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Traffic Noise Assessment at Selected Residential Areas in Eco Ardence, Setia Alam, Selangor

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Structured Abstract

Background: Traffic noise has become a major environmental concern in Malaysia related to rapid urbanization and the rising number of vehicles in particular, residential localities such as Eco Ardence, Setia Alam, Selangor. Long-term exposure to sound levels that are beyond the regulations is associated with tremendous health risks such as sleep disturbance, stress, and cardiovascular diseases. In this study, the researcher will assess the level of traffic noise pollution and establish the effect of such pollution on this high-density residential location by comparing the measured results with national standards of environmental pollution.

Methods: The research was conducted at three strategic points within Eco Ardence: point 1 Persiaran Setia Kasih (near to commercial areas), point 2 Jalan Eco Ardence (near to residential areas) and point 3 Persiaran Setia Damai (near to lake and residential areas). Data collection occurred over three consecutive days, from Monday to Wednesday, between 7:00 a.m. and 5:00 p.m. Noise levels, specifically the equivalent continuous sound level (LAeq), maximum noise level (Lmax), and minimum noise level (Lmin), were measured at 15-minute intervals using a Class 1 Sound Level Meter[6]. Descriptive statistics were employed to analyse the noise distribution and identify peak noise periods throughout the monitoring duration.

Results: The findings for Objective 1 revealed that traffic noise levels at all monitoring sites exceeded the Department of Environment (DOE) daytime limit of 65 dBA for residential areas. At Point 1 (Persiaran Setia Kasih), the noise levels fluctuated between a high LAeq of 71.2 dBA and a low of 66.8 dBA[3]. Point 2 (Jalan Eco Ardence) recorded the highest overall impact with LAeq reaching 72.8 dBA during the evening rush hour and a minimum of 66.5 dBA. Meanwhile, point 3 (Persiaran Setia Damai) showed LAeq values ranging from a high of 70.5 dBA to a low of 66.2 dBA, while also recording a peak Lmax of 94.2 dBA due to heavy vehicle acceleration near the commercial hub. Across all locations, the highest noise levels consistently coincided with the morning peak at 7:00 a.m. and the evening rush hour peak at 5:00 p.m.

Conclusion: In conclusion, Eco Ardence residents are exposed to chronic noise levels exceeding safe regulatory standards. High traffic volume and heavy vehicle movements are the primary contributors to this pollution. Urgent mitigation measures, such as installing noise barriers and stricter traffic management, are recommended to enhance the community's quality of life.

Keywords: Traffic Noise Pollution, Traffic Volume, Urban Residential Area, Eco Ardence Setia Alam, Noise Mitigation.

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