### UNIVERSITI TEKNOLOGI MARA

# FACING CLIMATE CHANGE: LOW CARBON URBAN WATERFRONT AT PUTERI HARBOUR, JOHOR

#### NURAMIRA MOHD LAZIM

Topical report submitted in partial fulfilment of the requirements for the degree of **Bachelor of Landscape**Architecture (Hons.)

Faculty of Architecture, Planning and Surveying

**AUTHOR'S DECLARATION** 

I declare that the work in this dissertation was carried out in accordance with the regulations

of Universiti Teknologi Mara. It is original and is the results of my own work, unless otherwise

indicated or acknowledged as referenced work. This thesis has not been submitted to any other

academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for

Under Graduate, Universiti Teknologi MARA, regulating the conduct of my study and

research.

Name of Student : Nuramira Mohd Lazim

Student I.D. No : 2014491542

Programme : Bachelor of Landscape Architecture (Hons.) – AP248

Faculty : Architecture, Planning & Surveying

Topical Report Title : Facing Climate Change: Low Carbon Urban Waterfront at Puteri

Harbour, Johor.

Signature of Student : .....

Date : July 2018

iii

#### **ABSTRACTS**

Low carbon landscape can be defined as an incorporation of landscape design in responding to climate change. This global issue needs to be readdressed to overcome this challenge. The effect of our ignorance actions towards environment has resulted us in facing the impact of it. Global warming, flood, urban heat island, an increasing of sea level and many other environmental issues are caused by human activities. Many forests are being developed into hard surface and structure with no intention to replace them back. An urban waterfront is seen as a potential in mitigating some of the effects such as urban heat island due to its geographical location. Puteri Harbour as a developing urban waterfront area needs to take a careful measure in controlling urbanisation. The aim for this study is to design a sustainable waterfront through low carbon landscape. The goal of this study is to produce a design to reduce and control climate change effect and creating a tourist allurement. Other than that it is also to design a sustainable waterfront that is harmonious with its natural ecosystem. The methodology that was used in this project consists of several stages. These stages are inventory and analysis, site synthesis and design strategies to solve the issues. The approach that was used is low carbon landscape by Chon, Choi, You, Lee, Seok (2014) which act as a guideline throughout the study. The overall result will be shown on the landscape master plan. With several methods being proposed, Puteri Harbour will be able to reduce carbon emitted even with urban activities. It is also will become a tourist spot and enhancing community bonding in the area.

## **TABLE CONTENTS**

	Page
ABSTRACT	iv
ACKNOWLEDGEMENT	v
LIST OF CONTENTS LIST OF FIGURES	vi viii
LIST OF FIGURES	VIII
CHAPTER ONE: INTRODUCTION TO TOPIC	
1.1 Introduction	1
1.2 Problem Statement	2
1.3 Aim And Objectives	3
1.4 Definition Of Terminologies	3
1.5 Significance Of Study And Contribution	5
1.6 Research Methodology	5
1.7 Site Synthesis	7
1.8 Design Development	7
1.9 Chapter Summary	8
CHAPTER TWO: LITERATURE REVIEW AND RELATED REF	ERENCE CASES
2.1 Introduction	10
2.2 Low Carbon Environment	10
2.3 Urban Waterfront	19
2.4 Reference Case 1: FPT City in Danang, Vietnam	32
2.5 Reference Case 2: Pangyo New Town, Korea	34
2.6 Reference Case 3: Barry Waterfront at Barry, Vale of Glamorgan	37
2.7 Comparisons Of Reference Cases	40
2.8 Chapter Summary	41
CHAPTER THREE: INVENTORY AND ANALYSIS	
3.1 Introduction	42

3.2 Background of The Study Area	42
3.3 Inventory and Analysis	46
3.4 Chapter Summary	82
CHAPTER 4: SITE SYNTHESIS	
4.1 Introduction	84
4.2 Issues of Site Study	85
4.3 Concern of Site Study	87
4.4 Opportunities Of Site Study	90
4.5 Site Synthesis	92
4.6 Chapter Summary	97
CHAPTER 5: FINDINGS, DESIGN IMPLEMENTATION AND GUID	ELINES
5.1 Introduction	98
3.1 introduction	90
5.2 Design Statement	98
5.2 Design Statement	98
<ul><li>5.2 Design Statement</li><li>5.3 Design Goal And Objectives</li></ul>	98 98
<ul><li>5.2 Design Statement</li><li>5.3 Design Goal And Objectives</li><li>5.4 Conceptual Development</li></ul>	98 98 100
<ul><li>5.2 Design Statement</li><li>5.3 Design Goal And Objectives</li><li>5.4 Conceptual Development</li><li>5.5 Space Programming</li></ul>	98 98 100 114
<ul><li>5.2 Design Statement</li><li>5.3 Design Goal And Objectives</li><li>5.4 Conceptual Development</li><li>5.5 Space Programming</li><li>5.6 Planting Strategy</li></ul>	98 98 100 114 115
<ul> <li>5.2 Design Statement</li> <li>5.3 Design Goal And Objectives</li> <li>5.4 Conceptual Development</li> <li>5.5 Space Programming</li> <li>5.6 Planting Strategy</li> <li>5.7 Landscape Master Plan</li> </ul>	98 98 100 114 115 117
<ul> <li>5.2 Design Statement</li> <li>5.3 Design Goal And Objectives</li> <li>5.4 Conceptual Development</li> <li>5.5 Space Programming</li> <li>5.6 Planting Strategy</li> <li>5.7 Landscape Master Plan</li> <li>5.8 Enlargement 01</li> </ul>	98 98 100 114 115 117
<ul> <li>5.2 Design Statement</li> <li>5.3 Design Goal And Objectives</li> <li>5.4 Conceptual Development</li> <li>5.5 Space Programming</li> <li>5.6 Planting Strategy</li> <li>5.7 Landscape Master Plan</li> <li>5.8 Enlargement 01</li> <li>5.9 Enlargement 02</li> </ul>	98 98 100 114 115 117 119
<ul> <li>5.2 Design Statement</li> <li>5.3 Design Goal And Objectives</li> <li>5.4 Conceptual Development</li> <li>5.5 Space Programming</li> <li>5.6 Planting Strategy</li> <li>5.7 Landscape Master Plan</li> <li>5.8 Enlargement 01</li> <li>5.9 Enlargement 02</li> <li>5.10 Street</li> </ul>	98 98 100 114 115 117 119 142 151
<ul> <li>5.2 Design Statement</li> <li>5.3 Design Goal And Objectives</li> <li>5.4 Conceptual Development</li> <li>5.5 Space Programming</li> <li>5.6 Planting Strategy</li> <li>5.7 Landscape Master Plan</li> <li>5.8 Enlargement 01</li> <li>5.9 Enlargement 02</li> <li>5.10 Street</li> <li>5.11 Promenade</li> </ul>	98 98 100 114 115 117 119 142 151 152
<ul> <li>5.2 Design Statement</li> <li>5.3 Design Goal And Objectives</li> <li>5.4 Conceptual Development</li> <li>5.5 Space Programming</li> <li>5.6 Planting Strategy</li> <li>5.7 Landscape Master Plan</li> <li>5.8 Enlargement 01</li> <li>5.9 Enlargement 02</li> <li>5.10 Street</li> <li>5.11 Promenade</li> <li>5.12 Green Wall</li> </ul>	98 98 100 114 115 117 119 142 151 152 153