

UNIVERSITI TEKNOLOGI MARA

**HEAVY METAL CONCENTRATION
IN PARTICULATE MATTER AND
HEALTH RISK ASSESSMENT IN
PRIMARY SCHOOLS**

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

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DECLARATION BY STUDENT

Project entitled “Carbon Dioxide Emission and Climate Change Impact in Kuala Lumpur” is a presentation of my original research work. Whenever contributions of others are involved, every effort is made to indicate this clearly, with due reference to literature, and acknowledgement of collaborative research and discussions. The project was done under the guidance of Project Supervisor, Dr. Farah Ayuni Bt Shafie. It has been submitted to the Faculty of Health Sciences in partial fulfilment of the requirement for the Degree of Bachelor in Environmental Health and Safety (Hons).

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

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ABSTRACT

Background Information: Children spend most of their time in classroom and it is considered as a second home for them. Due to that reason, they are highly susceptible to be exposed to various airborne pollutants in indoor air. The purpose of this study is to determine the heavy metal concentration in particulate matter in and to calculate the health risk assessment through inhalation exposure in primary schools. **Methodology:** Ten primary schools located around Puncak Alam and Meru area were selected. Three classrooms for each school were randomly selected for sampling the particulate matter using air sampling pump equipment. Particulate matter is one the airborne pollutant which helps in carrying heavy metals and other hazardous element that might give an adverse effect on health for those who are exposed to it. The heavy metal that is being measured in this study are Lead (Pb), Iron (Fe), Manganese (Mn), Zinc (Zn), Copper (Cu), and Cadmium (Cd). **Results:** This study shows that there is a presence of heavy metal in the sampled classrooms of the schools. The difference of heavy metal concentration between schools might due to the environmental factors surrounding the schools as well as the activities involved. This study indicates that Fe has the highest concentration followed by Zn, Mn and Pb. **Conclusion:** In conjunction with the presence of heavy metal composition on particulate matter, it may serve an adverse health effect towards the children. Frequent housekeeping and maintained good ventilation will help in improving indoor air quality in the classroom.

Keywords: heavy metal, primary schools, particulate matter, health risk assessment