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Environmental Noise Pollution in Educational Institutes of Nagaon Town, Assam, India

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Abstract - Nowadays, along with air pollution and water pollution, noise pollution also hits the public life and creates problems to normal the life. Noise pollution around the educational institutes of Nagaon town of Assam, India produces multi problems to the teaching-learning process and negatively affects the performance of both teachers and students. The noise level should be in the range of 40 dB (A) to 50 dB (A) in and around an educational institute. But it exceeds in all cases. A study of this problem was carried out in some educational institutes of Nagaon town, Assam, India by taking measurement on noise level in dB (A) with the help of Noise Level Meter and by questionnaire supplied to students, teachers and officials. The analyzed result clearly shows that the rate of noise level in all the institutes (in and out) is very high and not suitable for teaching-learning process. Therefore Acts and regulations concerning noise pollution should be strictly adopted.

Keywords : *Nagaon, Noise, Noise pollution, Noise level meter.*

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Environmental Noise Pollution in Educational Institutes of Nagaon Town, Assam, India

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Abstract - Nowadays, along with air pollution and water pollution, noise pollution also hits the public life and creates problems to normal the life. Noise pollution around the educational institutes of Nagaon town of Assam, India produces multi problems to the teaching-learning process and negatively affects the performance of both teachers and students. The noise level should be in the range of 40 dB (A) to 50 dB (A) in and around an educational institute. But it exceeds in all cases. A study of this problem was carried out in some educational institutes of Nagaon town, Assam, India by taking measurement on noise level in dB (A) with the help of Noise Level Meter and by questionnaire supplied to students, teachers and officials. The analyzed result clearly shows that the rate of noise level in all the institutes (in and out) is very high and not suitable for teaching-learning process. Therefore Acts and regulations concerning noise pollution should be strictly adopted.

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I. INTRODUCTION

The word Noise is conveniently and concisely defined as unwanted sound that creates annoyance and interferes in conversation disturbs sleep and teaching-learning process; reduce work efficiency, causing stress and challenge to public health and it is silent killer problem growing day-by-day. Almost all the educational institutes are located near the busy places such as bus-stand, market area, busy roads etc. of the Nagaon town of Assam. Therefore these educational institutes suffer from noises and hence disturbing in school activities like teaching, learning and discussion session. But in other countries the educational institutes are fully equipped with modern technology to minimize noise from surroundings. Educational institutes are built with sound insulation buildings. The main sources of noise pollution are Traffic noise, Community noise, Industrial noise (Nigam, 2008).

The major source of noise pollution in the educational institutes of Nagaon town is traffic noise because all the institutes are located near the busy roads of the town. Transport sector is major source of traffic noise pollution in the town. With the rapid increase

of number of private and public vehicles in the town, the noise pollution also increases gradually because the road characteristics remain same but rate of traffic flow increases rapidly. In connection with this problem we can assessed that the major source of this situation are population growth, rapid urbanization and motorization.

Noise become an unjustifiable interferences and imposition upon human health, comfort and qualitative of human life (Gopalkrishana, 1978; Lakshimipathi, 1978; Gorai and Pal, 2006). Noise may define as unwanted sound, consequently it can be considered as the wrong sound in the wrong place at the wrong time (Kiely, 1997). Noise receives by human depends on some factors related to the man and these are age, sex, and mood of person.

Many studies addressing the problem of noise pollution in educational institutes throughout the world have been conducted. Ikenberry (1974) has analyzed some effects of noise pollution to school students, such as students found difficult to hear the teacher, lectures, classroom discussions, and other activities. Slater (1968) in his research work showed that students can perform better under quite condition than under noisy condition.

II. STUDY SITES

Nagaon district is one of the largest districts of the state Assam, India. It is located at a distance of 123 kilometer by road from Guwahati. Nagaon district is located between 25° 45' to 26° 45' north latitudes and 92° 33' east and 93° 20' east longitude. Average altitude of Nagaon district is 60.6 meters above the sea level. Almost all the educational institutes (Nowgong College, A.D.P. College, Girls College, Govt. Boys H.S.School, Govt. Girls H.S.School, I.T.I. Nagaon, Bengali Boys H.S.School, Bengali Girls H.S.School) are located near the busy places such as bus-stand, market area, busy roads etc. has a high rate of noise pollution of the Nagaon town of Assam. Noise pollution at educational institutes depends on where the institutes are located. All of these institutes are located in high voltage noise pollution zones i.e. near NH-37, busy PWD roads, people by-pass and commercial areas and suffering disturb in all types of institutional activities. Noise pollution in educational environment disturbs during study session. Students cannot concentrate in classroom teaching and they lose interest to study.

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Noise pollution also affects the teachers. They cannot teach effectively during teaching session because of uncomfortable classroom conditions. The main source of noise pollution in these institutes is traffic noise from motorcycles, trucks, buses, autoes, tempos, mini-trucks and all types of vehicles.

III. MATERIALS AND METHOD

Since the objective of the study was very difficult, a complete and comprehensive analysis was only possible if the views and apprehensions of all the parties i.e. students, teachers as well as the Head of the institution were surveyed and studied. For analysis data was collected in two ways- by measuring noise level and with the help of questionnaire. The noise levels are measured with the standard procedure using calibrated sound pressure level meter in decibel unit. The instrument consists of microphone, amplifier, network weighting (A, B, and C) and a digital display to read the noise level. Different sets of questionnaire were prepared for students, teachers & HOD of the institutions to identify the right need. The key findings are presented in the form of tables, graphs, charts. All the findings are then compared with the standard and guidelines that has been used.

A social survey was also conducted by us in different institutions in Nagaon town by supplying a Questionnaire to the students, teachers and Head of the institutions to achieve right goal of the study.....

IV. RESULTS AND DISCUSSION

From the measurement of noise level meter in different institutions in Nagaon town shows that noise pollution does exist in all of the institution and it is found that Nowgong College and A.D.P. College are highly noise polluted institutions although all institutions exceeds the tolerance level of noise pollution which clearly indicate that the environment is not suitable for teaching-learning process. The study showed conclusively that road traffic is the predominant source of this problem because all these institutions are located in the heart of the town and surrounded by busy roads like NH-37 and other PWD roads. To meet the demand of urbanization and modernization, noise and traffic have become busy and hence there are always incidence of noise population in urban areas and the increasing of industrialization with transportation also increase the pollution problem again.

In the present work, an attempt was made for comprehensive study of noise problem at ten Educational Institutes at and around Nagaon town. The maximum noise level observed was maximum 80 dB (A) in Nowgong College (Table 1). The major sources of noise pollution were motor vehicular traffic 46% followed by students themselves 40%. The permissible limit of traffic noise is 50dB (A) (Rules & Regulations of the

National Pollution Control Commission (1978), Section 78). However, all the institutes cross the noise level permissible limits. From the analysis of data from questionnaire it is clear that all the educational institutes does have noise problem. Noise problem in educational institutes mainly depends on where the institute is located. All the surveyed educational institutes in Nagaon town are located in the heart of town i.e. in the busiest roads and places of town. And thereby educational institutes are suffering from noisy environment creating disturbance in daily work. The findings from the Questionnaire shows about the adverse effect of noise pollution on educational Institutions and the findings is summarized as there is a lot of disturbance in teaching-learning process as 62% agrees with it.

From the study it is also observed that the people strongly supported the action from authorized body, Govt., or committee to reduce noise pollution. Most of them focused on the ban of hydraulic horn, old vehicles. The local administration should take some steps and regulatory measures to be abate such noise pollution (Kumar et al, 2004; Das, 2006; Datta et al, 2006; Garg et al, 2007). In rapid industrialization and urbanization the transport sector is growing rapidly and vehicular number on road also increases which leads to overcrowding and noise pollution (Anonymous, 2000; Krishna Murthy, 2007).

After analyzing the questionnaire it is observed that 89% respondents agree with noise pollution in the institutions and disturbed in teaching-learning process, 6% disagree with this and 5% does feel noise which is shown in fig.1.

With the help of the Questionnaire we want to know the adverse effect of noise pollution on educational Institutions and the result on these questions are summarized as follows and result is shown in fig.3.

- | | |
|---|-------|
| a) Disturbance in teaching-learning process | - 62% |
| b) Difficulties in classroom discussion | - 18% |
| c) Health problem and mental stress | - 20% |

The major sources of noise pollution were motor vehicular traffic 46% followed by students themselves 40% (from questionnaire)

- | | |
|---------------------------------|-------|
| a) Among themselves (students) | - 40% |
| b) From vehicles | - 46% |
| c) People moving on road | - 9% |
| d) Construction work and others | - 5% |

V. CONCLUTIONS AND RECOMANDATIONS

In rapidly urbanizing Nagaon town, the transportation sector and students themselves lead to overcrowded roads and noise pollution in educational institutes in the town. The following range of measures

may be taken to reduce vehicular noise pollution in educational institutes —

- a) The educational institutes have criteria of a good planning for an institutes and it should be located far from main road, busy PWD roads and other noise sources.
- b) Educational institutes should have buildings that have sound insulation system and high fence using concrete walls which protect noise from outside.
- c) Educational institutes should be aware of plantation of trees and vegetation buffer zone because trees and vegetation can absorb 4dB-6 dB noise intensity depending on their characteristics.
- d) Students, Teachers and Public awareness would also helpful in reduction in noise level in educational institutes.
- e) A strict law concerning noise pollution in educational institutes should be implemented.
- f) Restricting vehicular movement within or nearby the educational institutes.
- g) Applying Speed limits for vehicles near the educational institutes.

REFERENCES RÉFÉRENCES REFERENCIAS

1. Anonymous (2000): Ambient air quality in respect of noise. Central Pollution Control Board, New Delhi: Schedule-Part II, Sec. 3.
2. Das, A B (2006): Noise Pollution: Its environmental implication and evaluation. E-Planet, 4: 26-28.
3. Datta, J K, S Sadhu, S Gupta, R Saha, N K Mondal and B Mukhopadhyay (2006): Assessment of noise

- level in Burdwan town, West Bengal. J. Environ. Biol. 27: 609-612.
4. Garg, S, R Garg and R Garg (2007): Environmental science and environmental studies. Khanna Publishers, New Delhi.
5. Gopalkrishna, K (1978): Noise Pollution–Diamond Jubilee year, International symposium on environmental agents and their biological effects, Osmania University, Hyderabad, India Int- 5- 1- Int – 5.5.
6. Gorai, A K and A K Pal (2006): Noise and its impact on human being: A Review. J. Environ. Sci. Engg. 48: 253-260.
7. Harris, C.M. (1979). Handbook of Noise Control.(New York:McGraw Hill)
8. Ikenberry,Larry D, School noise and its control. Journal of Environmental Health 36, March/April 1974:493-499.
9. Kiely, Gerard. Environmental Engineering, McGraw-Hill. 1997: 390-418.
10. Krishna Murthy, V, A K Majumdar, S N Khanal and D P Subedi (2007): Assessment of traffic noise pollution in BANEPA, a semi urban town of Nepal. Kathmandu Univ. J. Sci. Tech. 1:1-9.
11. Kumar, K, S K Singh and S Mohan (2004): Analysis of noise pollution on signalized intersection in Delhi. J. IAME, 31:124-131.
12. Laxmipathi, G (1978): Noise Pollution–Diamond Jubilee year, International Symposium on environmental agents and their biological effects, Osmania University, Hyderabad, India Int- 5- 17-5- 21.
13. Nigam S.P., Vehicular traffic noise and its characterization, National Conference of Mechanical Engineering at Thapar University, Patiala, 2008.

Noise Standards in educational institutes (maximum allowable noise) such as an area within 100 meters from educational institute's sites.

Day time(9am-6pm)	Morning time(5am-9am)	Evening time(6pm-10pm)	Night time(10pm-5am)
50 dB(A)	45 dB(A)	45 dB(A)	40 dB(A)

Source : Rules & Regulations of the National Pollution Control Commission (1978), Section 78.



Table 1 : Measured maximum and minimum readings given by slm in different institutions.

Sl.No.	Name of Institutions of the town	Noise Level Range in dB(A)	Maximum noise in dB(A)
1	Nowgong College	61-80	80
2	A.D.P. College	57-78	78
3	Khagarijan College	55-72	72
4	Nowgong Girl's College	54-68	68
5	I.T.I. Nagaon	58-67	67
6	G.N.D.G. Commerce College	60-74	74
7	Govt. Boy's H.S.School	54-66	66
8	Govt. Girl's H.S.School	58-68	68
9	Bengali Boy's H.S.School	57-67	67
10	Bengali Girl's H.S.School	58-66	66

(Permissible noise level: Outdoor-Below 55 dB (A) & Classroom-35-45 dB (A))

Fig 1 : Noise pollution in Educational Institute



Fig 2 : Shows the sources of noise pollution In the Educational Institutes.

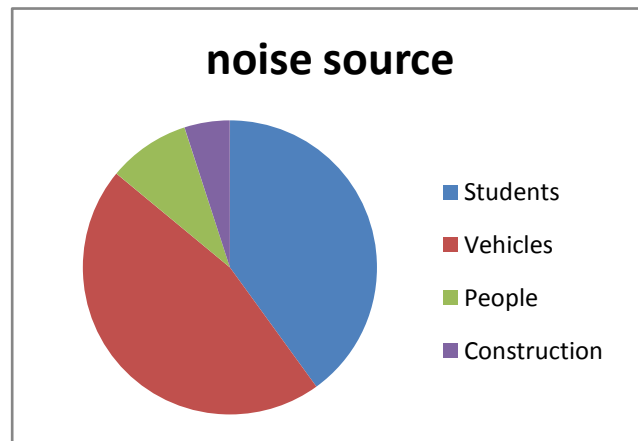


Fig 3 : Adverse effect of noise pollution

