



UNIVERSITI PUTRA MALAYSIA

***INVESTIGATING USAGE AND CONSTRAINTS OF GREEN OUTDOOR
ENVIRONMENT AT WORKPLACES IN KUALA LUMPUR, MALAYSIA***

MARIA ARLENE JACKAN ANAK SIBA

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By

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**Thesis Submitted to the School of Graduate Studies, Universiti Putra
Malaysia, in Fulfilment of the Requirements for the Degree of
Master of Science**

June 2020

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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in
fulfilment of the requirement for the degree of Master of Science

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Chair : Sreetheran Maruthaveeran, PhD
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Green outdoor environment (GOE) is a dynamic infrastructure to an urban area and part of the city's ecosystem. Although numerous studies have been carried out on GOE, there is still lacking of information on GOE and its relationship in term of benefits and usability by office employees. Whilst Kuala Lumpur has many different types of urban green space, this study focused on the use and preferences of selected five GOE within 0-1km from workplaces in Kuala Lumpur city centre zone (CCZ) and survey conducted among N=326 respondents consisting of office employees within the area. This study presented results on an extensive scope of GOE-related issues at the workplace and visits to the Kuala Lumpur CCZ office employees. It provided details on the characteristics of the visitors, what motivates them to visit (or not visit) and what they do once there, the duration of their stay and what they see as important attributes in terms of being able to spend time at GOE and the satisfaction of the overall quality of GOE. This study also allows GOE at workplaces in the Kuala Lumpur CCZ to be developed according to the visitors perspectives and meeting the needs of its visitors. The respondents relate their concerns about the location of GOE at workplaces in the Kuala Lumpur CCZ, accessibility, quality of the environment and other personal issues like hectic working hours and health issues. By determining the function of GOE, we can identify any potential of GOE in Malaysian context despite its small size and maximise the use of GOE in the Kuala Lumpur CCZ as an urban space that can provide green, healthy, inclusive, open and public spaces for the citizen of Kuala Lumpur.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia
sebagai memenuhi keperluan untuk ijazah Master Sains

MENYIASAT PENGGUNAAN KAWASAN HIJAU LUAR TEMPAT KERJA SERTA KEKANGAN DI KUALA LUMPUR, MALAYSIA

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Persekitaran luaran hijau (GOE) adalah infrastruktur dinamik di kawasan bandar yang merupakan sebahagian daripada ekosistem bandar. Walaupun banyak kajian telah dilakukan di GOE, masih terdapat kekurangan maklumat mengenai GOE dan hubungannya dari segi faedah dan kegunaan oleh pekerja pejabat. Walaupun Kuala Lumpur mempunyai pelbagai jenis ruang hijau bandar, kajian ini menumpukan pada penggunaan serta lima GOE terpilih dalam lingkungan 0-1km dari tempat kerja di zon pusat bandar Kuala Lumpur (CCZ) dan tinjauan yang dilakukan di kalangan N = 326 responden yang terdiri daripada pejabat pekerja di kawasan itu. Kajian ini membentangkan hasil pada ruang lingkup isu berkaitan GOE di tempat kerja dan lawatan ke pejabat pejabat CCZ Kuala Lumpur. Ia memberikan perincian mengenai ciri-ciri pengunjung, apa yang mendorong mereka untuk berkunjung (atau tidak berkunjung) dan apa yang mereka lakukan sekali di sana, tempoh penginapan mereka dan apa yang mereka lihat sebagai sifat penting dari segi dapat menghabiskan masa di GOE dan kepuasan kualiti keseluruhan GOE. Kajian ini juga membolehkan GOE di tempat kerja CCZ Kuala Lumpur dibangunkan mengikut perspektif pengunjung dan memenuhi keperluan pengunjungnya. Responden menyatakan kebimbangan mereka mengenai lokasi GOE di tempat kerja di CCZ Kuala Lumpur, kebolehcapaian, kualiti persekitaran dan masalah peribadi lain seperti waktu kerja yang sibuk dan masalah kesihatan. Dengan menentukan fungsi GOE, kita dapat mengenal pasti potensi GOE dalam konteks Malaysia walaupun saiznya kecil dan memaksimumkan penggunaan GOE di Kuala Lumpur CCZ sebagai ruang bandar yang dapat menyediakan ruang hijau, sihat, inklusif, terbuka dan awam untuk orang awam khususnya di Kuala Lumpur.

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LIST OF ABBREVIATIONS

GOE	Green Outdoor Environment
CCZ	City Centre Zone
DBKL	Kuala Lumpur City Hall
NIOSH	National Institute for Occupational Safety and Health
CCTV	Closed-circuit television
SEM	Socio-ecological Model
CDC	Centers for Disease Control
WHO	World Health Organization
ANOVA	Analysis of Variance
C	Celsius
F	Fahrenheit
km	Kilometre
m	Metre
B40	Bottom 40 (household income)

CHAPTER 1

INTRODUCTION

1.1 Introduction

In Chapter 1, a background of the study will be discussed together with the objective of the study. This section also focuses on why this particular study is needed in the problem statement and explains what this study wants to discover or accomplish. In this chapter also, the research questions and objectives are posed. With a clear significance of the study, it becomes focused and will provide a broad statement as to why the study is important. Two hypotheses are postulated to draw conclusions about the study. Finally, the study limitation will be explained towards the end of the chapter.

1.2 Study Background

Work-related stress was previously measured as a concern mainly in the developed countries, but now the concern is also growing in developing countries caused by globalisation and the changing nature of working environment (World Health Organization, 2007). As reported by European Agency for Safety and Health at Work (2011), about 50-60% of all absenteeism among office employees is associated with stress. Therefore, it is one in every of the foremost significant health and safety concerns among European organisations. Work-related stress is seen worldwide as a challenge for employees' well-being and their organisations and was found to affect an individual's psychological and physical health, as well as organisation's efficiency (World Health Organization, 2011). Not only it shown a major cost in terms of human distress, work-related stress also may decrease economic performance of the organisation. A study on work-related stress found that something that causes a state of strain or tension were reported at workplace more often compared to other potential stress causes. Therefore, it was concluded that study on work-related stress is significant in efforts to reduce daily stress levels (Mazzola, Schonfeld & Spector, 2011).

In contradiction of this context, that is why the topic is a great concern to individuals, companies and communities (European Agency for Safety and Health at Work, 2000). Hence, encourage the management to allocate resources for stress management programmes in an organisation (Goetzel & Ozminkowski, 2008).

Rather than addressing on the environmental psychology of work environments (Van der Klink *et al.*, 2001), present-day stress management programmes at workplaces mainly focus on psychosocial issues.

A workplace never resides in isolation, and hence in the workplace employees experience both psychological and social conditions which often called psychosocial work environment. Psychosocial work environment has become a continuous component in studies of occupational health and stress and encompasses concerns on risks which generate from the psyche perceptions of individuals in accordance with the risks of societal environment. Nonetheless, there are also a few researches that suggest the physical environment has a role linked to the stress level of office employees. (Vischer, 2007; Rashid & Zimring, 2008).

In Malaysia, it was found that workers are overworked and sleep deprived, with 50.2% suffering from at least one aspect of work-related stress and 54.4% sleeping fewer than seven hours in a 24-hour span. This survey also highlighted that 32% of employees reported suffering from one or more chronic diseases (such diabetes, heart disease, stroke and high blood) and 85% of employees are at risk of musculoskeletal health problems. Aside from work, 20% of Malaysian employees reported about their financial concerns are an issue in the country (AIA Vitality Survey, 2019). The developed and developing world is facing a health crisis of alarming proportions as physical inactivity, obesity and mental illness increase (Thompson, Aspinall & Roe, 2014). Malaysia is no exception when the Institute of Health's Second Burden of Disease Study for Malaysia in 2012 singled out high blood pressure, smoking, diabetes, high cholesterol and overweight/obesity as the biggest contributors to disability and death in the nation.

Considering the serious implications of stress at the workplace, organisations need to consider work-related stress and psychosocial risks as part of their safety and health strategy (NIOSH, 2008; Kortum, Leka & Cox, 2010). In North America, workplace health promotion programmes are common compared to Europe and Asia Pacific regions (Cigna, 2014). Although numerous researches have been carried out on workplace wellness programmes in the Western countries for example in the United States of America (Mattke, 2013), however there is still a lack of information on the importance of workplace wellness programme particularly in Asia context, for example Kuala Lumpur City Centre Zone (CCZ). Additionally, there is no specific legislation that provides wellness programme requirements for companies in Malaysia (The Isosceles Group, 2017).

1.3 Problem Statement

In recent years, there has been considerable and increasing attention of the green outdoor environment (GOE) at workplaces as a setting for health promotion (e.g. Largo-Wight *et al.*, 2011; Lottrup *et al.* 2012; Lottrup *et al.* 2013; Lottrup *et al.* 2015; Gilchrist *et al.*, 2015; Jung, Woo & Ryu, 2015; Colley, Brown & Montarzano, 2016; Mangone *et al.*, 2017).

However, the employees' level of stress influence by the outdoor environment at workplace has mainly been disregarded, although the relationship between access to GOE and an extensive range of empirical evidence supports human stress in other contexts (e.g. Nielsen & Hansen, 2007; Stigsdotter *et al.*, 2010). Contemporary stress management programmes at workplaces typically focus on psychosocial factors, and do not address the growing body of research on the environmental psychology of workspace (van der Klink *et al.*, 2001). Therefore, office environment is significant in order to develop healthy office workers which can influence their behaviour, productivity, attitudes, performance and commitment (Dole & Schroeder, 2001).

Despite the potential benefits gained from the GOE, there is some evidence that suggests large numbers of the urbanites spend little or no time in GOE thus excluded them from all its maximum benefits (Lee, Scott & Floyd, 2001; Dallimer *et al.*, 2014; Lin, Fuller & Shanahan, 2014; Kabisch, 2015; Braubach *et al.*, 2017). For instance, urbanites are found to seldom or never visit GOE for recreation which include those who are living in less developed areas (Astell-Burt, Feng & Kolt, 2013), and are often the specific groups (e.g. lower income individuals) that may benefit the most from greater exposure to the natural environment (Mitchell & Popham 2008; Coldwell & Evans, 2018; Nesbitt *et al.*, 2018). Additionally, a study by Nesbitt *et al.* (2019) also highlighted that research on urban green equity need to be more prominent topic in the urban forestry literature to build solid future green equity considering spatial distribution of urban vegetation and recognising urban vegetation in decision making (Sandberg *et al.*, 2015; Nesbitt *et al.*, 2018). A study proved that most people staying in urban area or dense cities have become detached from nature (Pescharadt, 2014) as well as physically inactive (Martinez-Gonzalez *et al.*, 2001) which have led to stress-related illness. Hitchings (2013) has coherently argued that relatively less research of any scale has been conducted into trying to understand well why individuals in these groups, or individuals more widely, do not use these spaces for recreation.

Even though GOE are proven beneficial to the users and encourage mental well-being (e.g. Kaplan, 1993; Grahn & Stigdotter, 2010; Van den Berg *et al.*, 2010; Bowler *et al.*, 2010; Gilchrist, Brown & Montarzino, 2015; Elsadek *et al.*, 2018; Simkin, Ojala & Tyrväinen, 2020), a survey conducted by Herbalife reported that majority of Malaysia's workforce (86%) exercise less than three times a week with seven out of 10 workers getting less than 30 minutes of physical activity a day at their workplace which makes Malaysia the fattest country in South-East Asia (Institute of Health's Second Burden of Disease Study for Malaysia, 2012). Moreover, a study conducted in Malaysia believed that a high quality of green open space is part of essential indicator to a sustainable city, which conforms to liveable city aspiration, human social and psychological needs (Malek & Nashar, 2018).

Also, it was claimed that even though Malaysia has developed parks, but they hardly have people visiting them. This situation signals that people are still not aware or unnoticed on the benefit of GOE as a significant health promotion

asset that can improve the urban quality of life scattered around the city (Hashim *et al.*, 2019). Additionally, Kuala Lumpur City Hall (DBKL). Undoubtedly, the results confirm that the frequency of visiting GOE influenced by gender and occupation. Between genders, it was found that male visited GOE more than once daily (n=122, 67%) compared to female office employees (n=48, 33.3%) but with shorter time. In line with other research in Malaysia, it was also suggested that there were many limitations on women's attachment to recreation parks, such as cultural values (Abdullah *et al.*, 2008), domestic responsibilities, physical capacity, lack of transportation to recreation facilities and the lack of availability of such facilities and space (Abdul Aziz, 2006; Minhat, 2014), security issue (Minhat, 2014), career obligation, tiredness, distances to travel and commitments with family (Ishak, 1996).also stated that community facilities such as local and neighbourhood green spaces are adequately provided, but they are under-utilised (DBKL, 2004)

1.4 Research Questions

With these issues in mind, some research questions that need to be answered in this study:

- i) What type of activities do office employees in the Kuala Lumpur CCZ at GOE near their workplaces?
- ii) What are the constraints of not using GOE among office employees in the Kuala Lumpur CCZ?
- iii) What are the recommendations to improve the quality of GOE at the workplaces based on office employees' preference for GOE characteristics?

1.5 Aim of the Study

In addition to discussing the importance of theories and theoretical frameworks in research, the aim in this study is to investigate the usage, constraint and preference of GOE at workplaces by office employees in the Kuala Lumpur CCZ.

1.6 Objectives

Against the background, the research questions this thesis seeks to answer are as follows:

- i) To identify the usage of GOE by the office employees the Kuala Lumpur CCZ based on gender.
- ii) To determine the associated constraints of GOE the Kuala Lumpur CCZ by office employees based on gender.
- iii) To recommend the strategies to improve the quality of GOE at workplaces the Kuala Lumpur CCZ.

1.7 Hypothesis

This study will validate two hypotheses for future verification:

H_0 : The socio-demographic variables difference is significant with the GOE usage by office employees.

H_1 : The socio-demographic variables difference is not significant with the GOE usage by office employees.

1.8 Study Significance

In the late 2014, Malaysia has been involved with the development of the Sustainable Development Goals (SDG), the 2030 core agenda in sustainable development which have 17 Goals and 169 Targets to achieve three dimensions namely social, economy and environment. One of the main goals is providing universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and person with disabilities by 2030 (Goal 11: Sustainable cities and communities) and promote mental health and well-being (Goal 3: Ensure healthy lives and promote well-being for all at all ages). This is why green outdoor environment (GOE) is a vital infrastructure to an urban area and part of the city's ecosystem. As the city expand and getting denser, a better utilisation of the spaces that are available to incorporate public spaces such as GOE with the increasing population of urbanites is essential. This is particularly relevant in Kuala Lumpur CCZ, where social and ecological components, including outdoor environment such as GOE is under pressure associated with urbanisation (Willemse, 2010). Hence, this study is important to justify the importance of GOE for urbanites despite its small size. Moreover, very limited studies have been conducted on specific group (i.e. office employees) on GOE usage in Kuala Lumpur CCZ, hence the results were reflecting on the general population (Nor Akmar *et al.*, 2012; Sreetheran, 2017). Consequently, there is a need to understand the usage, preference and constraint of GOE by different group of GOE users which will direct the design and management strategies of urban GOE (Johnston & Shimada, 2003) in Malaysia as well as to enhance the current policy on urban green spaces. Furthermore, the theme of the 11th Malaysia Plan (2016-2020) is focusing on "Anchoring growth on people" which visualise Malaysia as a developed country with economic, spiritual, cultural dimension. It shows that the people are a valuable asset to the country to ensure the prosperity of Malaysian industry in the future (e.g. office employees in Kuala Lumpur CCZ). Since the society in Kuala Lumpur is pluralistic, it is important to plan and meet the needs of each group.

This study will fill the gap and to provide the diverse group of urbanites with a livable, sustainable, good network and safe city with more natural landscapes, in line with the New Urban Agenda (NUA) - a framework that lays out how cities should be planned and managed to best promote sustainable urbanisation.

1.9 Study Limitation

The limitation of this study is the target participants may not represent the general population of office employees in the Kuala Lumpur CCZ since the sampling only targeted a specific group at a specific location. Other than that, the green outdoor environment (GOE) definition in the study deviates from the general understanding of “green” features of outdoor environment. For this particular study, it was an access and utilisation of GOE for its biophysical features and aesthetic values to the visitors’ enjoyment were assessed. Therefore, the effectiveness of GOE as sustainable and green infrastructure such as thermal benefit and storm water control were not measured in this study.

1.10 Theoretical Framework

A conceptual framework provides a narrative and sometimes a visual structure depicting the logical connections among key elements of the theory, constructs, and/or phenomenon of interest. Therefore, below is a framework to illustrate how green outdoor environment (GOE) related to the behaviour of using GOE (frequency, activity, time spend and company) and factors based on the Socio-ecological model (SEM) approach (personal factors, social factors, physical environment factors and perceived environment factors):

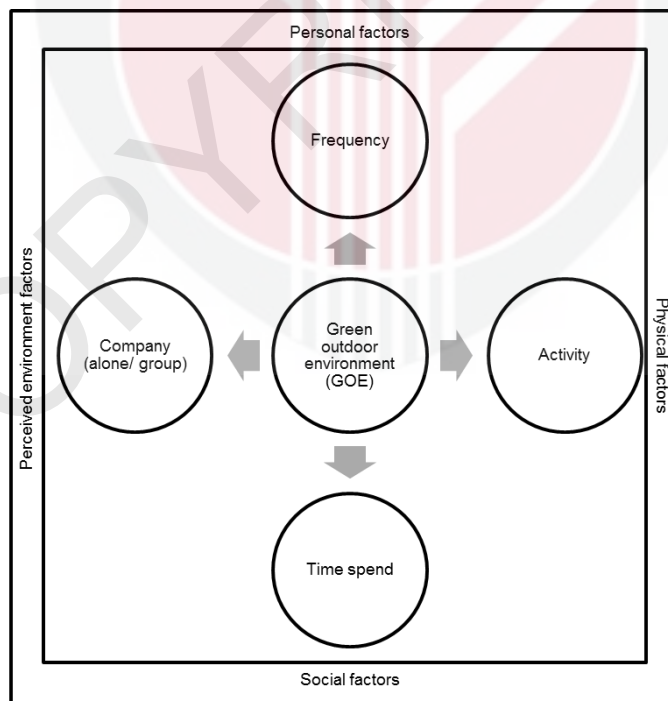


Figure 1.1: Overview of the Theoretical Framework

1.11 Organisation of the Thesis

The thesis is divided into five chapters consist of Introduction, Literature Review, Research Methodology, Analysis and Findings and finally, Conclusion and Recommendations. The information for each chapter is stated below:

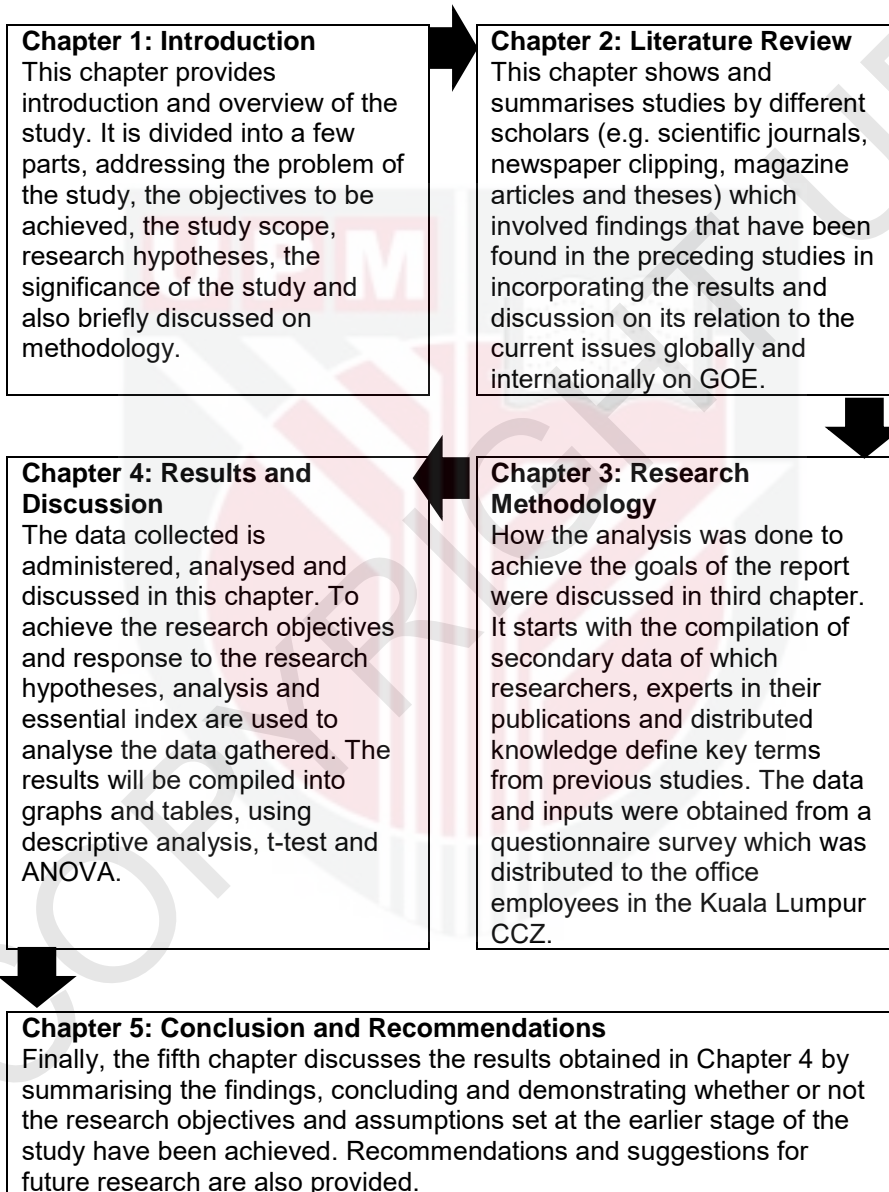


Figure 1.2: Diagram Presenting the Organisation of Thesis

1.12 Summary

The first chapter of this thesis opens with the background of the study and further describes on work-related stress which is main concern in the field of work-related safety and health. However, the employees' level of stress influence by the outdoor environment at workplace has mainly been disregard, although the relationship between access to green outdoor environment (GOE) and an extensive range of empirical evidence supports human stress in other contexts (e.g. Nielsen & Hansen, 2007; Stigsdotter *et al.*, 2010) and why the urbanites are getting disconnected from outdoor activities and socialisation (Said, 2010).



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LIST OF PUBLICATIONS

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