**\*\*Title:\*\* Correlation between urban form metrics and air quality in Hanoi city**

\*\*Introduction:\*\*

The purpose of this research is to evaluate the correlation between urban form metrics and air quality in Hanoi city. The study will focus on three areas in Hanoi, each covering a 500-meter radius circle with an air quality monitoring station at the center of each circle. The urban form metrics used in this study include average building height, building density, road network density, road length, average road width, and greenery density. The air quality monitoring stations provide indices for PM2.5 index hourly at the measurement points. Additionally, data on wind speed and wind direction hourly (from independent sources, but covering the entire city) will be used. The data collection period spans 3 months: June to August 2021. Data for the months of June to August 2020 will also be used.

\*\*Objectives:\*\*

The objectives of this research are:

- To evaluate the correlation between urban form metrics and air quality in Hanoi city.

- To build a model with the following components:

- Dependent variable: PM2.5 (particulate matter 2.5) index.

- Independent variables: urban form metrics and the meteorology index: hourly temperature, humidity, wind speed, wind direction in 3 months of 2021 and 3 months of 2022.

\*\*Methodology:\*\*

The methodology for this research includes the following steps:

- Collecting data on urban form metrics and air quality from three areas in Hanoi city.

- Collecting data on wind speed and wind direction hourly (from independent sources, but covering the entire city).

- Analyzing the collected data using statistical methods.

- Building a model with the following components:

- Dependent variable: PM2.5 (particulate matter 2.5) index.

- Independent variables: urban form metrics and the meteorology index: hourly temperature, humidity, wind speed, wind direction in 3 months of 2021 and 3 months of 2022.

\*\*Expected Outcomes:\*\*

The expected outcomes of this research are:

- A better understanding of the correlation between urban form metrics and air quality in Hanoi city.

- A model that can be used to predict air quality based on urban form metrics and meteorology index.

\*\*References:\*\*

[1] World Health Organization. (2018). Ambient (outdoor) air pollution database, by country and city. Retrieved from https://www.who.int/airpollution/data/cities/en/

[2] United Nations Environment Programme. (2016). Air Pollution in Asia and the Pacific: Science-based Solutions. Retrieved from https://wedocs.unep.org/bitstream/handle/20.500.11822/19109/Air\_Pollution\_in\_Asia\_and\_the\_Pacific\_Science-based\_Solutions.pdf?sequence=1&isAllowed=y