Impact of school traffic on outdoor carbon monoxide levels

ABSTRACT

This paper aims to determine the relationship between carbon monoxide levels with vehicles, including types and motions of vehicles in a school traffic environment. Children are more vulnerable as they spend most of their time in school and their still-developing respiratory system makes them more susceptible to air pollution compared to adults. The research was carried out by direct measurement of carbon monoxide using MultiRAE Lite PGM-6208 and counting of vehicles manually using tally counter with different traffic flow scenarios, type of vehicles, school days, locations and in schools. From the findings, it is found that the measurements of carbon monoxide exposures were significantly greater in town schools compared to rural area; weekdays recorded much higher carbon dioxide levels compared to weekends; moving vehicles had stronger effects compared to idle vehicles; and light-duty vehicles (LDV) had highest among other types of vehicles. The results show a large impact of traffic management and transport mode on carbon monoxide exposures to school children in the schools.