

WHAT COLOMBO'S AIR QUALITY TELL US.

K.G.S. Jayawardana and R.N.R. Jayaratna.
Central Environmental Authority

Abstract

Good quality air is a prime requirement for a healthy life. Information gathered through Air Quality Monitoring is one of the vital components of Air Quality Management. Ambient air quality data gathered using continuous automated analyzers over a five-year period from January 1997 in front of the Colombo Fort Railway Station were analyzed.

Colombo's Ambient Air Quality is within the National Standards with respect to Carbon Monoxide (26 ppm for one-hour average) and Nitrogen Dioxide (0.13 ppm for one-hour average). Even though NO₂ concentration is on the increasing trend ($y = .0024x + 0.0146$), CO concentration shows a decreasing trend ($y = -0.13x + 0.78$).

The 24hour average concentration of Particulate Matter less than 10 micron in diameter (PM₁₀) exceeded the USEPA standards (150µg/m³) only one day during the monitoring period. However, the annual average of PM₁₀ exceeds the annual standard for PM₁₀ stipulated by the USEPA (50µg/m³) in all the years monitored. PM₁₀ concentration remains more or less constant during the five-year period since 1997 with high values in the dry season and low values in the wet season.

Frequency of exceedance of hourly average of Sulphur Dioxide concentration beyond the national standards (0.08 ppm for 1hr average) at the Colombo Fort Railway Station Monitoring Site reached maximum of 83 hrs in the year 2000 with a very rapid increase compared to the previous years (5hrs in 1997, 7hrs in 1998, 5hrs in 1999).

The diurnal pattern of ambient air quality parameters such as CO, NO_x, indicates that mobile sources have a major contribution to air pollution in the Colombo city. In general the concentration of air pollutants is higher during working days (Monday - Friday) than weekends. Pollutant concentrations are higher in the North-East monsoon period than in the other periods.