

AIR POLLUTION LEVELS & VARIATIONS AT SELECTED LOCATIONS IN COLOMBO MUNICIPAL COUNCIL AREA BASED ON PORT CITY DEVELOPMENT PROJECT

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Abstract

Air pollution was identified as increasing environmental problem in all over the world as well as in Sri Lanka due to increasing air pollution sources. It is a dangerous and silent hazard in comparison to other hazards since it is invisible. The city of Colombo, the largest and most populous city in Sri Lanka is the political, economic, and cultural center of Sri Lanka.. Colombo lies on a coastal plain where the average yearly temperature ranges from 25°C to 32°C. Over 80% of the country's industrialization and over 60% of all vehicles plying in Sri Lankan roads, over 90% of thermal power plants, are found within the borders of the Colombo Metropolitan Area. There are large number of people arriving to Colombo from outside for their day to day activities. About 100,000 vehicles arrivals lead to high traffic congestion. As a result, Colombo air is being contaminated with pollutants released by domestic activities, heavy flow of vehicular traffic, and industrial activities..

Air Pollution concentrations of CMC area may affected due to construction of the Port City Development project. Our study concentrated on the study of the variations of air quality levels in CMC area and to identify the variation patterns at selected locations before Port City commenced. Data collection for on ambient air at seven selected locations suspicious to affect due to Port City Development Project by Industrial Technology Institute by using state of the art Mobile ambient air quality monitoring station with CEA recommended USEPA approved equipments.

Air pollution concentrations for measured parameters, Sulfur Dioxide (SO₂), Nitrogen Dioxide (NO₂), Ground Level Ozone (O₃), Particulate Matter having diameter is less than 10 µm (PM₁₀) and Particulate Matter having diameter is less than 2.5 µm (PM_{2.5}) were not exceeded the National Ambient Quality Standards in Sri Lanka.

The diurnal pattern of concentrations of air pollutants indicates that vehicular emissions with traffic congestions are the major contributor for air pollution in the Colombo city. It was found that emissions from thermal power stations operating in and near the Colombo metropolitan area using relatively high sulfur fuel and emissions from ships

in Colombo Port and shipping routes in the vicinity are added burden for air pollution in Colombo City.

Keywords: Ambient Air, Vehicular Emissions, Traffic Congestion