

UNIVERSITI TEKNOLOGI MARA

**A STUDY OF EXPOSURE TO PARTICULATE MATTER
(PM_{2.5}) DURING COMMUTING IN KLIA TRANSIT TRAIN**

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**Project submitted in fulfillment of the requirements
for the degree of**

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AUTHOR'S DECLARATION

Project entitled "A Study of Exposure to Particulate Matter (Pm_{2.5}) During Commuting in Klia Transit Train" is a presentation of my original research work. Wherever contributions of others are involved, every effort is made to indicate this clearly, with due to reference to the literature, and acknowledgement of collaborative research and discussions. The project was done under the guidance of En. Megat Azman Bin Megat Mokhtar as project supervisor. It has been submitted to the Faculty of Health Sciences in partial fulfillment of the requirement for the Bachelor (Hons) of Environmental Health and Safety.

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CHAPTER ONE : INTRODUCTION

| | |
|---------------------------|---|
| 1.1 Introduction | 1 |
| 1.2 Problem Statement | 5 |
| 1.3 Study Objectives | 5 |
| 1.3.1 General Objective | |
| 1.3.2 Specific Objective | |
| 1.4 Study Hypothesis | 6 |
| 1.5 Conceptual Framework | 6 |
| 1.6 Conceptual Definition | 7 |

CHAPTER TWO : LITERATURE REVIEW **TABLE OF CONTENTS**

| | |
|---|-------------|
| 2.1 Public Transport in Malaysia | 9 |
| TITLE | PAGE |
| 2.2 Sources Of Air Pollution | 11 |
| 2.3 In-Trains Air Quality | 13 |
| Acknowledgement | iii |
| 2.4 Health Effect | 14 |
| Tables of contents | iv |
| 2.5 Air Quality Legislation | 15 |
| Lists of tables | iv |
| Lists of figures | viii |
| CHAPTER THREE : METHODOLOGY | |
| Lists of plates | ix |
| 3.1 Study Design | 16 |
| Lists of appendices | X |
| 3.2 Study Location | 18 |
| Lists of abbreviation and glossary | Xi |
| 3.3 Study Samples And Study Variables | 17 |
| Abstract | |
| 3.4 Data Collection | 18 |
| 3.5 Study Instruments | 18 |
| CHAPTER ONE : INTRODUCTION | |
| 3.6 Quality Control | 19 |
| 1.1 Introduction | 1 |
| 3.7 Statistical Analysis | 19 |
| 1.2 Problem Statement | 5 |
| 3.8 Study Limitation | 19 |
| 1.3 Study Objectives | 5 |
| 1.3.1 General Objective | |
| CHAPTER FOUR : RESULT | |
| 1.3.2 Specific Objective | |
| 4.1 Identification of PM _{2.5} Concentration | 21 |
| 1.4 Study Hypothesis | 6 |
| 4.2 Comparison between Peak Hour and Non-Peak Hour of Carbon Monoxide, Carbon Dioxide and PM _{2.5} | 25 |
| 1.5 Conceptual Framework | 6 |
| 1.6 Conceptual Definition | 7 |
| 4.3 Comparison between Weekday and Weekend of Carbon Monoxide, Carbon Dioxide and PM _{2.5} | 27 |
| 4.4 Comparisons PM _{2.5} Concentration at Different Ambient Background | 29 |

ABSTRACT

Development of public transport in Malaysia has improved drastically especially in Klang Valley area. Statistic shown by Ministry of Transport in Transportation report 2013 recorded the drastic increases of KLIA Transit train passenger with 2.6 million (2010), 3.2million (2011), 3.7million (2012) and 4.4million (2013). Steady increase of KLIA Transit train users yearly shows the shifting preference of people from use own vehicles to fully utilising public transport. Train passengers have risk to expose with ambient air pollutant during commuting or waiting at the station. Particulate matter from contaminate air can give a significant health effect to expose people. The general objective of this research is to identify the $PM_{2.5}$ during commuting in KLIA Transit train. The research method consists of measurements on $PM_{2.5}$, carbon monoxide (CO) and carbon dioxide (CO₂) during commuting from KL Sentral station to KLIA station. All measurement samples collected were analysing using Pearson Correlation, Independent t-test and One-Way ANOVA in Statistical Package for the Social Science (SPSS). Mean values of $PM_{2.5}$ concentration reading in KLIA Transit train; ($80.380\mu g/m^3$) for peak hour and ($77.1 \mu g/m^3$) for non-peak hour; ($79.579\mu g/m^3$) during weekday and ($76.783\mu g/m^3$) during weekend; urban ($83.0\mu g/m^3$), sub-urban ($80.9\mu g/m^3$) and airport ($81.4 \mu g/m^3$) respectively. Information gained provides brief data on in-train level of $PM_{2.5}$, CO and CO₂ that expose to passengers during daily commuting. The findings shows that variation concentration of $PM_{2.5}$, CO and CO₂ during commuting resulted from increase in number of commuting passenger, interfere of ambient air pollutants, effectiveness of ventilation and braking system. There are three significant of hypotheses testing to identify the exposure of particulate matter ($PM_{2.5}$) during commuting. The research also will briefly explain on the recommendation for further research and extended research to other public transport. The focus given in this research should be useful to public users, authority and commuter service providers.

Keywords; public transport, particulate matter ($PM_{2.5}$), KLIA Transit train