

# **Assessing High Exposure Population to Traffic Pollution with a Multidisciplinary Database for Greater Taipei Area, Taiwan**

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Traffic is the major air pollution source in urban areas. Exposure to traffic-generated air pollutants has evidently increased cardiopulmonary morbidity and mortality. The concentrations of traffic-generated pollutants would disperse as the distance from roads, both horizontally and vertically. Residences' distances from the roads horizontally and vertically determine the traffic-generated pollution outdoors, which infiltrate indoors affecting human exposure. Thus, assessing distribution of high exposure population to traffic pollution and the relationships with demographic and socio-economic variables is critical for understanding environment health inequality in highly dense urban areas, such as Greater Taipei Area of Taiwan. This study aims to manifest that an integrated information repository stimulates transforming ubiquitous data into useful information for risk assessment. Various atmospheric observations, Digital Terrain Model (DTM), land use, surveys, and census data are freely accessible; however, lack of an integrated source hinders information exchange for researchers and general public. We gathered scientific data and open data from multiple agencies; then, set up a multidisciplinary virtual repository, population and vulnerability database (PV DB), to conduct our study. We incorporated the data we collected with various geospatial techniques to assess distribution of high exposure population to traffic pollution in each administrative unit. Based on the demographic and socio-economic characteristics, we also explore whether high exposure population cluster to certain community type through global and local statistical analyses. The preliminary outcomes suggest that traffic exposure is correlated with socio-economic characteristics of communities and environmental health inequality may exist in Greater Taipei Area, Taiwan.

Keywords: environment health, spatial analyses, data repository