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Assessment of Traffic Noise Pollution in the Selected Residential Area at Seksyen 7, Shah Alam, Selangor

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Structured Abstract

Background: Rapid urbanization and increased vehicular traffic have made traffic noise pollution a critical environmental issue in residential areas, with significant implications for public health and well-being. In Malaysia, noise levels in urban residential zones frequently exceed the Department of Environment's (DOE) permissible limits. Seksyen 7 in Shah Alam, Selangor, is a representative case, where traffic congestion and ongoing infrastructure projects are reported to exacerbate noise pollution, posing health risks to residents.

Methods: A field assessment was conducted at three locations which were at Persiaran Permai, Persiaran Bestari, and Persiaran Kayangan in Seksyen 7 over three days (Monday, Tuesday and Wednesday). Traffic noise levels (L_{Aeq}, L_{max}, L_{min}) were measured using a calibrated Class 1 Sound Level Meter at 15-minute intervals from 7.00 a.m. to 5.00 p.m. Simultaneously, traffic volume was manually counted and categorized. Data analysis employed descriptive statistics to determine compliance with Department of Environment (DOE) standards. Inferential statistics, specifically Pearson correlation, were also used to analyse the relationship between traffic density and noise levels.

Results: The assessment revealed that traffic noise levels in Seksyen 7 consistently and significantly exceeded the Second Schedule of DOE daytime permissible limit of 65 dBA for urban residential. The L_{Aeq} across the three selected locations ranged from 67.3 dBA to 72.5 dBA throughout the daytime. The highest equivalent continuous noise level L_{Aeq} of 72.5 dBA was recorded during the evening peak hour. Furthermore, acute noise events were severe, with maximum instantaneous levels (L_{max}) reaching up to 94.0 dBA, often associated with heavy vehicles, motorcycles, and emergency sirens. These findings confirm a state of chronic noise pollution in the area, with all sampling points failing to comply with DOE standards.

Conclusion: The study confirms that Seksyen 7 is subject to significant traffic noise pollution exceeding the DOE limits. This underscores the urgent need for integrated noise mitigation strategies, including stricter enforcement of regulations, urban planning interventions, and public awareness, to protect resident health and improve the living environment.

Keywords: Traffic Noise Pollution, Urban Residential Area, Noise Assessment, Shah Alam, Public Health

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