ECONOMIC IMPACT AND USAGE OF URBAN GREEN SPACES IN KUALA LUMPUR, MALAYSIA

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By

NUR SYAFIQAH A. SAMAD

Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in Fulfilment of the Requirements for the Degree of Doctor of Philosophy

January 2019

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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfillment of the requirement for the degree of Doctor of Philosophy

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By

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January 2019

Chairman : Associate Professor Abdul Rahim Abdul Samad, PhD
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Almost half of the public urban green spaces (UGS) have been replaced with various forms of development. The quality and amenity value of UGS have slowly diminished, hence discouraging people from using UGS. This happens because the economic value of UGS is not properly valued. In order to overcome the problem of UGS loss, the government has taken numerous efforts including introducing green building (GB) practices which is mostly applicable for developers. However, only 8% out of 2,000 developers are actively involved with GB practice. Majority of them are not interested and state that GB practice is not a preferred investment for their business.

The first objective of this study is to investigate the factors influencing the use of UGS in Kuala Lumpur (KL). A total of 15 public UGS within eight sub-districts in KL were covered in this study, while structural equation modelling and socio-ecological model were used to achieve the objective. The results show that physical environment is the most influential factor in the use of UGS in KL. Therefore, urban planner should improve the physical environment of existing UGS.

The second objective is to estimate the economic value of UGS in KL using hedonic price method (HPM). In 2016, 1,269 house units were analysed. The HPM was regressed using ordinary least square (OLS) regression and geographically weighted regression (GWR). Based on the OLS regression, only five UGS (Taman Botani Perdana, Taman Rimba Kiara, Taman Datuk Keramat, Taman Ampang Hilir, and Hutan Simpan Bukit Nanas) were statistically significant with a negative sign. The marginal implicit prices for the five significant UGS were RM30,000, RM170,000, RM40,000, RM160,000, and RM90,000. Based on the GWR, all of the environmental attribute variables were significant except the size of Hutan Simpan Bukit Sg. Putih. Hence, the government should consider new policies related to quit-rent by imposing 5%-10% higher than the current quit-rent for the properties located within 1km from the UGS.

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The third objective is to evaluate the impact of GB practice on the firms' financial performance. A total of 323 firms' financial reports for the year 2015 were collected. Using propensity score matching (PSM) technique, it was found that firms with GB certificate had higher return on asset (ROA) compared to firms without GB certificate. In this case, the government could introduce new policies related to the requirements of business loan such as lower interest rate to help and encourage more firms to be involved with GB practice.

In short, this study recommends several policies to be considered by the policy makers, local authorities, and property developers particularly on the UGS management and the implementation of GB practice.

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Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia Sebagai memenuhi keperluan untuk ijazah Doktor Falsafah

KESAN EKONOMI DAN KEGUNAAN KAWASAN HIJAU BANDAR DI KUALA LUMPUR, MALAYSIA

Oleh

NUR SYAFIQAH A.SAMAD

Januari 2019

Pengerusi : Prof Madya Abdul Rahim Abdul Samad, PhD
Fakulti : Ekonomi dan Pengurusan,

Hampir separuh daripada kawasan hijau (*urban green spaces*, UGS) awam telah digantikan dengan pelbagai bentuk pembangunan. Nilai kualiti dan kemudahan UGS yang telah musnah secara perlahan menyebabkan warga bandar tidak berminat untuk melawat UGS. Ini berlaku kerana nilai ekonomi UGS tidak dinilai dengan teliti. Untuk menangani isu ini, pihak kerajaan telah mengambil beberapa langkah termasuk memperkenalkan amalan bangunan hijau yang sesuai dijalankan oleh pihak pemaju. Namun demikian, hanya 8% daripada 2,000 pemaju yang terlibat aktif dengan amalan bangunan hijau. Kebanyakan mereka tidak berminat untuk membina bangunan hijau dan beranggapan pembinaan bangunan hijau bukanlah pilihan untuk pelaburan perniagaan mereka. Perkara ini terjadi berikutan kekurangan UGS, penggunaan UGS, dan amalan pelaksanaan bangunan hijau.

Objektif pertama kajian ini adalah untuk mengkaji faktor-faktor penggunaan UGS di KL. Sebanyak 15 UGS awam di lapan buah mukim telah terlibat dalam kajian ini. Model persamaan struktur dan model sosio-ekologi telah digunakan untuk mencapai objektif kajian. Dapatan kajian mendapati persekitaran fizikal merupakan faktor yang paling mempengaruhi penggunaan UGS di KL. Oleh itu, perancang bandar harus menambahbaik persekitaran fizikal UGS sedia ada.

Objektif kedua adalah untuk membuat penilaian ekonomi UGS di KL menggunakan harga hedoniks model (*hedonic price method*, HPM). Pada tahun 2016, sebanyak 1,269 unit rumah telah dianalisis. HPM diregresi menggunakan kaedah biasa kuasa dua terkecil (*ordinary least square*, OLS) dan kaedah wajaran geografi (*geographically weighted regression*, GWR). Berdasarkan regresi OLS, terdapat lima UGS awam (Taman Botani Perdana, Taman Rimba Kiara, Taman Datuk Keramat, Taman Ampang Hilir, and Hutan Simpan Bukit Nanas) yang mempunyai kesan signifikan dengan tanda negatif. Harga tersirat bagi lima UGS awam yang signifikan tersebut ialah RM30,000, RM170,000, RM40,000, RM160,000, dan RM90,000. Berdasarkan GWR, semua ciri-ciri alam sekitar

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menunjukkan kesan signifikan kecuali saiz Hutan Simpan Bukit Sg. Puteh. Oleh itu, pihak kerajan perlu mempertimbangkan polisi baharu berkaitan cukai tanah dengan mengenakan 5%-10% kadar lebih tinggi berbanding cukai tanah semasa terhadap hartanah yang terletak 1km dari UGS.

Objektif ketiga adalah untuk menilai kesan amalan pelaksanaan bangunan hijau terhadap prestasi kewangan firma. Sebanyak 323 laporan kewangan pemaju hartanah bagi tahun 2015 dikumpulkan. Dengan menggunakan teknik kecenderungan skor hampir sama (*propensity score matching,* PSM), dapatan kajian mendapati firma yang mempunyai sijil bangunan hijau mempunyai pulangan asset (*return on asset*, ROA) yang lebih tinggi berbanding firma yang tidak mempunyai sijil bangunan hijau. Dalam hal ini, pihak kerajaan wajar memperkenalkan polisi baharu berkaitan pinjaman perniagaan seperti menurunkan kadar faedah pinjaman untuk membantu dan menggalakkan lebih banyak firma terlibat dalam amalan bangunan hijau.

Kajian ini secara ringkasnya mencadangkan beberapa polisi kepada pembuat polisi, pihak berkuasa tempatan, dan pemaju hartanah terutamanya berkenaan pengurusan UGS dan pelaksanaan amalan bangunan hijau.

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LIST OF ABBREVIATIONS

CB- SEM	Covariance-based Structural equation Modelling
CHKL	City Hall Kuala Lumpur
CSR	Corporate Social Responsibility
CVA	Completion and Verification Assessment
GB	Green Building
GBI	Green Building Index
GBIAP	Green Building Index Accreditation Panel
GDP	Gross Domestic Product
GIS	Geographical Information System
GSB	Green Building Sdn Bhd
GWR	Geographically Weighted Regression
HPM	Hedonic Price Method
IEB	Industrial Existing Building
INC	Industrial New Construction
ITA	Investment Tax Allowance
KL	Kuala Lumpur
LV	Latent Variable
MGBC	Malaysia Green Building Confederation
MV	Manifest Variable
NREB	Non Residential Existing Building
NRNC	Non Residential New Construction
OLS	Ordinary Least Square
PLS-SEM	Partial Least Square-Structural Equation Modelling
RNC	Residential New Construction
R&D	Research and Development
ROA	Return on Asset
ROI	Return on Investment
ROS	Return on Sale
ROE	Return on Equity
SEM	Structural Equation Modelling
TPB	Theory Planned Behaviour
UGS	Urban Green Space
VIF	Variance Inflation Factor

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CHAPTER 1

INTRODUCTION

1.1 Overview of Urban Green Space

Urban green space (UGS) is a connection between urban area and nature (Pietsch, 2012). It is divided into two groups known as public UGS and private UGS. Public UGS includes parks, forests, sports fields, community gardens, street trees, nature conservation areas, greenways, and any vegetation located around the urban environment. Private UGS includes private backyards and corporate campuses (Wolch, Byrne, and Newell, 2014; Roy, Byrne, and Pickering, 2012; Pietsch, 2012).

There are many benefits that UGS offer in terms of social, economic, environment, and health aspects to the community, neighbourhood, and city, both in private and government sectors, for instance better quality of urban regeneration, serve as an attractive location for business, improve property value, boost social and community development, create new jobs, create healthy lifestyle by supporting physical activities, reduce air and noise pollutions, and prevent excessive heat and natural disasters like landslide and flood (Urban Green Space Task Force, 2002)

Mohd Yusof (2012) stated that although the benefits of UGS are apparent, unfortunately almost half of the UGS in KL have been replaced by many different forms of development such as residential and commercial development projects from 1958 until 2012. Teh (1994) mentioned that Bukit Nanas Forest Reserve is one of the UGS that has been replaced with residential and commercial development projects. About 4.4 hectares at the top of the hill were cleared during the construction of KL Tower building. Currently, only about 10.5 hectares are left green. Mohd Yusof (2012) believed that this loss is a significant intrusion on what is claimed to be the only remaining patch of tropical rain forest that still stands in the middle of a city.

In 2016, City Hall Kuala Lumpur (CHKL) reported that the total area of existing green space in KL is about 1,579.56 hectares, representing 6.52% of the 243 square kilometres (24,300 hectares). By 2020, CHKL is targeted to have 2,308.6 hectares of green space. With this, at least 1,347 hectares (58% of the total green area) are categorised as "gazetted green space" which means that a space has strong formal protection against other development projects. Mohd Yusof (2012) further stated that 478.4 hectares of green space have already been gazetted in advance. This is one of the ways to redress the imbalance of KL.

In a big city like KL, people perceive UGS as a place for recreation, resting, and relaxing which could improve their health and social well-being. The existence of UGS also makes the urban people live in a nature environment where they can rest and recover from daily stress. Furthermore, in a hectic society, there is a growing need for nature as

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a source of relaxation, recreation, and stress reduction. Mass et al. (2006) proved that people who live in a greener environment within the radius of 1km or 3km have better self-perceived health than people who live in a less green environment. Nevertheless, Nor Akmar et al. (2012) stated that some KL residents prefer to visit indoor venues such as shopping complex and skateboard centre rather than UGS because the indoor venues are more comfortable and prevent them from rain, heat, and mosquito. In addition, Mansor and Harun (2014) agreed that design is another factor which discourages urban residents to use UGS. Other than that, playing equipment like swings and slides in the indoor venues are better compared to the playing equipment in UGS due to vandalism and poor maintenance (Sreetheran and van den Bosh, 2015).

As reported in the Population and Housing Census of Malaysia (Census 2010), the proportion of urban population increased by 9% (62% to 71%) from the year 2000 to 2010. Figure 1.1 illustrates the level of urbanisation in Malaysia. This increase in the Malaysia's urban population has placed great pressure on the country's urban environment, especially on its UGS. According to Sham (1993) and Sreetheran (2007), there is a strong evidence of the deterioration of the remaining green environment within Malaysian cities, as the country strives to become a developed nation.

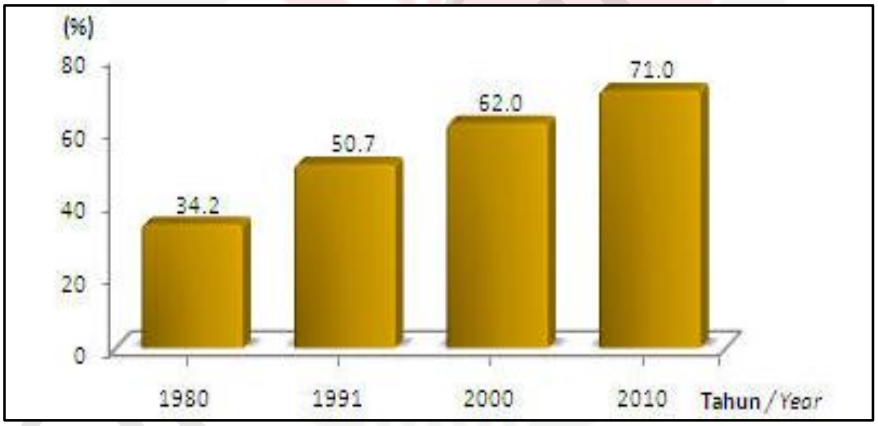

Figure 1.1: Level of urbanisation in Malaysia
(Source: Department of Statistics Malaysia, 2016)

Apart from that, the Federal Territories of Kuala Lumpur and Federal Territories of Putrajaya have the highest level of urbanisation with 100%. The level of urbanisation in Malaysia according to states is shown in Figure 1.2.

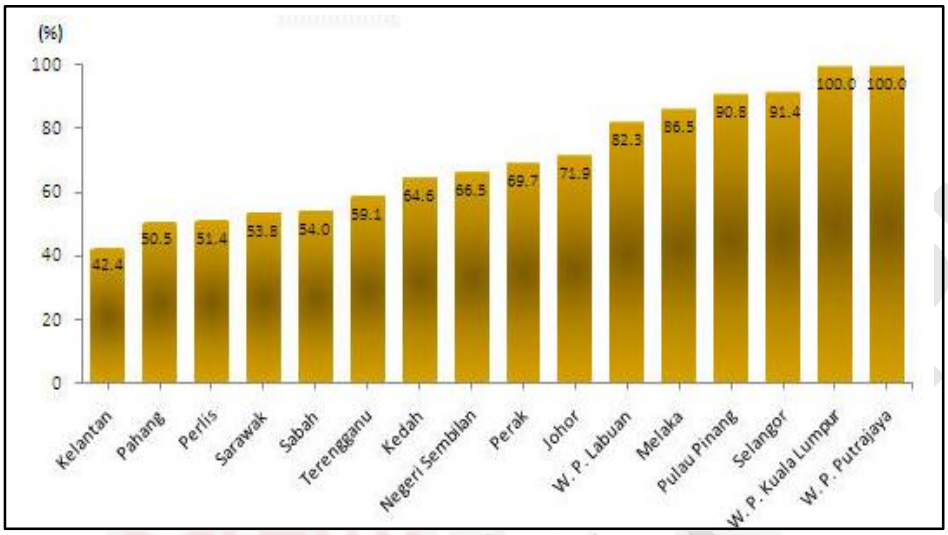

Figure 1.2: Level of urbanisation in Malaysia according to state
(Source: Department of Statistics Malaysia, 2016)

KL was also recognised as the most densely populated state with 6,891 people per square km. Figure 1.3 illustrates the population density according to state (Department of Statistics Malaysia, 2016). Figure 1.3 shows that KL is limited in area with a total of 243 square km and 1.67 million population (Mohd Yusof, 2012). At the same time, the provision of UGS is also limited. Urban environment is affected if the provision of UGS is not equally distributed. However, UGS should be protected as previous scholars outside Malaysia believed that UGS does not only benefit the urban residents but it also has high economic value (Mahan, Polasky, and Adams, 2000; Tajima, 2003; Morancho, 2003; Conway et al., 2010; Saphores and Li, 2012) which leads to economic growth. UGS also increases property value, brings many benefits to businesses, reduces air conditioning costs, and increases tourism potential (Kastelic, 2014).

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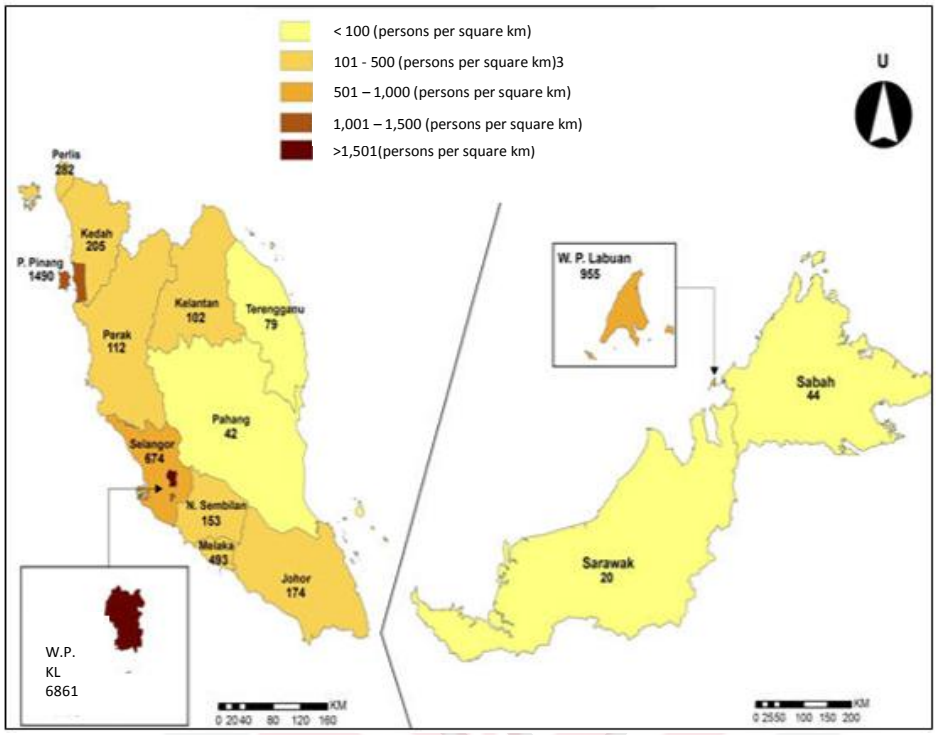

Figure 1.3: Population density according to state
(Source: Department of Statistics Malaysia, 2016)

It shows that the preservation and conservation of UGS are crucial because these spaces provide important outlets within the city. It is also important in order to make sure KL peoples have an opportunity to enjoy the benefits. Therefore, there is no reason to neglect the provision of UGS even though KL is limited in the area.

1.2 Overview of Green Building

Realising the shortage of UGS, the government has taken some efforts to preserve them. One of them is by gazetting a total of 1,347 hectares of UGS by 2020, and next is to work on green building. City planners and design professionals around the world have begun to respond to shortages of parks by adding more green spaces in the cities, including installing green roof, green wall, and pocket-park which are common in the development of green building (Byrne and Rupprecht, 2014). Singapore has practised these innovative design ideas earlier than Malaysia in 2007. The country replaces greenery loss on the ground with greenery in the sky through high-rise terraces and gardens. This adds another layer of space for recreation and gathering. Innovative design reduces the feeling of density by creating the illusion of space using green and blue elements (Kolczak, 2017).

As reported in World Green Building Council, green building is a building that, in its design, construction or operation, reduces or eliminates negative impacts, and creates positive impacts on the climate and natural environment. Green buildings preserve precious natural resources and improve quality of life. Siddhi Infracon (2013) mentioned that green building brings together a vast array of practices, techniques, and skills to reduce and ultimately eliminate the impacts of buildings on the environment and human health. It often emphasises taking advantage of renewable resources, for example, using sunlight through solar equipment, and using threes and plants through green roof, rain garden, and reduction of rainwater run-off. Plants and trees are categorised as one of the elements in a green space. It clearly shows that the green space is one of the elements needed in the construction of green building. Green Building Index (GBI) stated that firms that execute green building in their project development may apply for green building certificate. Green building certificate is a proof that firms have successfully reached the standard guidelines of green building criteria fixed by the green building council (GBI, 2016).

In 2009, a green building certificate through the green building practice was launched in Malaysia as part of the efforts introduced by the government to solve the shortage of UGS. Green building practice is a practice regarding the green space and green property building by any property developers. Any property developers that implement green building practice within the specific requirement set up by GBI are qualified to apply for green building certificate. Tony Arnel, Chairman of World Green Building Council mentioned that it is introduced as a global solution particularly for climate change and sustainable economic development issues (GBI, 2016). The building sector also consumes as much as 40% of the world's energy, in which 12% of them is water and contributes 40% of the waste to landfill. This is one of the biggest global problems. However, he also believed that the building sector could be an even bigger part of the solution.

Generally, green building is a way to maintain and provide the area for UGS since green space areas in KL are limited. UGS is designed to reduce building impact on human health and the environment. The former Prime Minister of Malaysia, Dato' Seri Mohd Najib Tun Abd Razak emphasised that the implementation of green building allows construction development to be carried out in a more environmentally friendly way to protect the urban areas (GBI, 2016). Additionally, as stated by the Chairman of World Green Building Council, green building practices can reduce operating costs up to 9%, hence increase the building values by 7.5% and rise the return on investment by 6.6%. Thus, green buildings have both environmental and economic benefits (GBI, 2016).

1.3 Relationship between Urban Green Space and Green Building

Nowadays, UGS is of growing concern due to the benefits offered by UGS in creating a sustainable city. United Nations Sustainable Cities Programme describes sustainable city as a city with balance achievement in economic, social, and environment. It is safe from environmental hazards and a form of new moral space where social values are transformed into more durable economies, social system, and environment (Whitehead, 2003).

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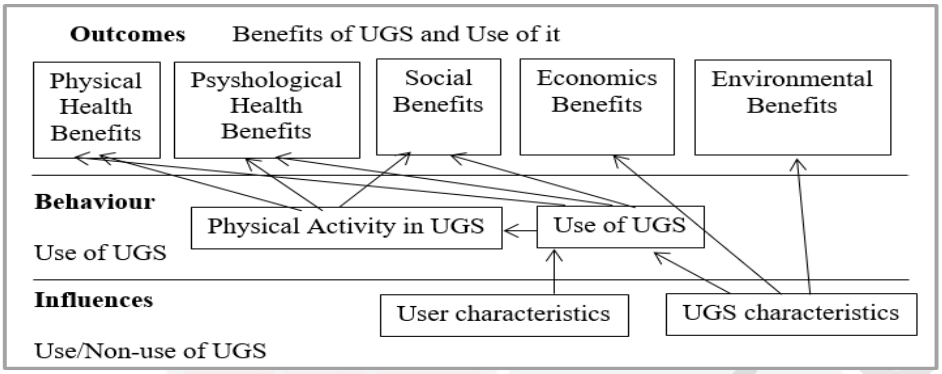

Figure 1.4: Model of the benefits of UGS
(Source: Schipperijn, 2010)

Schipperijn (2010) illustrated a comprehensive model of green space benefits to better understand the UGS benefits as shown in Figure 1.4. The model is divided into three sections. The lower section is the factors influencing the use of UGS which are divided into characteristics of the user (individual factor) and characteristics of the UGS (environmental factor). The middle section is related to residents' behaviour towards the use of UGS. The upper section represents the use of UGS and its benefits. Economy, environment, and social cohesion are the pillars of a sustainable city. All of the benefits mentioned in Figure 1.4 should be achieved to create a sustainable city. Thus, both sections, middle and lower, in Figure 1.4 are the focus of this study.

For the first paper which is the first objective, the factors influencing the use of UGS are studied and it is believed that the use of UGS offers physical and physiological health and social benefits to the urban residents. The second paper is about the economic benefits of USG. Indirectly, it contributes to environmental benefits through the economic valuation of UGS. The economic value of UGS obtained through the second paper is able to improve the awareness among all stakeholders about the importance to protect UGS.

Nowadays, KL is dominated by concrete buildings due to the increasing KL population. In this case, UGS located in KL are affected in which 50% of them have gone. However, the government has taken numerous efforts to tackle this problem, for example tree planting program, introducing new public green spaces and playing fields, mini-gardens, preservation of nature reserve and recreational facilities by gazetting the existing and planned green spaces. Other than that, the government aims to become the Most Beautiful Garden Nation by 2020 (CHKL, 2016). Mohd Yusof (2013) stated that in order to realise the government's aspiration, the vegetated areas should include and be expanded to other types of space like infrastructure corridor and residential and commercial compounds as potential green spaces with green functions.
According to Zalina Shaari (Personal Communication, Jul 26, 2016), green building is part of UGS. Green space element is considered highly in green building index (GBI)

which has four criteria namely site selection, brownfield development, environmental management, and greenery and roof. The existing green space is given 1 point. This is the environmentally sensitive area which is protected by avoiding it for building development. Building that is built on brownfield site (damaged or contaminated site) rather than greenfield is also given 1 point. Next, another 1 point is added if at least 50% of the site area, excluding building footprint, is restored with vegetation or landscape. The development footprint is 25% smaller so that more land is dedicated to green space. This is also allocated with 1 point. Lastly, 2 points are given if greenery is provided on the roof and hardscape is shaded by trees or structures. So, altogether green space is allocated with 6 out of 100 points. This is fair because green building is not just about the matters of the site. Community, human health and well-being, as well as building materials and construction are also other vital aspects.

The idea of integrating green space into some parts of residential and commercial building are closely related to green building. Fortunately, green building certificate, which is obtained through the implementation of green building practice is introduced as an alternative way which allows us to carry out the construction development in a more environmentally friendly practice. However, some developers are not interested to be involved with the green building projects because they think this practice contributes to extra upfront cost (Bradshaw et al., 2005). Therefore, for the third paper, firm's financial impact upon green building certification is studied.

Based on previous studies, it is empirically believed that any environmental practices are contributed to the environmental, social, and economic benefits. From economic perspective, the high or increment of profit obtained by developer shows that the environmental practice has a significant impact on the firm's financial performance. Thus, this study is important to prove that green building certificate has a significant impact in generating high profit. Basically, all of the three papers are related to the elements of a sustainable city.

1.4 Research Problem

The issues of this study are discussed separately for each paper. The issue of the first paper is about the use of UGS among KL residents concerning the health and social benefits. Some KL residents are not interested in utilising UGS due to several constraints, especially because of physical and environmental factors. Nor Akmar et al. (2012) found that KL residents prefer to visit indoor venues like shopping malls.

Previous studies have proven that physical and environmental factors influence the use of UGS. However, Schipperijn et al. (2010) claimed that factors affecting the use of UGS vary in different countries due to different individual characteristic, UGS features, and city structure. This study specifically observes and evaluates the factors influencing the use of UGS in Malaysia, specifically in the metropolitan city of Kuala Lumpur. It is significant for the local authorities to have accurate information about the factors influencing KL residents to use UGS.

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Next, the second paper concerns about the economic valuation of UGS. Due to rapid urbanisation, Yaakup (2005) and Gairola and Noresah (2010) indicated that about 20% of UGS have been transformed to another forms of use including residential and industrial development to cater for the population increase. Mohd Yusof (2012) also raised the similar issue in which KL has lost nearly 50% of its green spaces from the year 1988 to 2012. CHKL (2016) also recorded that KL is facing the shortage of green space especially public green space. Nevertheless, the economic aspect of UGS has not received much attention so far. Most of the previous studies in Malaysian context focused on the environmental, ecological, and social aspects of UGS (Gairalo and Noresah, 2010; Johari, 2007; Hussein, 2006; Mazlina and Ismail, 2007; 2008). In this sense, the economic benefits or values offered by UGS have not been studied, hence the reason why this study is conducted.

Finally, the third paper focuses on the financial impact upon green building certification. At the moment, some developers are unwilling to be involved in green building practice as they feel that this contributes to higher costs and risks in order to adopt with new systems or technologies (Bradshaw et al., 2005). The implementation of green building in any types of building development depends largely on the developer's willingness. Financial gain and loss concept influences developers' willingness to implement green building. Thus, this study evaluates the financial impact of green building certification to better understand the situation and obtain more information about it.

1.5 Research Objective

The general objective of this study is to examine the economics of urban green space and green building in Malaysia, while the specific objectives are as follows.

i. To determine the five factors (individual, social, physical environment, perceived environment, and relevant knowledge) influencing the use of urban green space in Kuala Lumpur.
ii. To estimate the economic value of urban green space in Kuala Lumpur using hedonic price model.
iii. To evaluate the impact of green building certificate on firm's financial performance.

1.6 Research Significance

The significance of this study covers the benefits at advantages received by all stakeholders including users, government, and private sector.

Specifically, the study on the factors influencing the use of UGS is important because the information regarding the factors influencing the use of UGS provided in this study are reflected by KL residents itself. This kind of information can be a guideline for KL city planners and urban green managers to improve the current UGS and meet the KL

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residents' demand. Hopefully, the improvement taken by KL city planners and urban green managers will encourage more people to visit UGS. Other than that, this study is also significant because the factors influencing the use of UGS might be different in comparison to other cities due to city structure. Since the factors influencing the use of UGS have never been done in KL, this study contributes largely to the body of literature.

Although it is agreed that UGS provide economic benefits, the benefits are often poorly understood in accordance with the Malaysian context. Studies about hedonic valuation of UGS seem crucial because the information regarding the economic value obtained through this study will convince all stakeholders about its value. Hence, the problem of the declining use and preference of UGS can be tackled.

Other than that, the findings of this study can be used to engage with the communities to better understand the economic value of UGS. Hence, it is expected that the public residents are interested to live nearby the UGS and willing to buy a house located nearby the UGS although the price is high. In addition, the current trend of housing development is more towards the green home building. Boey (2015) argued that developer's priority about green home building is to offer residents with a good quality of life. Over the time, residents would appreciate the benefits of green home building and look for properties with such features even the price is quite high. Due to high demand and high value, it is expected that financial return to property developers will increase. Lastly, this study is also significant to the local authorities in terms of improving and revising the green space policy. In order to make sure the implementation of this policy is smooth, regular monitoring and strict enforcement by the local authorities is equally important.

On the other hand, as reported by Yuling (2014), the green building practice through green building mission campaign (GBMC) was introduced by the Malaysian government in 2009. This program is crucial especially in KL since nowadays KL is facing the problem of the shortage of green space. Studies on the financial impact of green building certificate are pivotal due to the fact that there are developers who are not interested to be involved with green building projects because of high construction cost. Having information about the financial impact of green building certificate assists stakeholders in terms of ensuring, encouraging, and motivating developers to implement green building projects in their future property development projects.

Other than that, in economic perspective, the findings of this study can generate economic benefit specifically for Malaysia. This study's new findings in the field of green building projects will contribute to the body of knowledge because most previous studies focused on the barriers or obstacles of green building implementation, overview of green building technology, contractor's perspective about sustainable construction and initiative, and technical part of green building construction (Samuri et al., 2013; Akasah, 2011; Papargyropoulou et al., 2011; Mohd Kamar et al., 2011). None of them focused on the financial impact upon green building certification.

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1.7 Scope of the Study

For the first and second papers, the studies are conducted in KL. The city is chosen due to its rapid urbanisation compared to other cities in Malaysia. The main consequence of this rapid urbanisation is that KL has lost its green space over residential and commercial development projects. This is a common issue in the world's major cities (Webb, 1998). Furthermore, due to the high population in KL, the existing UGS are threaten and under pressure. Researcher believes that this situation should not be happening because it is well understood that green space offers various benefits. In this case, urban environment will be greatly affected if the UGS are not preserved. By conducting this study in KL, it helps the city planner to redress this imbalance and develop comprehensive planning in managing UGS for public use.

For the third paper, this study is conducted in five states, namely Kuala Lumpur, Selangor, Johor, Perak, and Pulau Pinang. The five states are chosen because most of the green buildings in Malaysia are developed by property developers there.

1.8 Organisation of the Study

This thesis studies green urbanism in Kuala Lumpur. Chapter 1 presents an overview of UGS and green building practice, as well as the link between UGS and green building practice. Chapter 2 discusses the literature review of the study, while Chapter 3 analyses the first title which is the discussion on the factors influencing the use of UGS in KL. Next, Chapter 4 investigates the second title which is related to hedonic valuation of UGS in KL, and Chapter 5 discusses the third title which is the impact green building certification has on firm's financial performance. Chapter 3, Chapter 4, and Chapter are structured in the following sequence: introduction, methodology, result and discussion, and conclusion and policy recommendation. Finally, Chapter 6 contains the summary, conclusion, and policy recommendation.

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