Noise Pollution in SSBT'S College Campus

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Abstract *: Sound that is unwanted or disrupts one's quality of life is called as noise. When there is lot of noise in the environment, it is termed as noise pollution. Sound becomes undesirable when it disturbs the normal activities such as working, sleeping, and during conversations. It is an underrated environmental problem because of the fact that we can't see, smell, or taste it. Community noise, or environmental noise, is one of the most common pollutants. It is defined by the World Health Organization as noise emitted from all sources, except noise at the industrial workplace. _Community noise includes the primary sources of road, rail and air traffic, industries, construction and public works and the neighborhood (WHO, 1999).Environmental noise is increasingly becoming a community concern internationally. Considerable efforts have been made over about the last four decades to reduce noise impacts from transportation sources such as road and rail traffic and aircraft. Nonetheless, many of the benefits of these efforts have been lost due to increased traffic volumes (by all modes) for longer periods of the day and evening. At the same time increases in urban population have resulted in greater exposure of a larger percentage of the population to the increased noise levels. World Health Organization stated that ―Noise must be recognized as a major threat to human well-being. Noise pollution can damage physiological and psychological health. High blood pressure, stress related illness, sleep disruption, hearing loss, and productivity loss are the problems related to noise pollution. It can also cause memory loss, severe depression, and panic attacks.*

Shram Sadhana Bombay Trust College Of Engineering & Technology Bambhori Jalgaon, is an ancient college of Jalgaon, has started facing severe noise pollution problems. Day-time urban noise quality assessment was studied in College campus for various zones viz.class rooms, principal office, library, parking, canteen, sports complex, and workshop. Noise pollution indices viz. L10, L50, L90, noise climate (NC), equivalent continuous noise level (Leq), noise pollution level (Lnp) and noise exposure index (NEI) were computed for all zones. Results indicate that highest Leq of 79.1dB was observed in parking at morning, classroom followed by 65.6 dB, library followed by 53.1 dB.

I. INTRODUCTION

The word "noise" is derived from the Latin word "nausea" meaning seasickness. Noise, defined as unwanted or excessive sound, is an undesirable by-product of our modern way of life. We experience noise in a number of ways. On some occasions, we can be both the cause and the victim of noise, such as when we are operating noisy appliances or equipment. There are also instances when we experience noise generated by others just as people experience second-hand smoke. While in both instances, noises are equally damaging. Second-hand noise is more troubling because it has negative impacts on us but is put into the environment by others, without our consent. The air into which second-hand noise is emitted and on which it travels is commons, for all people. It belongs to no one person or group, but to everyone. People, businesses, and organizations, therefore, do not have unlimited rights to broadcast noise as they please, as if the effects of noise were limited only to their private property. On the contrary, they have an obligation to use the commons in ways that are compatible with or do not detract from other uses.

There are two types of noise:

(1) Steady: Continuous noise of sudden or gradual onset and long duration (more than 1 second). Examples: aircraft power plant noise, propeller noise, and pressurization system noise. According to the Occupational Safety and Health Administration (OSHA) [1], the maximum permissible continuous exposure level to steady noise in a working environment is 90 dB for 8 hours.

(2) Impulse/blast: Noise pulses of sudden onset and brief duration (less than 1 second) that usually exceed an intensity of 140 dB. Examples: firing a handgun, detonating a firecracker, backfiring of a piston engine, high-volume squelching of radio equipment, and a

sonic boom caused by breaking the sound barrier. The eardrum may be ruptured by intense levels (140dB) of impulse/blast noise. It is not a global problem because sound energy is not accumulated and the area, which suffers from noise, is limited to that around the noise source. In contrast, to many other environmental problems, noise pollution continues to grow. This growth is unsustainable because it involves direct, as well as cumulative adverse health effects.

Traffic noise is one of the most immediate and identifiable environmental problem associated with rapid industrialization, urbanization and population growth. Rapid urbanization, industrialization, expansion of road network and infrastructure caused serve noise pollution problem (Pathak et al., 2007). College noise is considered as one of the important sources of noise pollution that adversely affects human health (Lercher, 1995; Williams and McCrae, 1995). The increasing number of student and instruments are the main source of noise pollution. (Gangwar et, al.2006). Noise effects may include annoyance, deterioration of sleep quality and stress-related ischemic heart disease (Morell et al, 1997). Generally high exposure to noise level may cause feeling of annoyance and irritation, damage to auditory mechanisms, number of health related effects like physiological disorders, psychological disorders, disturbance of daily activities and performances, hypertensions and schematic heart diseases(Canter, 1996). The most serious health hazards associated with high level of noise exposure is deafness which initially causes temporary hearing problem or deafness while prolonged exposure to high noise level causes permanent deafness hearing damage (Mahesh et al. 2001). It causes significant health effects, such as cardiovascular problems, increased levels of diabetes, change in social behaviour and quality of life. Nowadays, noise pollution is considered as one of the main problems of college campus which has many hazardous effects on college environment and may result in a great deal of costs on the college and students can be considered as the main source of noise pollution in college campus. (The present study was performed to find out the impact of noise level on attitudes of exposed pollution).

II. HEADINGS

1. Introduction
2. Figures and tables
3. Conclusion
4. Acknowledgement
5. Reference

III. FIGURES AND TABLES

Noise measurements were performed using an integrated Sound Level Meter, model NO. SL-4010, that developed by the LUTRON ELECTRONIC ENTERPRISE CO., LTD. Taiwan.

Features:

1. Large LCD display, easy to read.
2. “Fast” time weighting characteristic mode.
3. Build in adj. VR is available for easy calculation.
4. Condenser microphone for high accuracy & long term stability.
5. Hold function to freeze the display value.
6. Warning indicator for over and under range.
7. LCD display for low power consumption and clear read-out even in bright ambient light condition.
8. Use the durable, long lasting components, including a strong, light weight ABS-plastic housing case.
9. Small and light weight design allow one hand operation.
10. Low battery indicator.
11. High quality with economical cost.

Fig of Sound Level Meter

OBSERVATION TABLE

LOCATION	DATE	TIME	NOISE LEVEL(dB)
B.E CIVIL (ROOM NO 203)	26/9/14	10:55 AM	69.8
		10:58 AM	78.4
		11:00 AM	72.7
		11:02 AM	67.7
B.E CIVIL	30/9/14	10:55 AM	65.7
		10:58 AM	76.8
		11:00 AM	73
		11:02 AM	69.2
B.E CIVIL	01/10/14	10:55 AM	73.8
		10:58 AM	6805
		11:00 AM	64.7
		11:02 AM	64.2
B.E CIVIL	04/10/14	10:55 AM	70.7
		10:58 AM	94.8
		11:00 AM	77.6
		11:02 AM	65.2
B.E CIVIL	06/10/14	10:55 AM	65.5
		10:58 AM	72.2
		11:00 AM	66.6
		11:02 AM	69.1
B.E CIVIL	26/09/14	05:42 PM	60.6
		05:45 PM	67.3
		05:48 PM	72.4
		05:50 PM	59.7
B.E CIVIL	30/09/14	05:42 PM	58.02
		05:45 PM	58.02
		05:48 PM	54.3
		05:50 PM	55.5
B.E CIVIL	01/10/14	05:42 PM	59.5
		05:45 PM	62.5
		05:48 PM	60.2
		05:50 PM	55.2
B.E CIVIL	04/10/14	05:42 PM	60.8
		05:45 PM	81.9
		05:48 PM	70.5
		05:50 PM	61.2
B.E CIVIL	06/10/14	05:42 PM	63.2
		05:45 PM	66.1
		05:48 PM	66.4
		05:50 PM	67.5
B.E E&TC	8/10/14	10:55 AM	70.1
		10:58 AM	55.4
		11:00 AM	52.9
		11:02 AM	62.9
B.E E&TC	8/10/14	05:42 PM	65.7
		05:45 PM	67.4
		05:48 PM	66.0
		05:50 PM	62.8
B.E E&TC	09/10/14	10:55 AM	59.6
		10:58 AM	61.8
		11:00 AM	86.1
		11:02 AM	59.2
B.E COMPUTER	09/10/14	10:55 AM	67.6
		10:58 AM	64.2
		11:00 AM	65.7
		11:02 AM	62.5
B.E ELECTRICAL	09/10/14	10:55 AM	63.3
		10:58 AM	59.7
		11:00 AM	56.4
		11:02 AM	60.6
B.E MECHANICAL	09/10/14	10:55 AM	62.5
		10:58 AM	66.5
		11:00 AM	50.2
		11:02 AM	53.8
B.E COMPUTER	09/10/14	05:42 PM	59.6
		05:45 PM	62.4
		05:48 PM	60.1
		05:50 PM	54.9
B.E E&TC	09/10/14	05:42 PM	70.1
		05:45 PM	55.4
		05:48 PM	52.9
		05:50 PM	62.9
B.E ELECTRICAL	09/10/14	05:42 PM	66.6
		05:45 PM	71.1
		05:48 PM	74.9
		05:50 PM	56.1
B.E MECHANICAL	09/10/14	05:42 PM	59.7
		05:45 PM	67.7
		05:48 PM	68.1
		05:50 PM	53.2
TOM LAB (LOS ANGLES)	10/10/14	02:00 PM	93.3
		02:02 PM	92.3
		02:05 PM	91.0
		02:08 PM	85.5
TOM LAB (VIBRATOR MACHINE)	10/10/14	04:42 PM	75.4
		04:45 PM	68.1
		04:48 PM	77.2
		04:50 PM	70.7
B.E COMPUTER	10/10/14	10:55 AM	72.0
		10:58 AM	69.7
		11:00 AM	67.2
		11:02 AM	64.6
B.E E&TC	10/10/14	10:55 AM	60.7
		10:58 AM	72.2
		11:00 AM	60.9
		11:02 AM	75.3
B.E ELECTRICAL	10/10/14	10:55 AM	63.8
		10:58 AM	66.5
		11:00 AM	57.8
		11:02 AM	57.6
B.E MECHANICAL	10/10/14	10:55 AM	58.5
		10:58 AM	59.8
		11:00 AM	59.9

		11:02 AM	64.1
B.E COMPUTER	10/10/14	05:42 PM	56.4
		05:45 PM	68.2
		05:48 PM	57.7
		05:50 PM	68.2
B.E E&TC	10/10/14	05:42 PM	73.8
		05:45 PM	66.1
		05:48 PM	59.7
		05:50 PM	58.1
B.E ELECTRICAL	10/10/14	05:42 PM	59.6
		05:45 PM	49.7
		05:48 PM	52.5
		05:50 PM	58.7
B.E MECHANICAL	10/10/14	05:42 PM	65.1
		05:45 PM	58.1
		05:48 PM	52.6
		05:50 PM	54.2
B.E COMPUTER	11/10/14	10:55 AM	60.2
		10:58 AM	68.2
		11:00 AM	76.7
		11:02 AM	65.5
B.E E&TC	11/10/14	10:55 AM	60.1
		10:58 AM	61.9
		11:00 AM	77.5
		11:02 AM	65.5
B.E ELECTRICAL	11/10/14	10:55 AM	49.1
		10:58 AM	51.3
		11:00 AM	47.7
		11:02 AM	59.2
B.E MECHANICAL	11/10/14	10:55 AM	60.5
		10:58 AM	66.9
		11:00 AM	63.2
		11:02 AM	68.1
B.E COMPUTER	11/10/14	05:42 PM	66.3
		05:45 PM	63.2
		05:48 PM	70.1
		05:50 PM	67.6
B.E E&TC	11/10/14	05:42 PM	52.8
		05:45 PM	59.4
		05:48 PM	60.1
		05:50 PM	65.5
B.E ELECTRICAL	11/10/14	05:42 PM	45.6
		05:45 PM	41.0
		05:48 PM	49.3
		05:50 PM	45.6
B.E MECHANICAL	11/10/14	05:42 PM	56.6
		05:45 PM	69.7
		05:48 PM	72.1
		05:50 PM	62.2
B.E COMPUTER	13/10/14	10:55 AM	60.8
		10:58 AM	68.2
		11:00 AM	76.7
		11:02 AM	65.5
B.E COMPUTER	13/10/14	05:42 PM	57.2
		05:45 PM	54.5
		05:48 PM	59.5
		05:50 PM	57.2
B.E E&TC	13/10/14	10:55 AM	53.2
		10:58 AM	55.9
		11:00 AM	62.1
		11:02 AM	67.9
B.E E&TC	13/10/14	05:42 PM	62.7
		05:45 PM	61.2
		05:48 PM	59.7
		05:50 PM	67.3
B.E ELECTRICAL	13/10/14	10:55 AM	50.7
		10:58 AM	52.4
		11:00 AM	67.1
		11:02 AM	63.6
B.E ELECTRICAL	13/10/14	05:42 PM	44.2
		05:45 PM	51.1
		05:48 PM	57.9
		05:50 PM	54.3
B.E MECHANICAL	13/10/14	10:55 AM	61.5
		10:58 AM	64.4
		11:00 AM	67.8
		11:02 AM	69.7

IV. CONCLUSION

Now-a-days Noise pollution is emerging as an environmental problem. The permissible limit of noise pollution for educational building is 45dB so, from the observation it is seen that the area above 45dB are considered to be noisy area.

In our college campus at a time of about 11 A.M exceeds its permissible limit i.e. above 45dB due to the beginning of college hours. While, in middle hours it is under permissible limit.

V. REFERENCES

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