# UNIVERSITI TEKNOLOGI MARA

# A STUDY OF DRINKING WATER QUALITY FROM DRINKING WATER VENDING MACHINE IN SIBU, SARAWAK

## FATHUL HAZIQ BIN SAZALI

Project submitted in fulfillment of the requirements for the degree of

**Bachelor in Environmental Health and Safety**

**(Hons.)**

**Faculty of Health Sciences**

January 2021

# Acknowledgement

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

Alhamdulillah. With the gratitude and humble, this study was completed. Prise upon Allah The All Mighty as all the knowledge belong to Him. 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. First of all, I would like to thanks University Technology of MARA to accept me for this part time learning program. This was a venerable opportunity for workers to further study in higher education.

Special thanks to my supervisor Professor Madya TS Dr Mohd Shukri Mohd Aris for his credibility, passion and patient in guidance and teaching me a long the journey to complete this study. I am very pleased and happy under his supervision where he was a generous gentleman. Not to forgot Mr Nasaruddin Abd Rahman, my former supervisor before his retirement for his idea and early guide in my study. Many thanks to all my lecturer for the knowledge and passion during my studies.

Special thanks also to my boss Dr Teh Jo Hun and my former boss Dr Muhamad Rais Abdullah for support and permission to join the part time learning program. Thanks also to all my colleagues in Sibu Divisional Health Office especially PKP Chong Kuek Sen for support and guidance for the field project.

Last but not least, to my parents, Mr Sazali Bin Sapari and                                    for morale support during my journey to complete this bachelor. To my classmate, thank you for all your support and passion to help each other during this study. Being the frontlines and student at the same time during this Covid-19 pandemic was very tough. Because of our sincerity and spirit, we made it.

Lastly, to all I had mentioned above, may Allah repay all of your kindness.

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# ABSTRACT

This study is about the quality of the drinking water from drinking water vending in Sibu, Sarawak. All 30 operated drinking water vending machine was the source of the sample with 3 sample for each machine with 7 days interval for sampling date. Parameter tested was Free chlorine, Turbidity, pH, *E. coli* and *Total Coliform*. The result of the drinking water sample is compared to the standard in Food Regulation 1985. The reading recorded for physicochemical parameter Free chlorine in range of 0 to 0.87 mg/l where 10 out of 30 DWVM meet the standard. Turbidity recorded was in range of 0.08 to 1.51 NTU where only 4 DWVM meet the standard and reading for pH was in range of 7.04 to 8.71 where 29 DWVM meet the standard in the regulation. For microbiology parameter, 4 DWVM was detected the presence of *E. coli* with reading recorded in range of 0 to 14 CFU while *Total coliform* reading recorded in range of 0 to 63 CFU where 11 DWVM meet the Food Regulation 1985. Permitted level in Food Regulation 1985 for Free chlorine was <0.04 mg/l, Turbidity was <0.1 NTU, pH in range of 6.5 to 8.5, *E. coli* was nil and *Total coliform* not more than 4 CFU. From the result obtained, this study would like to asserted that routine maintenance was important and the monitoring of this drinking water quality from drinking water vending machine need to take in to account in order to provide safe drinking water that meet the standard in order to protect the consumer.


Keyword: drinking water quality, drinking water vending machine

# CHAPTER 1

# INTRODUCTION

## 1.1 Background of the Study

Drinking water is one of the most important things in live where every organism on earth need water as a biological requirement for survival. Maslow's Hierarchy of Needs explain that water is one of physiological needs. If this basic need were not satisfied, the human body cannot function optimally. Maslow considered physiological needs are the most important as all the other needs become secondary until these needs are fulfil (McLeod, 2018).

Safe drinking water is also a rights issue among people and it was a major concern for public health. In this era, most part of the world (71% of global population, 5.3 billion people) manage to receive safely managed drinking-water service which are located on premises, available when needed, and free from contamination. Although most part or the world having safe drinking water, estimated that 500,000 diarrhoeal deaths each year due to consuming contaminated drinking-water (WHO, 2019).

Human body made up to 75% of water (Balaratnam, 2019). WHO recommend that healthy adult man need 2.7 liters of water while women need 3.7 liters of water of daily adequate intake (Grandjean, 2009). In the past time, people get source of water from the natural resources such as river, rainwater and dwell and need to be boiled first before consume for sanitization. Then in the modern era, clean water easily can be get from the tap water and still need to boil before consume. Now in this Alpha Generation era, clean water can easily get from vending machine which ready to drink upon purchase. The Drinking Water Vending Machine was built in with filter where the intake water from the source will be filtered before the consumer filling their container upon purchase. The DWVM provider targeted their machine at high density population. One of the places was at the shop lot nearby the residential area. This DWVM is likely to be main source of drinking water for people who does not have