Available online at
www.ijacskros.com

Indian
Journal of Advances in
Chemical Science

Indian Journal of Advances in Chemical Science S1 (2016) 157-159

Analysis of Road Traffic Noise at Various Zones in Mysore, India

H. G. Vivek Prasad*, H. N. Rajendra Prasad*, Laxmi Kant Pandey, Aman, Chandrashekhar, Mitesh Pratap, Priyesh

Department of Construction Technology and Management, Sri Jayachamarajendra College of Engineering, Mysore - 570 006, Karnataka, India.

Received 20th April 2016 ; Revised 03rd May 2016; Accepted 10th May 2016

ABSTRACT

Noise is one of the most important pollution in metropolitan and urban areas, recognition of road traffic noise as one of the main sources of environmental pollution is the need of the hour. In urban areas, people commute regularly for performing their day-to-day activities, which leads to more and more travel using private modes of transportation, which are one of the chief agents of noise pollution. In addition to its population growth, development of the mega cities will increase noise pollution level. Traffic noise from roadways and highways creates problems for surrounding area, especially when there are high traffic volume and high speeds. Vehicular traffic noise problem is contributed by various kinds of vehicles such as heavy, medium truck/buses, automobiles, and two wheelers. As the city is rapidly developing; more and more vehicles are being used regularly, which is adding thrust on noise level in the city. In this paper, a study on traffic noise in Mysore city has been done in the different zones of the city so that noise levels are analyzed and measures can be taken to reduce the risk on health hazards of increased noise levels.

Key words: *Noise, Zones, Dosimeter, Sound intensity.*

1. INTRODUCTION

Any unwanted sound that is not only loud but also unpleasant at the same time and causes disturbance to the residents is commonly referred to as noise. Motorized vehicles [1], which hold a very noteworthy amount of this urban setting, are also the crucial source of urban noise emission, providing about 55% to the total noise. The rising channel population gives increase to unrestrained noise pollution and related health concerns and can cause both short-term as well as long-term psychological and physiological syndromes. Noise is a very convoluted experience in its physical aspect, as well as in its psychological and medical scopes. In consequence, it is nearly important to measure, forecast, or define noise in a simplified way. The Central Pollution Control Board (CPCB) [2,3] has included noise as an air pollutant under Section 20 of Amended Air Act of 1987 and has laid down the ambient noise standards. The consequences of noise are sporadically disastrous, and are frequently only momentary, but unfavorable effects can be collective with lengthy or repeated exposure. The present work was designed with the resulting objectives of studying road traffic noise altitudes at various locations and comparing them to the CPCB standards.

2. METHODOLOGY

For the evaluation of noise levels, 2 locations under each zone (residential, commercial, industrial, and silence) were selected. The readings were recorded using a Type-2 noise dosimeter (Model name Cesva SC310). The instrument is held in the hand in still position at around 1 m from the ground level pointed toward the noise source. It is calibrated initially, and the preliminary settings are done. The data are measured continuously for 8 h, around 10 am to 6 pm. While taking the readings, hourly variations were also taken into account. For the proper evaluation and analysis of the results, the following noise manifestations were calculated:

- L_{AT} and L_{CT}: Equivalent continuous sound pressure level with integration time T for A and C for frequency weightages, respectively.
- L_{cpeak}: Peak sound pressure level.
- L_{EX8hp}: Average sound pressure level for a period of 8 h.

3. RESULTS AND DISCUSSION

The analysis is done on the basis of the study of variation of road traffic noise in the study area**,** and the values were compared to the CPCB standards.

*Corresponding Author:
E-mail: vivekprasad22@gmail.com
E-mail: hn.raji@gmail.com

Table 1: Details of noise levels across various locations.

Zones	Locations	L_{AT} (dB)	L_{CT} (dB)	L_{cpeak} (dB)	L_{EX8hp} (dB)
Residential zone	Vijayashreepura	55.3	67.6	85.6	58.7
	Vijayanagar 3rd stage	67.8	70	110.8	66.9
Silence zone	Vijayshreepura park	62.1	72.6	122.8	58.1
	Vidyavardhaka college	61.9	70.5	112.4	63.1
Industrial zone	Hootagalli industrial area	91.8	106.5	138.4	87
	J. K. Tyres factory	88.7	103	134.9	87.9
Commercial zone	City bus stand (MYS)	87.6	88.2	114.6	93.7
	Kalidasa road	76.9	80.2	116.5	79.4

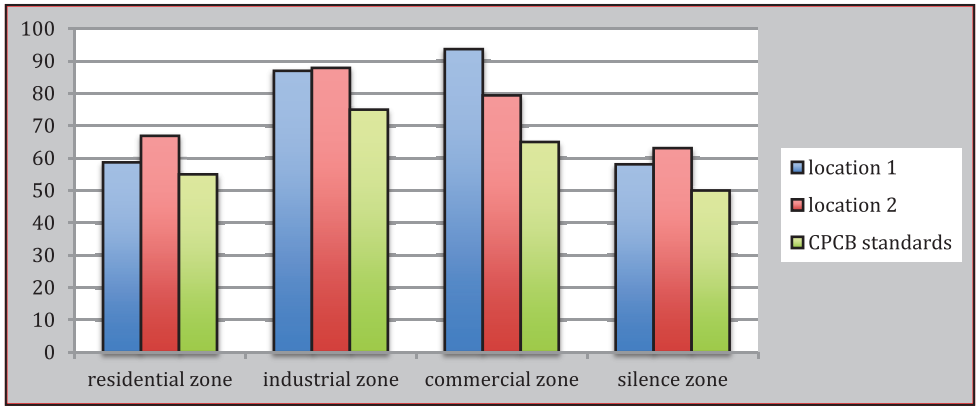

Figure 1: Average sound intensity at different zones.

In the residential zone, readings were taken at two locations namely, Vijayashreepura and Vijayanagar 3rd stage. The noise levels obtained at both the locations were higher than CPCB standards. This can be harmful for the residents residing in the area.

In the silent zone, readings were taken at Vidyavardhaka College of Engineering and a park in Vijayashreepura, located adjacent to Aishwarya Petrol Bunk. The CPCB standard for this zone is 50 dB, which is far lower than the obtained values, which implies that huge vehicular traffic is causing these values to rise.

Hootagalli and J. K. Tyres factory were the locations chosen under industrial zone. From the readings obtained, we came to know that the peak values obtained were highest among all the selected locations due to sudden movements of heavy vehicles.

City bus stand observes the highest average sound level reading due to it being the most populated area in the city and a junction for all the buses running in the city. Along with city bus stand Kalidasa road also was included under commercial zone. Referring the Table 1, we can see that noise level in Kalidasa road has a value of 79.4 dB, due to the presence of a large number of commercial centers. From the Figure 1, we can clearly see that the noise values for both the locations are way higher than the CPCB standard value of 65 dB for a commercial zone.

To reduce the noise levels, it is advised to use some feasible sound absorbing materials in the major industrial and commercial zones of the city. If permitted by the state government, an underpass is highly required at the city bus stand. Constructing single lane roads, usage of public transport to a maximum extent will help in reducing the noise levels significantly.

4. REFERENCES

1. D. Banerjee, S. K. Chakraborty, S. Bhattacharyya, A. Gangopadhyay, (2008) Evaluation and analysis of road traffic noise in asansol: An industrial town of Eastern India, ***International Journal of Environmental Research and Public Health,*** **5(3):** 165-171.
2. A. K. Dasarathy, T. S. Thandavamoorthy, (2013) Noise pollution in Chennai: A case study, ***Asia Pacific Journal of Research,*** **I(XI):** 143-148.
3. D. Singh, A. Kaur, (2013) Study of traffic noise pollution at different location in Jalandhar City, Punjab, India, ***International Journal of Environmental Sciences and Research,*** **2(2):** 135-139.

***Bibliographical Sketch**

H.G.Vivek Prasad is currently working as an Assistant Professor in the Department of Construction Technology and Management at Sri Jayachamarajendra College of Engineering (Autonomous under V.T.U.) where he has been a faculty member since 2012. Vivek completed his Masters in Structural Engineering at R.V.C.E under Visvesvaraya Technological University (2009) and his undergraduate studies in Civil Engineering at S.J.C.E. under Visvesvaraya Technological University (2007). His research interests lie in the area Alternative Building materials, Transportation Engineering, Geotechnical engineering.Vivek has a field experience of 3 years and more than 4 years of experience as an academician aggregating to 7 years of work experience in the arena of Civil Engineering.