



RANKING THE ZONES IN URBAN COLOMBO ACCORDING TO AIR QUALITY: A STATISTICAL MODELLING APPROACH

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ABSTRACT

The air pollution was a major problem that challenged in urban Colombo. It directly affected comfort of living conditions and impacts on health negatively to the people living in the city. Therefore, it was important to identify the level of air pollution in Colombo urban areas to predetermine actions to improve air quality. The objective of this research was to identify the highly air polluted zones in Colombo municipal council area and to investigate the most contributing factors which influenced the increase of the level of air pollution in each zone. Variables such as number of factories, population density, number of power plants, wind speed, average temperature, green coverage and number of vehicles were taken into the analysis. For the correlation among variables, the factor analysis technique was used as a statistical tool. Through this technique, latent factors were constructed in order to compare the different zones. According to the study, industrial, human and environmental factors were identified as the latent factors. The score of the above factors was used to rank the zones in urban Colombo. According to the results, Colombo Fort was identified as the highest polluted area in term of industrial factor. Considering all the three latent factors, Kotahena / Bloemendhal was identified as the lowest polluted area. Using this approach, one can easily find the most influencing factor of air pollution in each city. These results were important to develop air quality control strategies.

Keywords: air pollution, urban city, latent factors, factor analysis, factor score