WASTE COMPOSITION AT UITM STUDENTS' CENTRE

EMMA QARMILLA BT SUHAILI

This report is submitted in partial fulfillment of the requirements needed for the award of Bachelor in Chemical Engineering (Hons)

FACULTY OF CHEMICAL ENGINEERING

UNIVERSITY TEKNOLOGI MARA

SHAH ALAM

2017

ACKNOWLEDGEMENT

Alhamdullilah, praise Allah, that I have completed my project. I would like to express my deepest appreciation to all those who provided me the possibility to complete this report. A special gratitude I give to our final year project supervisor, Prof. Dr. Sharifah Syed Abd Kadir, whose contribution in stimulating suggestions and encouragement, helped me to coordinate my project especially in writing this report. Furthermore, I would like to acknowledge with much appreciation the crucial role of the staff of Universiti Teknologi Mara, who gave the permission to use all the required equipment and the necessary material to complete the task of "Waste Composition at UiTM Students' Centre". A special thanks to my friends under our supervisor with the same title and project but differing in technicality, for working together through thick and thin, in completing the project. Last but not least, I want to say thank you, to my parent, for keeping their faith in me, for pushing me to finish my project and my degree with their advice, prayer and emotional support.

ABSTRACT

Municipal solid waste has become an issue to our environment due to its rapid generation following the vast development and change in lifestyle. The second highest waste generation is contributed by industrial, commercial and institute in Malaysia after residential sector. The objective of this paper is to evaluate the composition of waste at Universiti Teknologi MARA (UiTM) students' centre and also to determine the fraction of recyclables waste from there along with the potential benefits. Based on approximately 10,000 students at the time of study, the waste generation rate per student was estimated as 0.25 kg/day. The types of solid waste collected were paper, plastics, aluminium cans, food waste and miscellaneous (battery, cartridge ink, motherboard or any electrical circuit and wires, diapers, dead plants and others). The highest composition is food waste which accounted for 30% by weight. Meanwhile, the lowest composition is aluminium cans with the percentage of 1%. Based on this results, the students' centre can produce 8624.95 kg, 10709.10 kg, 532.90kg, 11158.05 kg and 5788.90 kg for paper, plastic, aluminium can, food waste and miscellaneous respectively per year. Therefore, it is estimated the revenue generated from the students' centre is RM 8469.83 per year. In conclusion, the waste composition study provides a better understanding of the waste generation trends which can help facilitate the provision of better waste management that emphasizes on the reduction and recycling of MSW.

TABLE OF CONTENTS

		PAGE
TABLE OF CONTENTS		**VIII**
LIST OF TABLES		**XI**
LIST OF FIGURES		**XIII**
LIST OF ABBREVIATIONS		**XIV**
CHAPTER 1	**INTRODUCTION**	
	1.1 Research Background	1
	1.2 Problem Statement	3
	1.3 Objectives of Research	4
	1.4 Scope of Research	4
CHAPTER 2	**LITERATURE REVIEW**	
	2.1 Introduction	5
	2.1.1 Solid Waste Definition	5
	2.1.2 Types of Solid Waste	6
	2.1.3 Sources of Solid Waste	10
	2.1.4 Properties of Solid Waste	11
	2.1.4.1 Sampling Procedures	16
	2.1.5 Solid Waste Management in Malaysia	17
	2.2 Recycle, Reduce, and Reuse	25

CHAPTER 1

INTRODUCTION

1.1 Research Background

Malaysian produce 0.8kg of waste disposal in general per day which has grown from 16,200 tonnes per day in 2001 to 19,100 tonnes per day in 2005 (Zamali Tarmudi et al, 2012). The population increase of more than 70% which is about 28.5 million recorded residing in urban regions and this vast development has resulted in few increment in a solid waste generation (Fauziah and Agamuthu, 2012). The growth of waste production is suspected to progress each year in correspondence to brisk population growth, urbanisation, financial level and advance in living standards. This prognostication is agreeable and sensible since, in the existing situation, the total municipal solid waste generation in Malaysia developed from 5.91 million tonnes in 2001 to 6.97 million tonnes in 2005 (Zamali Tarmudi et al, 2012).