



**AN ANALYSIS OF BARRIERS TO WASTE RECYCLING
IN SEREMBAN USING DESCRIPTIVE ANALYSIS,
INTERPRETIVE STRUCTURAL MODELLING (ISM)
AND DECISION-MAKING TRIAL AND EVALUATION
LABORATORY (DEMATEL)**

ASHIERA NADIHA BINTI HAZRI

(2021113561)

NURUL AIN SYAHIRAH BINTI MOHD AZRI

(2021149309)

NURUL DANIA FARISHA BINTI SHARUL RHMDAN

(2021115051)

SUPERVISOR:

ZAHARI BIN MD RODZI (DR.)

**BACHELOR OF SCIENCE (HONS.) MATHEMATICS
COLLEGE OF COMPUTING, INFOMATICS AND MEDIA
MARCH 2022**

Acknowledgement

IN THE NAME OF ALLAH, THE MOST GRACIOUS, THE MOST MERCIFUL.

Alhamdulillah. All praises to give to Allah, for giving us healthy, strength, patience and blessing to make us accomplish our research paper smoothly and successfully as final year student in UiTM Seremban 3.

First and foremost, we would like to express the appreciation to our supervisor Dr Zahari Md Rodzi, Lecturer of Faculty of Computer Science and Mathematics, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Malaysia, who always being patience and keep giving us beneficial advise throughout making this project and report. Without his helps and dedicated involvement in every steps to do from weeks to weeks throughout our learning process make this project become success. This paper will never have been accomplished without his assistance. We would like to thank you very much for your support, caring and keep understanding us over almost a year. We are unable to repay your efforts, and good attention that you already give to us during the process to finish final year report.

Next, we would like to thank Dr Mat Salim Bin Selamat, Head of Department, Faculty of Computer Science and Mathematics, University Teknologi Mara, Negeri Sembilan Branch, for allowing us to conduct research and for providing invaluable guidance throughout the process. His dynamism, vision, sincerity, and motivation have left us speechless. He taught us how to conduct research and present the findings as clearly as possible. It was an honour to work and study under his supervision.

The most important thing, not forget to our family members that always give us full support by mentally and physically and included to our friends that give us ideas to improve our project.

Last but not least, we would like to thank to anyone who are involved in contributing ideas or helps by directly or indirectly throughout this final year project. Only Allah can repay all of your kindness, Thanks a lot.

Contents

1	Introduction	2
1.1	Background of Study	2
1.2	Problem Statement	5
1.3	Research Objectives	7
1.4	Significance and Benefit of The Study	7
1.5	Scope and Limitations of The Project	9
1.6	Definition of Terms and Abbreviations	10
2	Literature Review	12
2.1	Introduction	12
2.2	Waste Management	13
2.3	The Selected Barriers In Waste Recycling	18
2.3.1	Social Norms	18
2.3.2	Physical Barriers	19
2.3.3	Environmental Barriers	19
2.3.4	Lack of Recycling Facilities	20
2.3.5	Behavioral Barriers	21
2.3.6	Convenience-related Barriers	21
2.3.7	Lack of Motivation/Information on Recycling Options	22
2.4	Decision-Making Trial and Evaluation Laboratory (DEMATEL)	23

Abstract

Waste recycling is described as any recovery technique used to transform waste into new goods, resources, or substances that can be used for the original or other uses. The Malaysian government through the Ministry of Housing and Local Government has spent millions of Ringgits over the past few years in advertisements and campaigns related to recycling. However, there has been little previous research that has used the DEMATEL or ISM methods, but both of the methods will be used to conduct this research. While DEMATEL focuses on finding important system components and differentiating between cause and effect factors. There were no study using DEMATEL to find the barriers to waste management in Malaysia. This study aims to determine the barriers of the households recycling in Seremban by using descriptive analysis, to apply the Decision-Making Trial and Evaluation Laboratory (DEMATEL) cause and effect in barriers to waste recycling and the third one is to identify relationships among barriers to waste recycling using Interpretive Structural Modelling (ISM). From the descriptive analysis, it shows that physical barriers is the highest barriers of waste recycling among households in Seremban. For DEMATEL method, it demonstrate a cause-and-effect relationship, demonstrating that lack of recycling facilities has the greatest influence on other barriers. By using ISM method, the highest barriers of waste recycling among households in Seremban are lack of motivation / information on recycling options, convenience-related barriers and social norms.