healthy lifestyle. Finally yet more importantly, the research will be able to contribute knowledge in urban design for the academic professions, urban designers and the general public. It is important to design a city for the people and based on their needs and not limited to the physical design only.

1.9 The Structure of Thesis

The research is divided into eight chapters to systematically and effectively examine the contents and data of the study and subsequently placing them into respective sections. The substantive chapters in the research are further illustrated in the following paragraphs:

a) Chapter 1: Introduction to the Study will introduce the research by illuminating the main topic of the research and questions as well as explaining the research problem, objectives and methodology. This chapter aims to deliver a clear

background of the research to the intended audiences and most importantly, to shed a light on the purpose of the research.

b) Chapter 2: Literature Review Part 1 discusses key definitions relating to the walkability, city centre and sustainable concept in relation to urban design, theories and literatures on walkability in the city centre.

d) Chapter 3: Literature Review Part 2 will look into related theories and literatures on the factors and physical walkability features. Hence, it is fundamental to test these theories in Malaysia.

e) Chapter 4: Research Methodology is a chapter on the methodology of the research. The chapter explains the reason why the methods are selected for the study and the process of data collection and analysis. The findings from the study will be presented and discussed in separate chapters.

f) Chapter 5: Case Study: Kuala Lumpur City Centre will discuss the justification on why the Kuala Lumpur City Centre is chosen as the study area in the research which is related to the Kuala Lumpur development and walkability policy that was implemented in the study area.

g) Chapter 6 and 7: Analysis is the critical part of the research stage. The qualitative data will be analyzed based on questionnaire survey and field observation technique. The questionnaire survey is the main data and field observation is used to complement the questionnaire survey. It will be culminated with other data collection techniques for comparison. The result will be presented using the computer graphic and analysis descriptive method.

h) Chapter 8: Conclusion is the concluding chapter for the research. The conclusion is made based on the findings from the literature review as well as the case studies of the Kuala Lumpur City Centre. It is also an important chapter that would answer all the problems and issues as mentioned earlier in chapter 1. This chapter is the most critical chapter of research finding that also suggests and recommends for future research.

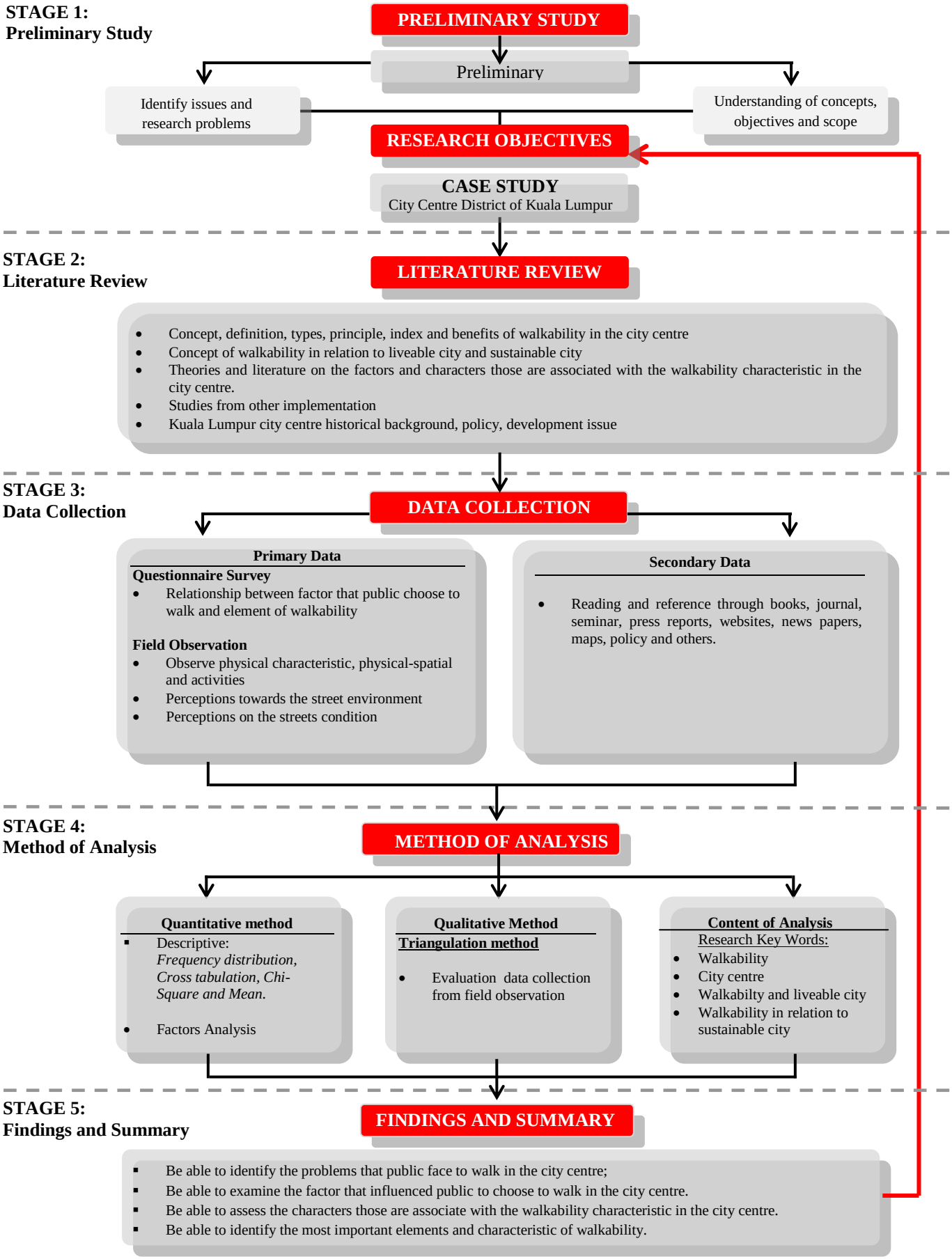

Figure 1.5: Research Structure

1.10 Summary

Generally, this chapter explains on the background of the research walkability problems which has been implemented by the Kuala Lumpur City Hall. This chapter discusses on the research problem statements, research questions, research aims and research objectives. It also includes the significance of the research, research scope and the structure of this thesis. This first chapter plays a crucial role to guide the following chapters.

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