

UNIVERSITI TEKNOLOGI MARA

**PRACTICES ON PERSONAL
PROTECTIVE EQUIPMENT (PPE)
AND HEALTH RISKS AMONG
WASTE COLLECTORS: A STUDY
OF ASSOCIATION IN KOTA
KINABALU, SABAH**

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

Faculty of Health Sciences

FEBRUARY 2023

ACKNOWLEDGEMENT

Greetings,

First of all, I give thanks and glory to God for all the strength and blessing from Him in completing my studies. Next, I would love to express my deepest gratitude to my parents, Mr. Hilex Esibius Eddie and _____ for their unwavering love and support through the ups and downs of my academic journey. Their guidance and encouragement have been invaluable to me. I would also like to thank my supportive and understanding supervisor, En. Megat Azman Megat Mokhtar for his mentorship and for providing me with the opportunity to work on this Final Year Project (FYP) of my choice. I truly am grateful for his time and efforts in guiding and advising from the beginning till the end of my project journey. Also, I would like to thank Dr. Samsuri Bin Abdullah in guiding me to further understand my project in the senses of data analysis and interpretation. Not to forget, I would like to thank all the lecturers in Department of Environmental Health and Safety, Faculty of Health Sciences for their invaluable contributions to my education. Their dedication to teaching and their willingness to share their knowledge have been an inspiration to me throughout my study in UiTM Puncak Alam. Only God can reward all of you with goodness. Finally, I would like to express a special thanks to my friends from HS243 who always gave me support and motivation while completing my study. Thank you all for being an integral part of my academic journey. Lastly, I would like to thank everyone who were involved directly and indirectly in this study. Thank You.

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ABSTRACT

In developing countries, Municipal Solid Waste (MSW) is a concern. The crisis is predicted to be even more serious due to urbanization and population expansion that surpasses the capacity of current infrastructure. Apparently, MSW is the most common type of waste in Malaysia. As stated by the Malaysian Investment Development Authority (MIDA), the MSW collection would reach 14 million metric tons per year by 2022. With the larger capacity of waste production, the role of waste collectors (WC) in solid waste management (SWM) has become increasingly crucial. Studies in Malaysia have shown that waste collectors are at risk for health hazards due to exposure to extreme heat and cold, vibrations, noise, and infectious contaminants. In relation to that, the use of Personal Protective Equipment (PPE) is important for their safety, but studies on the association between PPE use and health risks among solid waste collectors are limited. The study was carried out at Kota Kinabalu, Sabah as it is one of the 3 states with the largest population size. Thus, posed the problem of high waste generation. In accordance to that, this study looked into the relationship between waste collectors in Kota Kinabalu, Sabah's practices regarding PPE and health risks. The study found that there are many potential health problems associated with solid waste collectors, including risks to physical health, psychological health, biological health, and ergonomic health. The most often used PPE included safety boots, long sleeves, and masks. Apparently, there is a correlation – $p < 0.050$ ($r = -0.176$, $p = 0.021$), between the practices of PPE and health risks among solid waste collectors. Therefore, further recommendations were directed for the respective solid waste collectors, waste management company, and future researchers.

Keywords: *Municipal Solid Waste, Solid Waste Collectors, Personal Protective Equipment (PPE), Health Risks.*

CHAPTER 1

INTRODUCTION

1.1 Background

In developing countries, Municipal Solid Waste (MSW) is a concern. The crisis is predicted to be even more serious due to urbanization and population expansion that surpasses the capacity of current infrastructure, particularly in densely populated metropolises (Nguyen et al., 2021). According to the Malaysian Investment Development Authority (MIDA), the population of Malaysia is rapidly growing, with 32.8 million people expected in 2021. That much of a figure of the population has generated approximately 38.427 metric tons per day of waste in the same period of time.

Apparently, MSW is the most common type of waste in Malaysia. The government has increased its spending on waste collection, which is now managed by municipal governments and private companies. There are 170 waste disposal facilities in the nation, 14 of which are sanitary landfills stated by Khamis et al. (2019). Waste collection, transportation to transfer stations, and final disposal in landfills or open dumps are all part of MSW management in Malaysia (Michel Devadoss et al., 2021).

1.1.1 Waste Management Practices in Malaysia

Solid waste management (SWM) in Malaysia often starts with the waste created. Following that, waste is collected and transported to a station before being treated and separated. Solid waste that cannot be recovered is disposed of at a landfill. Apparently, the content of MSW is strongly linked to the household's economic progress and lifestyle. In Malaysia, the most visible solid waste composition is highly organic waste, which includes both biodegradable and non-biodegradable waste. The properties of MSW components are also significant in establishing the suitability of disposal methods (Ali et al., 2018). There are two stages to the storage of waste created. Solid waste is deposited outside the house in a storage bin until it is acquired by waste collectors in the first stage. On the