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Assessment on Traffic Noise Pollution near Residential Area Located in Section 7, Shah Alam

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Structured Abstract

Background: Traffic noise pollution is a growing concern in residential areas, as it can affect the well-being of residents by causing issues such as stress, sleep disturbances, and health problems. The main sources of traffic noise include vehicles like cars, motorcycles, buses, and lorries, with noise levels often increasing during busy traffic periods. This study aims to assess traffic noise pollution near a residential area by measuring noise exposure levels, identifying traffic volume patterns, and analyzing the relationship between noise levels and traffic volume. The results will help understand the impact of traffic noise on residential areas and support efforts to reduce noise pollution.

Methods: In achieving the objectives of this study, data collection is being measured by conducting on-site monitoring and analysis by using Pearson Correlation by Statistical Package for Social Science (SPSS). The area monitoring was conducted using the sound level meter (SLM) to measure the noise exposure level, while traffic volume was measured by personal monitoring using a manual counting meter.

Results: The L_{Aeq} recorded in the vicinity of residential areas within Section 7, Shah Alam, has varied from 65 dBA to as high as 90 dBA. The recorded level is over the permissible limit according to the Department of Environment Malaysia in a suburban residential area of 65 dBA and revealed high noise pollution. The results of this study have shown that the highest noise levels were closely associated with increased traffic volume, particularly in the morning and evening rush hours when the number of vehicles, such as cars, motorcycles, and lorries, was at its peak. Such high noise levels may put the residents in jeopardy of sleep disturbance, stress, and long-term health problems such as hypertension. The results highlight the need for proper noise mitigation strategies to minimize the impact of traffic on the residential community. Additionally, this present study revealed that the traffic noise levels and volume of traffic are positively correlated in all of the three sampling points, with an overall average of $r = 0.808$. These findings confirm the fact that noise levels increase with the volume of traffic, though its strength varies from one location to another due to site-specific factors such as road conditions, traffic composition, and surrounding land use.

Conclusion: This research shows how Malaysia supports Sustainable Development Goals (SDG) 11 on Sustainable Cities and Communities by pointing to the need for management strategies related to traffic noise pollution which are improving traffic flow, noise barriers, and better urban planning. Further research on noise mapping and methods for noise reduction might be necessary to study the quality of life of residents and provide directions to policy planners in developing sustainable communities that are liveable.

Keywords: Traffic noise pollution, residential areas, noise barriers, urban planning, exposure limit.

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