

TRAFFIC INDUCED NOISE POLLUTION AND ITS EFFECT ON HUMAN WELLBEING AND CONCEIVABLE HAZARD DECREASE MEASURES FOR ANAND CITY

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Abstract: Noise is an unavoidable part of our day by day lives. Urbanization and industrialization have contributed in expanded use of vehicular traffic. Traffic has risen the real supporter of noise pollution in urban territories. The goals of the investigation were to 1.To screen street traffic noise level and contrast those and the points of confinement endorsed by CPCB 2. To discover its effect on human well being and 3.To recognize appropriate remedial procedures. The inspecting areas are as per the following: 1. Mota bazaar 2. Bhaikaka circle 3. Shaheed Chowk 4. Grid Char Rasta. Estimations were taken with digital sound meter SL 1352 (IEC 61672 Type 2) on A-weighting scale at a stature of about 1.5m from the ground level. To look at the observation about the noise and its effect on the well being of the network; the open has been met through a survey. The outcomes show high commonness of annoyance, anxiety, nervousness, sleeplessness, hypertension, stress issue, hearing issues, and so on. In light of this we propose least use of horn and its powerful execution, arrangements of the green belt, presentation of noise leveled out strategy and establishments of noise policies.

Keywords : Health problems, Mitigation strategies, Noise, Vehicular traffic.

I INTRODUCTION

In many urban areas the general public delivery system could be very inefficient and inadequate, resulting in extraordinary increases of customized automobiles. Except this, the heterogeneous nature of site visitors, usually plying on roads, develops the interrupted visitors drift situations and is without delay responsible for visitor congestion which offers rise to noise pollutants. In city areas, site visitors noise, considered as one of the best public annoyance, is regularly generated by way of risky traffic. This instability is essentially correlated to visitors law devices, which generate acceleration/deceleration activities relying on site visitors conditions, road traits and driving behavior. Acoustical noise produced by way of vehicular traffic depends on many parameters, including the geometry and the overall features of the street. The presence of conflicting factor, i.e. an intersection, strongly affects and modifies the simulation method of noise in urban environments, this is usually completed with statistical models tuned on experimental information related to conventional circumstance (loose waft traffic, intermediate vehicular volumes, and so on.) Noise is an unacceptable state of sound that create annoyance, hampers intellectual and physical peace, and might induce intense harm to the health. Due to fast development of the urban regions, the traffic noise pollutants have emerged as growing severely in economically developing nations. Normally, rising ranges of noise pollutants are related to the accelerated boom of towns and the growing circulate of the vehicles. site visitors noise is considered as one of the most important sources of noise pollution that adversely influences human fitness this is why the results of noise pollutants on human health had been taken into consideration via the WHO [World Health Organization] to be the third maximum dangerous types of pollutants. The WHO considered noise as an environmental threat thing for terrible fitness and a major environmental trouble. The outcomes of noise on human fitness and luxury are divided into 4 classes relying on its period and quantity. They are– [i] bodily consequences along with hearing defects; [ii] physiological outcomes, inclusive of elevated blood stress, irregularity of heart rhythms and ulcers; [iii] mental consequences, such as problems, sleeplessness and going to sleep late, irritability and stress; and [iv] results on work performance, consisting of reduction of productivity and false impression what is heard. A few researchers have advised that outdoor environmental noise need to no longer exceed 55 dB(A) inside the residential areas and night time time noise more than 40 dB (A) has been counseled to sleep disturbance. The aspect consequences of improperly planned industrialization is the pollutants of our environment and consequent degradation of the best of lifestyles. It is far properly set up now that noise is an ability risk to health, verbal exchange and entertainment of social lifestyles. A comparable have a look at that focused on the behavior of human beings uncovered to traffic noise was completed in Canada by Michaud et al. (2008). Generally, motor

vehicles, which might be a very sizeable part of the city surroundings, are a vital supply of noise emission, contributing 55% of the entire noise (Banerjee et al.2008;Nirjaret al. 2003).Yoshida et al. (1997) studied that on densely travelled roads, the equivalent noise degree for 24 hrs can attain up to 7580 dB. Noise can motive an emotional pressure and emerge as a supply of superb frustration whilst the noise is past a person's manipulate. Noise causes exhaustion, absent-mindedness, tenseness and irritability.

II. METHODOLOGY

In the preliminary survey we carried out site visit and problem identification and we came to know that these above mentioned four locations are the locations where problems are found and after that we carried out noise data collection along with traffic volume count which shows movement of vehicles and classification of road.Noise descriptors like L_{10} , L_{50} , L_{90} , L_{eq} , NC , TNI , LNP gives different values which helps to provide accurate analysis of all four locations. Digital Sound Level Meter SL-1350, Type 2 with Frequency Weighting Network as per IEC specifications 61672, frequency range of 31.5Hz to 8,000Hz and measuring range between 0 – 130 dB was used for the survey. A calibrator was used for calibration at 94.0dB (A) before and after sampling. All reading was taken by the 'A-Weighting' frequency network, at a height of about 1.5 meters from ground level and on the 'Fast' range time weighting. The 'A' weighting characteristic and 'Fast' range is simulated as 'Human Ear Listening' response. All measurements were posted away during working days and under suitable climatic conditions. At a selected field, noise survey was taken to identify measurements of noise at a location and stages. Measurements of environmental noise levels were recorded by using a sound level meter SL-1350 (HTC) comply with IEC standard. During the noise level measurements the sound level meter (SLM) was taken in such a manner that the microphone was at 1meter from any reflecting surface and 1.2 meters from the ground corresponding to the heat level of an ordinary individual. Measurements were recorded at intervals of 60 minutes for a period of 120 minutes per sampling location thrice a day. Measurements are conducted complying with the Central Pollution Control Board and ISO Guidelines (International Organization for Standardization, 1995). The data-sampling task is carried out from January to February 2019 during the spring time in India, on weekdays and under ideal meteorological conditions i.e. no rain. A 24-hour day is split into two periods as per CPCB guideline daytime (6:00 - 22:00) and night (22:00 - 6:00). In every location, the sound level meter is placed on the sidewalk. The equipment is set 3 meters from the center line of the nearest driving lane. The noise data acquisition is done on both sides of the road on two randomly selected days. All the interpretations were held from January 2019 to February 2019.After obtaining results of different parameters we carried out a study to identify impact on human health with the help of JASP which gives result in terms of reliability status which shows that your data is how much reliable and Is it satisfactory or not.Based on population we design sampling population. After obtaining sampling populations we carried out questionnaire survey. Results obtained during noise survey and questionnaire survey are mentioned in the result section of this paper.

III. RESULT AND DISCUSSION

Table 1 Results of Noise Data and Indices

Sr.No	Location	Timing	L ₁₀	L ₅₀	L ₉₀	NC	L _{eq}	TNI	LNP	L _{max}	L _{min}	S.D
1	Mota Bazaar	9 to 11	86.45507	72.3375	58.21993	28.23514	86.57362	141.1605	113.8597	95.8	58.9	5.647027
2	Mota Bazaar	5 to 7	82.29383	74.69167	67.08951	15.20432	78.81973	97.9068	93.74885	91	65.4	5.430115
3	Mota Bazaar	10 to 12	72.06647	66.20667	60.34694	11.71947	68.65927	77.2248	80.21523	80	59.6	3.446902
4	Bhaikaka Circle	9 to 11	77.80799	72.19833	66.58867	11.21933	74.44607	81.46598	85.51555	86.4	63.2	5.099695
5	Bhaikaka Circle	5 to 7	71.65165	65.76417	59.87669	11.77496	68.24006	76.97654	79.84996	79.5	59.6	3.270823
6	Bhaikaka Circle	10 to 12	68.22983	61.00583	53.78183	14.448	64.73342	81.57382	78.93291	75.7	46.6	6.019999
7	Shaheed Chowk	9 to 11	83.83972	69.9525	56.06528	27.77445	83.72786	137.1631	110.5839	92.6	60.2	5.55489
8	Shaheed Chowk	5 to 7	74.3917	69.54417	64.69664	9.695063	71.22264	73.47689	80.8058	82.6	62.2	4.406847
9	Shaheed Chowk	10 to 12	68.00906	61.59417	55.17928	12.82978	64.53351	76.49839	77.16733	74.8	46.7	6.414889
10	Grid Char Rasta	9 to 11	78.21174	74.4275	70.64326	7.56849	75.45039	70.91721	82.95069	86.2	65.5	4.730306
11	Grid Char Rasta	5 to 7	82.37185	75.77417	69.17649	13.19537	78.88341	91.95795	91.87149	91.1	68.1	5.075141
12	Grid Char Rasta	10 to 12	61.343	51.4967	41.6503	19.6927	58.4217	90.421	77.6527	67.8	40	6.56423

Table 2 Comparison of obtained Leq and Limits Prescribed by CPCB

Sr.No	Location	Zone	Leq(obtained for daytime)	Prescribed limit(for daytime)	Leq(obtained for nighttime)	Prescribed limit(for night time)
1.	Motabazaar	Silence Zone	84.2951575	50	69.527175	40
2.	Bhaikaka Circle	Silence Zone	73.401445	50	63.341905	40
3.	Shaheed Chowk	Silence Zone	80.2490025	50	66.778785	40
4.	Grid Char Rasta	Commercial Zone	81.84097	65	58.530885	55

Comparison showed that result obtained during data collection are higher than those limits prescribed by CPCB. Comparison of result is for only Leq parameter because Leq is considered as a one of the most standard noise index. 110 people were interviewed by using questionnaire survey. Among which 58.2% were male and 41.8% were female. 53.6% people accept that there is a high level of noise present in that area in which they are living. 63% people are dealing with different conditions like annoyance, anxiety and headache during peak time hours.

IV. CONCLUSION

After comparing obtained results with CPCB standards we came to know that results are higher than those limits prescribed by CPCB and parameters like Noise Climate and Traffic Noise Index shows that it is impacting on human health. Less fluctuations in the readings of Noise Climate shows that noise is constant and due to that it is constantly impacting on human health which is a subject of concern. Along with that three locations Motabazaar, Bhaikaka Circle and Shaheed Chowk are considered as Silence Zone due to presence of numbers of schools and colleges. So school and college going student along with peoples living in those

areas are at a great risk which indicate that we should have to take some serious actions to reduce noise pollution and prevent human health. Implementation of strategies like Noise Under Control as like Pollution Under Control needs to be implemented. Along with that some environmental friendly and economical strategies like provision of green belt and trees plantation should be there. Prohibiting use of horn and heavy vehicles in the silence zone gives another enhancement in the results. Provision of noise barrier can greatly reduce noise pollution but cost effectiveness of it is an always a big issue.

v. REFERENCES

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