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SUSTAINABLE DESIGN GUIDELINES FOR URBAN PARKING AREA

By

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**This topical study report is submitted in partial fulfillment of the Bachelor of
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Abstract

As the city is the meeting place for many people where they can perform their activities economically and intellectually, people started to realize the importance of putting parking area in the urban setting. Locating the parking area in the city center need a thorough study since the city faces with tremendous growth of buildings and lacks of open spaces. In addition, most city dwellers nowadays can afford to have cars and prefer to use their own cars instead of the public transportation system. Hence the city becomes congested with private cars and the situation becomes worse reaching festive seasons. The city will filled with cars and parking areas are insufficient to cater the sudden increase and demand of parking lots.

Since the city has big population of people living in, many facilities need to be provided. The existence of parking area somehow being neglected and the conditions of the place are not very sustainable, especially when the parking lots are authorized by the private sectors.

Hopefully, through the study that were carried out, the findings could highlight how the urban parking areas have to be in future so it can resolve the existing insufficient problems of parking areas. The development of parking areas in urban center not only to fulfill the users' demands but also to provide sustainable designs for public use.

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Chapter One

1.0 Introduction

1.1 Introduction

Chapter I introduce the topic to be studied, emphasizing information based on the goal and objectives of the research topic. At the first stage, the background of the selected topic is set up to give clear understanding about the study. The research issues of the topic are then highlighted in order to strengthen the objectives of the study before the data being collected. The chapter discusses the approach that has been used in the research. The structure of the research design shows the flow of the research processes, which will be divided into three different stages.

1.2 Research Background

As the town is the paramount meeting place for the intellectual and economical activities of a large area or a whole country, parking area becomes an important element in public places. The word parking traces its origins to the Medieval Latin word *parricus*, meaning an enclosure (Oxford English Dictionary). The parking areas are not indicative of the health and character of the cities, but also critical components that constrain and sometimes dictate the form of buildings and streets or roads. Fundamentally, the construction of the parking area needs typical zoning code requirements whereby developments of buildings are varied. The parking area existed during the auto century that evolved due to the rise of the automobile industry and the socioeconomic impact of the road (Flink, 1990). Automobile parking is an invasive new thing in the 6000-year history of the ecosystems called cities. There are some

precursors of the elements and parking has undergone at least four generations of adaptation.

The wheeled vehicles were an important element of early cities. A depiction of a cart found in Ur in Mesopotamia dates from 3000 B.C (Miller 1988) and archaeological digs show that the street corners in Ur were rounded to facilitate turning (Kostof, 1995). At the very beginning, from the birth of the city until the end of the nineteenth century, pedestrians dominated the use of the street, and walkways frequently occupied by as much as half the right- of- way of nineteenth century eastern seaboard city streets (Pushkarez & Zupan, 1975). The use of public place was an essential part of the city and the invasion of vehicles was then strongly resisted. In 1868, Frederick Law Olmsted proposed parkway, a street for the exclusive use of carriages. The parkway provide fast access across the town due to the number of cross streets that was limited and banned all the access for trolleys, bicycles and other traffic. The city owned park on both sides of the street prevented adjacent property owners from having the right of access because they did not abut the street (McShane, 1994). The parkway and the rise of the early suburbs initiated the transformation of the city street from a social place to vehicular space. The bicycle craze reinforced the vehicular use of the street and provided the technological and entrepreneurial resources for the refinement of the automobile. The infrastructure needed for the carriage provided the environment for the emergence of the automobile (Child, 1999).

Entering the new era, the parking area extended the importance of their existence since the lifestyle of people and the use of vehicles in the city increased. The urban

parking space became limited as the city having massive development of buildings and the space for parking was quite demanding.

1.3 Goal

- To study the guidelines of the parking area which is sustainable in design

1.4 Objectives

- To identify what parking area is, the evolution of parking area and how it was implemented during the early stage
- To identify the problems, which are not being aware by the public while parking their vehicles in public places
- To propose the existing parking area with sustainable design which suit with its environment
- To study the new technology of constructing sustainable parking area as an alternative to fulfill demand of the users

1.5 Problem Statements

The spaces for parking purposes are quite demanding nowadays when more and more people are using their own cars as their main transportation. This situation occurs when people realize that it will be more comfortable and convenient using their own cars rather than waiting for the public transportation and sometimes they have to take many buses or other public transportation available to reach their destinations. But, to

bring their vehicles is not as easy as many people thought. It is because the users have to think wisely and well plan where to park their vehicles when they arrive at the places especially at the centre of a shopping area. Some shopping buildings did not provide any parking area, as the spaces are too limited. The parking area that is available at the shopping complex somehow can only afford for a certain number of vehicles. Besides in the building, there are also parking area that are permitted at the open areas. Most of the parking area charge on certain amount of fees to the users as for maintenance purposes. However, some of the parking areas are not well organized and maintained. The condition of the parking areas is not up to the quality that is satisfied by the users. It becomes worse when the condition of the parking prone to social problems and the vehicles that are parked are not fully secured. The standard design of the parking space is vital and should offer for the safety of cars and users. Besides, the orientation and organization of the parking area itself should be in proper management. Most of the parking spaces are lacking in landscape elements and the importance of landscape elements is neglected.

1.6 Scope of study

The study on the chosen topic, Sustainable Design Guidelines for Urban Parking Area is focusing on how the planning of parking area that are implemented in the urban setting which basically followed typical zoning code requirements for each of the building development. The study also concern about the interaction between the form of parking area and the public places according to the various types of parking space. The study will be expanded into discussion of sustainability, looking into the aspect s of security to users and environmental quality impacts. The safety and security of the

users and their vehicles need to be considered in order to ensure any possibilities, which may happen as a result of their actions. According to the U.S. Department of Justice in 1994, approximately 757,000 violent crimes such as robbery, assault and rape occurred in U.S. parking garages and lots (Kangas, 1996). The possible environmental harms due to the development of parking area need to be studied as the spaces for parking cover a significant portion of the land in the city and consequently have important effects on the quality of our environment. Besides safety, the study will cover the engineering part that being use in the particular parking design. The importance of landscape at the parking area should be determined whether it is to beautify or enhance the function of the parking spaces, or to cater for both beauty and function. The study also emphasize on the dimension and circulation of the parking lots, which are based on the standard design.

1.7 Research approach

The research approach of this study is descriptive in nature.

1.7.1 Descriptive research

Descriptive research involves observation and description of variables as they are distributed throughout a population (Crowl, 1993). Quality observation (i.e., measurement) is at the heart of descriptive research (Heppner et al., 1992). Generally, descriptive research designs may be classified as either qualitative or quantitative. Instead of examining records, descriptive research mainly relies on observation as their method of collecting the data. It tries to discover the situations in order to establish what is the norm, which can be predicted in future under the same



circumstances. Through the observation, it can use many forms, which depends on the type of information needed for the research. The method does not only relies on visual records but also sounds and smells. People related with the study can be interviewed in order to collect data from primary resources. This approach is important to play a significant role in the research. As descriptive research depends on observations and responses it is better if having thorough understanding of what the research need.

1.8 Research design

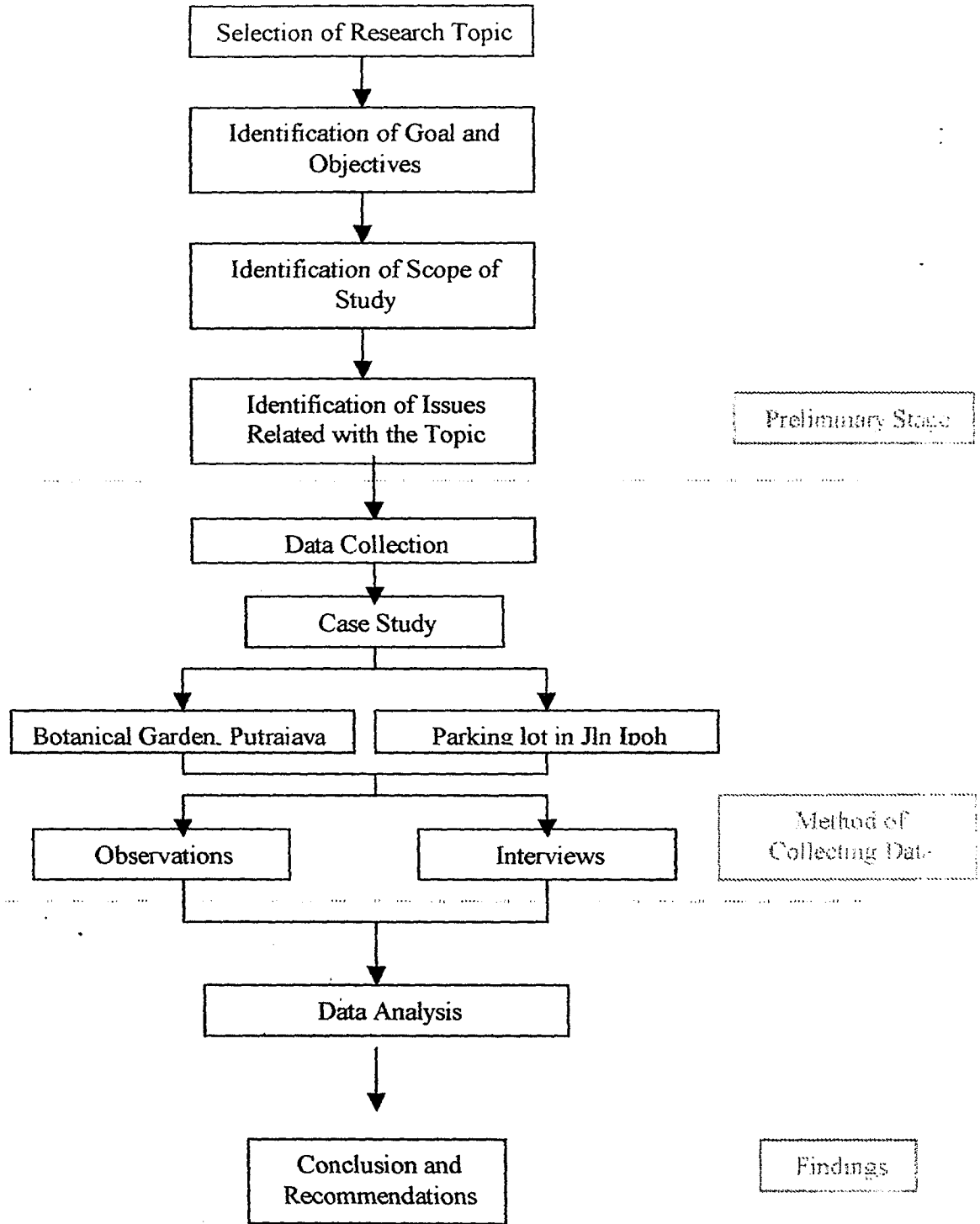


Figure 1.8: Diagram of research design stages

Research design comprises of three different stages showing the flow of the research towards the end of the process. The three stages are:

1. Preliminary stage
2. Methods used in data collection
3. Findings (data that have been analyzed)

1.8.1 Preliminary stage

During the early stage of the study, a topic has been selected. From the topic, goals and objectives being set up in order to ensure a successful research. The arising issues highlighted from the research topic will make the study more convincing to be discussed and perhaps can be solved at the end of the research. The scope of the study acts as a guideline for the researcher.

1.8.2 Data Collection

In the study, it requires detailed methods in order to have a successful research. In addition, the research process concerning the technique of gathering the information and collecting the data as major activities that needs to be done at the very beginning of the process. Hence, in order to achieve the goal and objectives of the study, the selected case studies were undertaken. Some interviews and observations have been conducted to strengthen the information gathered from the case studies. Finally, the collected data need to be analyzed to get the best output on the issue or problems.

1.8.2.1 Literature Review

The data that is related to the topic was collected to get better understanding about the topic. During the early stage of the study, references were made to secondary resources such as the internet, magazines, journal and thesis to get the basis of the research topic studied.

1.8.2.2 Case Study

In order to study the sustainable design guidelines for parking area, which focused on the urban area, two case studies have been selected. The selected case studies are hoped that will help as the best example of parking areas, which implement the sustainable design in some ways.

1.8.3 Data Analysis

At the end of the study, the data collected is analyzed in order to get better output and to solve the problems that rise from the study. The conclusion and recommendations will be based on the data analysis.

1.9 Conclusion

This chapter is important to identify the best method to be used in the research, which suit with the chosen topic. The structured research design will help as the basic guidelines in the study in order to ensure the research is carried out in accordance with the main objectives.

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Chapter Two

2.0 Literature Review

2.1 Introduction

In Chapter 2, the discussion is focused on the study of research topic, Sustainable Design Guidelines for Urban Parking Area. This chapter will act as a resource that can give the basis to understand the topic of research. The literature review will determine the types of parking area and considerations that are needed as well as recommendations on the related topic. In addition, the discussion will examine the dimension and circulation that is suitable to be used in the urban parking areas. Finally, the discussion ended with a reference study, which highlight the new technology of parking system that usually being used in developed country.

2.2 Definitions

Humanity has the ability to make development sustainable- to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs..... Sustainable development is not a fixed state of harmony, but rather a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are made consistent with future as well as present needs (WCED, 1990).

Sustainable design can be defined as a general arrangement or planning that is capable of being sustained or relating to, or being a method of harvesting or using a resource so that the resource is not depleted or permanently damaged (Webster, 1994). While urban parking area is defined as a space provided in a planned manner