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The Islandwide Ambient Air Quality Monitoring Program in Sri Lanka

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Abstract

In recent decades, the combination of growth of major cities across the country, increased use of vehicles, rapid industrialization, and deficiencies in both planning and environmental regulations, has led to increasing the levels of air pollution and consequent health and environmental impacts. The observed levels of criteria air pollutants (CAPs) and hazardous air pollutants (HAPs) often reach magnitudes that are considered to be a threat to human health. Ambient concentrations of gaseous pollutants and fine particles are stable or even increasing over time.

Being a responsible key organization in Sri Lanka, Central Environmental Authority has been engaged with an urban air quality monitoring program across the country since 2014 under financial sponsorship of the vehicle emission trust fund of the department of motor traffic. In this program, the criteria air pollutants such as $PM_{2.5}$, PM_{10}, SO_2, NOx, CO, O_3 and Non methane volatile organic compounds (NMVOCs) are monitored in major cities. The 24-hour continuous monitoring for seven days in each and every city are accomplished by using fully automated mobile ambient air quality monitoring station.

As observed, the recorded average concentrations of each parameter, in major cities are maintained below the National ambient air quality standards. But it was found that there is a little increasing trend of $PM_{2.5}$ and PM_{10} in major cities compared to other pollutants. It is also notable that the average concentrations of other parameters such as SO_2, NO_2, CO and O_3 have been recorded below the National ambient air quality standards. However, these values are defined to 24-hour continuous monitoring for 07 days and it is an instant situation on ambient air quality in the cities considered.

These pollutant concentrations have been given for 24-hour consecutive 07 days for a particular city and once a year monitoring for a particular season. Hence the data is very limited and not representative for the entire year. A large set of continuous monitoring data representing all seasons in Sri Lanka is also requires in order to introduce a standard methodology at the data processing. Further an improvement of current ambient air quality monitoring program is recommended in Sri Lanka taking into account the drawbacks identified.

***Keywords*:** Ambient air quality, Criteria air pollutants, Hazardous air pollutants, National ambient air quality standards