Measurement and evaluation of road traffic noise levels

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A study was carried out to determine the existing road traffic noise levels in category A, B and C grade roads. A total of 5 separate locations, each with different traffic conditions were selected for this work. Noise measurements were carried out approximately 5 m from the edge of the traffic route and 1.5 m above the ground level. In each location, noise measurements were taken for a duration of 13 hours on weekdays categorized as, early morning (6 a.m. – 8 a.m.), late morning (8 a.m. to 12 noon), afternoon (12 noon to 4 p.m.), evening (4 p.m. to 7 p.m.) and night (7 p.m. to 9 p.m.). Several noise level descriptors were measured simultaneously. Questionnaire was given to residents in the same locations to asses their perception towards noise disturbances.

It was observed that average noise levels (L_{90}) reached above 55 dB (A) if the number of vehicles exceeds 1000 vehicles per hour. When number of vehicles falls below 500 vehicles per hour, average noise level stays below 50 dB(A). For category A roads noise, levels stays above 55 dB(A) where as for category C roads the same was below 50 dB(A) throughout the day. The composition of vehicles showed that heavy vehicles such as lorries and containers contribute significantly to the average noise levels in category A roads. For category B and category C roads, very light vehicles, such as motorbikes and three wheelers contribute to the average noise levels heavily.

Survey results shows that a-weighted equivalent noise level (L_{Aeq}) exceeds 60 dB(A) excluding nighttime at category B and C roads. The equivalent noise levels in Colombo–Kandy main road (category A) exceeds 72 dB(A) including the nighttime.

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