

UNIVERSITI TEKNOLOGI MARA

**CARBON DIOXIDE EMISSION AND
CLIMATE CHANGE IMPACT IN
KUALA LUMPUR**

AHMAD AFIQ BIN SHAHIDAN

Project submitted in fulfillment of the requirements for
the degree of
**Bachelor in Environmental Health and Safety
(Hons.)**

Faculty of Health Sciences

July 2017

DECLARATION BY STUDENT

Project entitled “Carbon Dioxide Emission and Climate Change Impact in Kuala Lumpur” is a presentation of my original research work. Whenever contributions of others are involved, every effort is made to indicate this clearly, with due reference to literature, and acknowledgement of collaborative research and discussions. The project was done under the guidance of Project Supervisor, Dr. Farah Ayuni Bt Shafie. It has been submitted to the Faculty of Health Sciences in partial fulfilment of the requirement for the Degree of Bachelor in Environmental Health and Safety (Hons).

Student’s signature:

.....

(Ahmad Afiq Bin Shahidan)

2014219638

930521-14-5581

Date:

ACKNOWLEDGEMENT

In the name of Allah, The Most Gracious, The Most Merciful.

Assalamualaikum and Alhamdulillah, all praise to Allah S.W.T The Supreme Lord of the Universe. Peace and blessing to Nabi Muhammad S.A.W., all prophets and their families. I praise Allah S.W.T. for the strength and His blessings in completing my study.

Thousands of thanks and love to my parents Mr. Shahidan Bin Yahaya and Mrs. Azriah Binti Othman for their support and encouragement through thick and thin of my study. My deepest gratitude and appreciation to my dearest supervisor, Dr. Farah Ayuni Bt Shafie who spent her time and efforts in guiding and advising from the beginning till the end of my research journey. Not to forget, I would like to thank all the lecturers in Department of Environmental Health and Safety, Faculty of Health Sciences who always share their thoughts, knowledge and advice throughout my study in UiTM Puncak Alam. Only God can reward all of you with goodness.

My sincere thanks and appreciation goes to all the staff from the department and laboratory who gave their full cooperation and assisted me in many ways throughout my study. A special thanks to my friends from HS243 who always give me support and motivation while completing my study. May our friendship lasts forever. Lastly, I would like to thank everyone who involved directly and indirectly in this study. Thank You.

TABLE OF CONTENTS

TITLE PAGE	
DECLARATION BY STUDENT	ii
INTELLECTUAL PROPERTIES	iii
APPROVAL BY SUPERVISOR	v
ACKNOWLEDGEMENT	vi
TABLE OF CONTENTS	vii
LIST OF TABLES	xi
LIST OF FIGURES	xii
LIST OF ABBREVIATIONS	xiii
ABSTRACT	xiv
ABSTRAK	xv
CHAPTER 1: INTRODUCTION	
1.1 Background	1
1.2 Problem statement	3
1.3 Study justification	5
1.4 Frequently used terms	6
1.4.1 Input-output analysis	6
1.4.2 Greenhouse gases (GHGs)	7
1.4.3 Global Warming Potentials (GWP)	7
1.4.4 Climate change	8
1.5 Objectives	9
1.5.1 General objective	9

ABSTRACT

Urban metabolism study is important to identify greenhouse gas and the climate change impact in the city. Greenhouse gas emission in the city is the main cause of current climate change such as global warming. Carbon dioxide, the major greenhouse gas that becomes an indicator in alarming climate change globally while city is the medium where the source of carbon dioxide released due to urbanisation and transportation sector. This problem lead to unpredictable impact to the environment, social and economic direct or indirectly. Kuala Lumpur, a capital city that experience rapid growth is chosen to determine its input-output flow while Bukit Bintang road and Tunku Abdul Rahman road are chosen to conduct ambient air monitoring due to traffic congestion problem in the city centre. The study found that carbon dioxide emission from both roads in Kuala Lumpur contribute to 376 ppm less carbon dioxide level. It was proved that transportation was a vital source of greenhouse gas emission in the city. Meanwhile, the input-output analysis in Kuala Lumpur showed a significant increase between year 2010 and 2016 where electricity input, food input, water input, gas released output and wastewater output were rising due to urbanisation and increasing population in city. In contrast, the enforcement of mandatory waste management by the government has resulted in the decrease of solid waste output in Kuala Lumpur. The greenhouse gas released output in term of Global Warming Potential from the input-output analysis was 5.88 MMtCO₂eq. The findings in this study shows that uncontrolled carbon dioxide emission from the transportation and unsustainable input-output flow in the city in a long run will cause climate change impact. Thus, this study can be used to formulate strategies to overcome the issues.

Keywords: Greenhouse gas, carbon dioxide, climate change, transportation, input-output analysis.