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Assessment on expressway development to the ambient air quality

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As urbanization proceeds, new highways are constructed for transportation and development, and stream ecosystems within highway corridors are susceptible to impact from construction activities. The air pollutants which are released through the vehicular and construction sources alter the quality of the surrounding atmosphere, and some pollutants will cause acute as well as chronic respiratory impacts on human health. Pollutants including heavy metals such as Lead (Pb) and Zinc (Zn) with atmospheric particulate matter will deposit on ground surfaces via wet and dry deposition processes. The Outer Circular Highway Package III (OCH-NS II) is to be constructed as a four-lane dual carriageway facility with provision for eventual expansion to six lanes. OCH-NS II is the final segment of the three segments of the Outer Circular Highway, which links the Southern Expressway to the Colombo-Katunayake Expressway, commencing at the Kottawa Interchange, which is the northern end of the Southern Expressway (STDP) and terminating at Kerawalapitiya Interchange. This study was based on the monitoring of ambient air quality at selected locations throughout the Expressway trace during the construction phase. The air quality sampling was carried out on a monthly basis, *i.e.*, once the month from four selected sampling points, and the samples tested for ambient air quality parameters. Baseline survey for Ambient Air Quality was conducted before commencement of construction work, and the regular monitoring of initial air quality parameters were carried out while construction work were ongoing. All the collected Air Quality samples were tested for three air quality parameters namely NO₂, SO₂, and PM10, according to the standard air quality testing procedures given in CEA standards.

The results revealed that NO₂, SO₂, and PM10 are significantly higher than the baseline concentrations; however, they do not exceed the CEA stipulated values. The highest recorded NO₂ concentration was 120 µg/m³, slightly lower than the given CEA standard, *i.e.*, 140 µg/m³. As in the NO₂ concentration the highest recorded SO₂ concentration was 90 µg/m³, lower than the given CEA standard, *i.e.*, 120 µg/m³. Similarly, PM10 concentrations were around 70 µg/m³, while the upper limit given by CEA is 100 µg/m³. However, the particulate Pb concentrations were not different from the baseline values. The percentage of the NO₂ increment compared to the baseline data is 40% and for SO₂ it is 45%, while for PM10 it is 35% respectively. This study recommends that construction activities with heavy machinery has made significant changes in atmospheric air quality, and therefore precautions must be suggested through the EIA study.

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