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ASSESSMENT OF NOISE POLLUTION IN SHEGAON TOWN OF BULDANA DISTRICT

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ABSTRACT

The present paper deals with an assessment of atmospheric conditions and noise level at Shegaon town during the months of January to June of year 2010.The sites selected for experimentation includes Railway Station, Bus Stand , Shivaji Square,Dr.Ambedkar Square,Gajanan Maharaj Mandir Area, Railway Gate (Akot Road) and old city.The results shows that the noise pollution level at some sites are exceeding the standard limit particularly at Railway Station, Bus Stand , Gajanan Maharaj Mandir Area and Railway Gate (Akot Road) whereas Shivaji Square,Dr.Ambedkar Square and old city show certain parameters within limits. Decibel Meter was the device used for the experimentation. The assessment of monitoring system therefore would prove very useful to control the noise pollution.

INTRODUCTION

This place is situated in Buldana District , Maharashtra, India, its geographical coordinates are 20° 47' 0" North, 76° 41' 0" East and its original name (with diacritics) is Shegaon. Noise is air born mechanical energy striking the human ear drum. A sound of frequency 65dB is the normal level of conversation with the person at a distance at one meter. A sound of frequency 125dB gives the sensation of pain to the ear while 150 dB frequency might kill human being. The noise is either natural or manmade. The natural noise includes thunder, lightening, earthquake etc.while manmade noise includes use of electrical devices , musical instruments etc. The major categories of noise pollution are –

1) Transport noise.
2) Industrial noise.
3) Construction noise.
4) Consumer noise.
5) Community noise.

The typical examples of noise production sources with their frequency in decibels is given in Table No.1.

Table 1.

Sr.No.	Sources	Frequency in Decibel
1.	Aeroplane noise at 1 meter	130
2.	Siren at 5 meter	100
3.	News paper press	102
4.	Farm Tractor	103
5.	Loud speakers	83
6.	Theatre	90
7.	Human Heartbeats	13
8.	Breathing	10
9.	Telephone	70
10.	Chewing Gum	20
11.	Generator	120
12.	Crackers (Bomb)	110

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High frequency or ultrasound above the normal audible range can affect the circular canals of the inner ear and make one suffer from nausea and dizziness. Low frequency noise can produce resonance in the body organs giving the effects of increased heartbeat variations in blood pressure, breathing difficulties. Besides these vomiting, deafness, loss of appetite, loss of sleep, fatigue and even cardiac failure may occurs. Noise causes frustrations and is associated with difficulty in concentration, disturbance of rest. It causes alteration in normal sleep pattern and prevents sound sleep. It causes hypertension which increases in sweating, hepatic ulcer, undesirable change in gastro intestinal tract, behavioural and emotional stress.Brain is also affected by loud and sudden noise such as that of jet aeroplane noise which causes psychiatric illness. Noise is responsible for the increased consumption of alcohol,drugs, tranquilisers, increased reliance on sedatives and sleeping pills. There is a link between high noise levels and foetus development. It correlates between low weight birth babies and high sound levels abnormality includes harelip,cleft pallet,defects in spine , neuron and immune deficiencies.

Control measures : Peoples must be made aware and educated about noise pollution and its effect through adequate news, media, TV, radio etc. The convex lens should be mounted on the traffic square. It is the round mirror which gives the image of person coming from the backside so, there is no need of giving horn,indicator and we can reduce the noise upto 25%. In industries, the noisy machines must be enclosed in a box like structure having sound absorbing materials on its inner surfaces. There will reduce the noise from propagating and will cut off the noise at the source only.

Plantation of trees : It has been found that neem, babul, ashok ,tamarind are the efficient absorbers of sound particularly of high frequency. To propagate the need of awareness amongst employees about the ill effects of noise pollution on their health. The workers should use ear plugs or ear muffs. These will reduce the sound upto 15–20 dB. Providing enclosures ,, shields, barriers and sophisticated machineries is an effective and efficient method of reducing noise pollution because they can cut off the sound waves from propagating. Bus, car, truck drivers should be instructed notonly for exceeding speed limits, but also not to exceed the noise limit of 82 dB. The noise from the fan can be reduced by increasing the number of blades or by decreasing the rotational speed. Use of silencers. Great demand for quieter appliance. Use of rubber tyres instead of steel wheels of vehicles. One should avoid long hours spent listening of MP3 players. Use of loud speakers,music players on festivals and marriages should be considered offence and strict punishment or fine be given launching complaint about the neighbourhood noise.

Methodology : To study and analyse the noise pollution in Shegaon town, a study was carried out from the month of January to June 2010. In these study,7 traffic areas were selected namely Railway Station, Bus Stand , Gajanan Maharaj Mandir Area and Railway Gate (Akot Road) , Shivaji Square, Dr. Ambedkar Square and old city. The two timings were selected viz. morning time (9 AM to 12 Noon) and evening time (6 PM to 9 PM) continuously ten readings were recorded for ten days for the selected area. The average reading gives the noise pollution produced in the area.

Table 2. Average readings

S.N.	Area	Time	
		9.00 AM – 12.00 Noon	6.00 PM – 9.00 PM
1.	Railway Station	107.39 dB	105.8 dB
2.	Bus Stand	94.9 dB	95.0 dB
3.	Gajanan Maharaj Mandir Area	94.17 dB	95.63 dB
4.	Railway Gate (Akot Road)	102.2 dB	105.9 dB
5.	Shivaji Square	82.5 dB	79.2 dB
6.	Dr.Ambedkar Square	85.79 dB	85.97 dB
7.	Old city	65.9 dB	63.8 dB

RESULTS AND DISCUSSION

From the Table 4 , we can come to know that there is quite fluctuation in the readings. All the values in different area are exceeding the normal. It is found that, railway station is the highest noise producing area in the morning time. The least noise producing area is old city and so it is quite safest. Again in the evening time, the railway station produces maximum noise and and the least noise producing area is again old city and it is quite nearer to the normal values. The best way for controlling the noise pollution is educating the public about the hazards and bad effects of noise pollution.

Table 3. Noise recorded in Decibel in different areas during 9AM to 12 Noon upto 10 days.

Area	Day										
	Ist	IInd	IIIrd	IVth	Vth	VIth	VIIth	VIIIth	IXth	Xth	Average
Railway Station	105.5	108	109.2	107.2	104.8	107.9	106.7	105	109.6	110	107.39
Bus Stand	88	83.5	87.2	90.4	84.1	81.9	85.7	82.1	89	86	85.79
Gajanan Maharaj Mandir Area	94.9	95	94	93.1	94	91.9	94.2	95.8	93	95.8	94.17
Railway Gate (Akot Road)	103.9	99.8	98.5	103.9	99.8	100.8	105	103.6	104	102.4	105.4
Shivaji Square	89.9	81	87.7	82.4	86	88.8	90.6	83.5	85.1	84.25	85.92
Dr.Ambedkar Square	71	72.1	73.8	79.2	72	77.4	74.7	70.3	76.5	75	74.2
Old city	71	75	70.1	68.3	76.2	72.5	77.4	73.8	75	74.7	73.4

Table 4. Noise recorded in Decibel in different areas during 6 PM to 9 PM upto 10 days.

Area	Day										
	Ist	IInd	IIIrd	IVth	Vth	VIth	VIIth	VIIIth	IXth	Xth	Average
Railway Station	104.3	102.3	103.4	101.4	105.4	107.4	106	108.4	109.4	110	105.8
Bus Stand	98.1	110	108.7	97.2	100.5	99.4	105.3	107.6	109.9	105.9	105.9
Gajanan Maharaj Mandir Area	94.9	92.8	95.7	97.6	94.4	95.3	98.5	96.2	91.9	99	95.63
Railway Gate (Akot Road)	103.9	99.9	98.7	104.2	100.8	101.4	103	103.2	104	102.9	101.7
Shivaji Square	87.9	81.5	86.7	81.4	86.2	87.8	89.6	82.5	84.1	83.25	84.92
Dr.Ambedkar Square	70.4	71.1	72.8	76.2	75.2	75.4	73.7	69.3	75.5	75.3	73.2
Old city	71.1	74.3	69.1	67.3	75.2	71.5	76.4	72.8	74.9	73.7	72.4

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