

## MEASUREMENT OF NOISE POLLUTION IN VARIOUS PARKS OF LUCKNOW CITY

Sumil Nigam<sup>1</sup>, Prof.(Dr) A.K. Shukla<sup>2</sup>,

Prof.(Dr) J.B.Srivastava<sup>3</sup>

<sup>1</sup>M.Tech, Department of Civil Engineering, Institute of Engineering and Technology, Lucknow

<sup>2,3</sup>Department of Civil Engineering, Institute of Engineering and Technology, Lucknow

### ABSTRACT

The present study deals with assessment of Noise pollution at various parks of Lucknow city including Smriti Vihar park, Ram Manohar Lohia park and Ambedkar Memorial park and the evaluation of noise pollution was done during weekend (Saturday and Sunday). In this investigation the Noise level were estimated with the assistance of instrument SPL(Sound weight level) sound meter alongside GPS(Global Positioning System) area of the concerning destinations. The Noise contamination assessed was established in excess of 50 dB (A) during day and 40 dB (A) during night which are over the suggested standard level for Silent Zone by CPCB at these three stops under thought on end of the week. The Leq and Lavg values for Smriti Vihar park was 91.71 dB (An) and 62.39 dB (An) individually, the recreation center had most elevated amount of commotion contamination while Leq and Lavg values for Ambedkar Memorial park was 91.14 dB (An) and 61.65 dB (A) separately though Leq and Lavg esteem at Ram Manohar Lohia park was observed to be 86.6 dB (An) and 58.3 dB (A) separately . The explanation for abnormal state of contamination in Smriti Vihar park and Ambedkar Memorial park was the substantial traffic power passed adjacent the recreation center while Ram Manohar Lohia park lower level of commotion was established because of essence of greenery or tree manor and furthermore having 10 meter high limit divider ,in this manner having height of park level higher than street level. Subsequently so as to lessen the commotion contamination parks ought to be encompassed by greenery or by creating green zone around the recreation center just as higher limit divider which go about as clamor obstruction around the recreation center..

## INTRODUCTION

The word Pollution has been gotten from the Latin word 'Contamination em' (which means to debase or make filthy). Toxin is a substance, the nearness of which causes contamination. The contaminations contact us through the air we inhale, the water we drink, the nourishment we eat and the sound we heard . Commotion is the term given to the sound (created by vibration in air or other medium) which turns out to be noisy, or unpalatable, or undesirable. Since the undesirable sound (for example clamour) surely creates a few unwanted impacts on our body wellbeing, it is named as a natural contamination. The Air (Prevention and Control of Pollution) Act 1981 included clamour as one of the air poisons.

So commotion contamination might be characterized as undesirable sound, which gets discarded into nature without checking its antagonistic impact on living being.

**Sources of noise :** The man-made exercises fundamentally the advancement of vehicle and the urbanization and industry are the wellspring of cause of commotion. The open air commotion sources overwhelming worldwide are for the most part development and transportation frameworks, including airplane clamour, rail commotion and engine vehicle clamour (Noise Pollution and Abatement Act of 1972). Boss reasons for clamour produced from traffic are the fumes frameworks and engines of vehicles.

## DEFINITIONS

In this section some of the terms used in this survey will be explained:

**Sound pressure:** It is the pressure that achieves the eardrum of human and ani-mal ears, brought about by the wavering development of the atoms in the medium (by and large the air). It is given in Pascal (Pa).

**Sound pressure level:** It is given by the recipe beneath, where the reference sound weight is the base sound weight that can be seen by the human ear.

**dB (A):** The ear affectability to sound is subject to the recurrence of the sound being recognized. Frequencies at the boundaries of the consultation recurrence range are not also recognized as frequencies amidst the range.

To represent this when estimating sound, a gauging bend is utilized to put more accentuation on frequencies to which human ears are progressively touchy. The "A" gauging bend is

commonly utilized to quantify sound levels. The sound weighed by the "A" bend approaches the impression of the human ear and its worth is given in dB (A).

Some typical values:

$L_{eq} \leq 30$  dB(A) – bedrooms

$L_{eq} \leq 35$  dB(A) – classrooms, libraries, medical premises

$L_{eq} \approx 65$  dB(A) – business offices with normal conversation

$L_{eq} \approx 75$  dB(A) – street with intense traffic measured at the curb

$L_{eq} \approx 85$  dB(A) – street with heavy lorries passing at 6m of distance

Equivalent sound level ( $L_{eq}$ ): Noise levels are extremely variable over time, going up and down continuously, making it difficult to be evaluated. So as to make things simpler, the proportionate level was characterized as a constant sound level that would create a similar impact on the human ear whenever contrasted with the real commotion saw during the estimation, with every one of the varieties installed. In this way,  $L_{eq}$  can substitute all varieties with a solitary estimation of the clamor level.

## Material and Methods

The Noise Pollution level was monitored at various parks of Lucknow City on the weekend (Saturday and Sunday). The time duration taken for study between 7am to 11am (peak period) in morning and from 4 pm to 8 pm during evening. For this reason 3 areas including Silent zone (viz. Smriti Vihar park, Ambedkar Memorial park and Ram Manohar Lohia park ) chose inside the city. The clamor levels were checked with the guide of SPL(Sound weight level) sound meter. The measures of commotion level were contrasted and that of the models endorsed in Environmental Protection Rules, 1986 and benchmarks of CPCB4. According to suggested clamor gauges, the most extreme point of confinement for clamor level in Silence Zone during day is 50dB and in night is 40dB .

## Results and Discussion

The noise levels were monitored and measured with the aid of SPL(Sound pressure level) sound meter. The level of Noise Pollution during present study of parks was noticed to be higher when compared with the standards limits . The sound levels reported at these three parks in Lucknow City which comes under the silent zone are shown below:

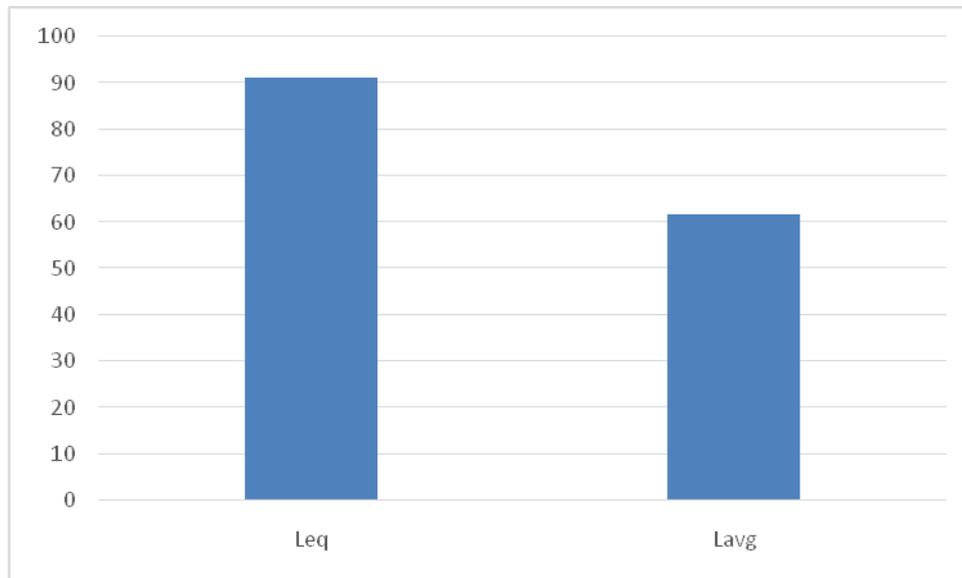


Figure 1: Noise pollution in Ambedkar Memorial park

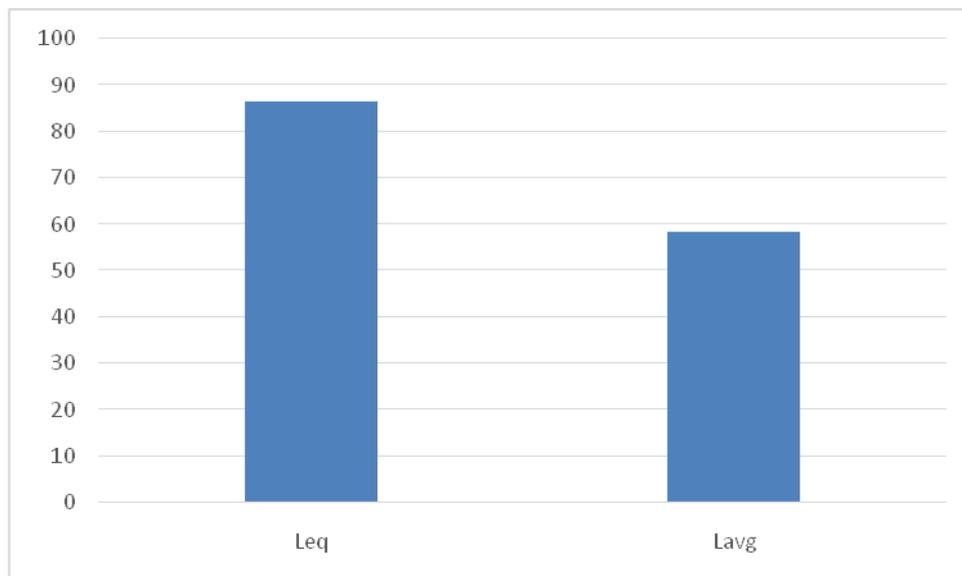


Figure 2: Noise pollution in Ram Manohar Lohia park

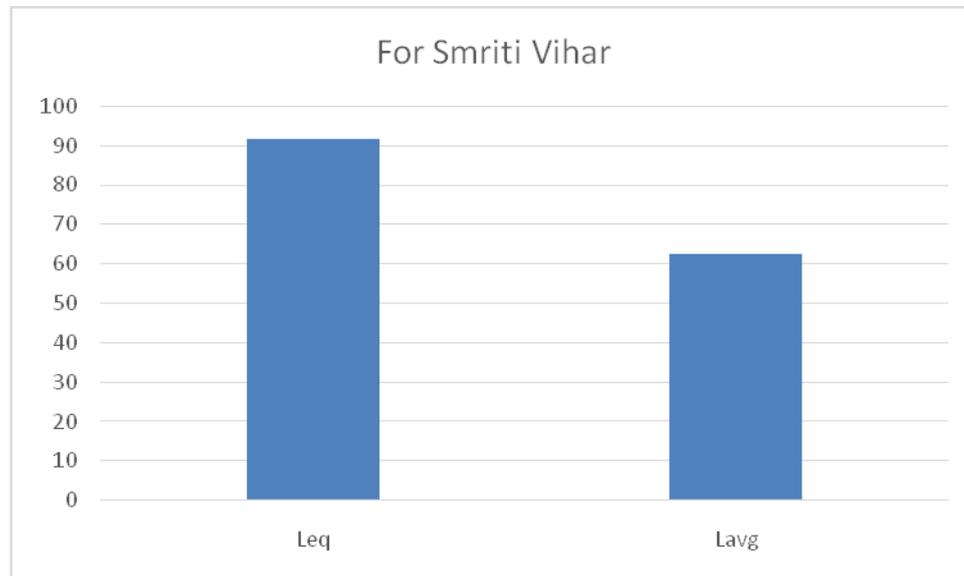


Figure 3: Noise pollution in Smriti Vihar park

### Recommendations:

In case of Silent Zone (especially parks) the volume of traffic should be reduced by diverting the traffic passing by the Silent Zone and use of horn should be minimized. There should be plenty of trees in open space around the Silence Zone.

Conclusion From the present Investigation it was concluded that Noise level of parks is high as per Ambient Noise Standards. From the data it was also concluded that the Leq and Lavg was found to be high at Smriti Vihar park and Ambedkar Memorial park as compared to Ram Manohar Lohia park.

So the Smriti Vihar park and Ambedkar Memorial park requires Noise barriers like wall around the park or develop green zone by planting trees.

**References:**

1. Vijayalakshmi K.S., Bunch M.J., Suresh V.M. and Kumaran V.T., Proceedings of the Third International Conference on Environment and Health, Chennai, India, Chennai: Department of Geography, University of Madras and Faculty of Environmental Studies, York University, 597–603, (2003)
2. Kisku G.C., Sharma K., Kidwai M.M., Barman S.C., Khan A.H., Singh R., Mishra D. and Bhargava S.K., Profile of noise pollution in Lucknow city and its impact on environment, *Journal of Environmental Biology*, 27(2), 409-412, (2006)
3. Roberts H.C. and Liu D.H., *Environmental Engineers*, Handbook C R C Press LLC, (1997)
4. Tripathy, D.P., *Noise pollution*, A.P.H Publishing Corporation, (1999)
5. Sharma V. and Joshi B.D., Assessment of Noise Pollution During Deepawali Festival in A Small Township of Haridwar City of Uttarakhand, India, *Environmentalist*, 30, 216–218, (2010)
6. Deka S., Study on noise pollution in different areas of Guwahati city, Assam, India, *Indian J. Environ. & Ecoplan.*, 3(3), 633-636, (2000)
7. Babisch W., Ising H., Gallacher J.E.J and Elwood P.C., Traffic noise and cardiovascular risk, *Arch Environ Health*, 43, 407–14, (1988)
8. Chauhan A., Pawar M., Kumar D., Kumar N. and Kumar R., Assessment of Noise Level Status in Different Areas of Moradabad City, *Report and Opinion*, 2(5), 59-61 (2010)
9. Omidvari M. and Nouri J., Effects of noise pollution on traffic policemen, *Int. J. Environ. Res.*, 3(4), 645-652 (2009)
10. Sagar T.V. and Rao G.N., Noise pollution levels in Visakhapatnam city (India), *Journal of Environ. Science and Engg.*, 48 (2), 139-142 (2006)
11. Roozbahani M., Mohammadi N. P. and Shalkouhi, P.J., Risk assessment of workers exposed to noise pollution in a textile plant, *Int. J. Environ. Sci. Tech.*, 6(4), 591-596 (2009)