



Study of Noise Pollution in Dhar Town MP, India with Special Reference to the Silence Zones

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Abstract

This research paper deals with the study of noise pollution in ten selected locations of Dhar town including silence zones / sensitive areas as per the norms of Central Pollution Control Board (CPCB). In this study sound level meter was used to measure noise levels. This study suggests that the noise levels are much higher than that of the prescribed limits of CPCB even in the silent zones. The main sources of noise pollution were found to be vehicular traffic and pressure horns causing non auditory effects like communication problem, stress, sleeplessness, and lack of efficiency.

Keywords: Silence zones, sensitive zones, noise pollution, CPCB, sound level.

Introduction

Noise is an environmental stressor and nuisance that causes some serious health problems to human beings exposed to it when its level is elevated. Noise pollution has become a part of modern civilization¹. Noise is produced by every human activity which includes noise at the community, residential or domestic level e.g. traffic, sports and music². Noise can severely affect general health and well being in the same manner as stress³. Noise pollution is a result of human misbehaviors all over the world and it can be controlled with the help of individual discipline. Optimum sound is pleasant to human ear, but large intensity sounds are dangerous to health and they are major contributors to noise pollution. It is clear from the studies that sound intensity above 80dB level is harmful to individual living in urban areas belonging to all ages¹. Elevated noise levels in and around the schools and hospitals (silence zones as per CPCB) may cause ill-health

(non-auditory effects) as opposed to industrial noise which causes hearing impairment (auditory effects) because environmental noise levels are much lower than that of industries.

Environmental protection act 1986 is enforced on 19 Nov 1986 to control the noise pollution⁴. The Central Pollution Control Board constituted a Committee on Noise Pollution Control. The Committee recommended noise standards which were later notified in Environment (Protection) Rules, 1986. The Noise pollution (Regulation and Control) rules, 2000 (CPCB) is an amendment made by Govt. of India in the year 2010 (Rule, 3(1) and 4(1)^{5, 6}. As per CPCB silence zone is an area up to 100 meters around premises like schools, hospitals and courts. These premises must be declared Silence zones by District administration. Use of vehicular horns and loud speakers must be banned in these zones^{5, 6}.

Table-1

Noise standards for ambient noise level recommended by CPCB notified in Environment (Protection) Rules, 1986

Area code	Category of area	Limits in dB (A) Leg	
		Day time	Night time
		(6.00AM to 9.00PM)	(9.00PM to 6.00AM)
A	Industrial	75	70
B	Commercial	65	55
C	Residential	55	45
D	Sensitive (silence zone)	50	40

*dB(A) Leg denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing. Silence zone is referred as areas up to 100 meters around such premises as hospitals, educational institutions and courts. The Silence zones are to be declared by the Competent Authority. Use of vehicular horns, loudspeakers and bursting of crackers shall be banned in these zones.

Material and Methods

Study Area: Dhar town is situated between the parallels of 22°1'14" and 23°9'49" North and the meridians of 44°28'27" and 75°42'43" East above 1908 feet sea level. The area of the town is 49 sq. kms with the population of 75374. The ambient noise levels were monitored and recorded at 10 different selected locations of the town with the help of

Sound level meter (SLM-4005) between 9.00 pm and 12.00 pm in the range of 30 to 180 dB (A). Noise levels were compared with that of the standards prescribed in environmental protection act, 1986 and standards of CPCB⁴. The study was conducted for a month (from Nov 02 to Dec 03, 2013) and average values (maximum) were considered for the discussion.

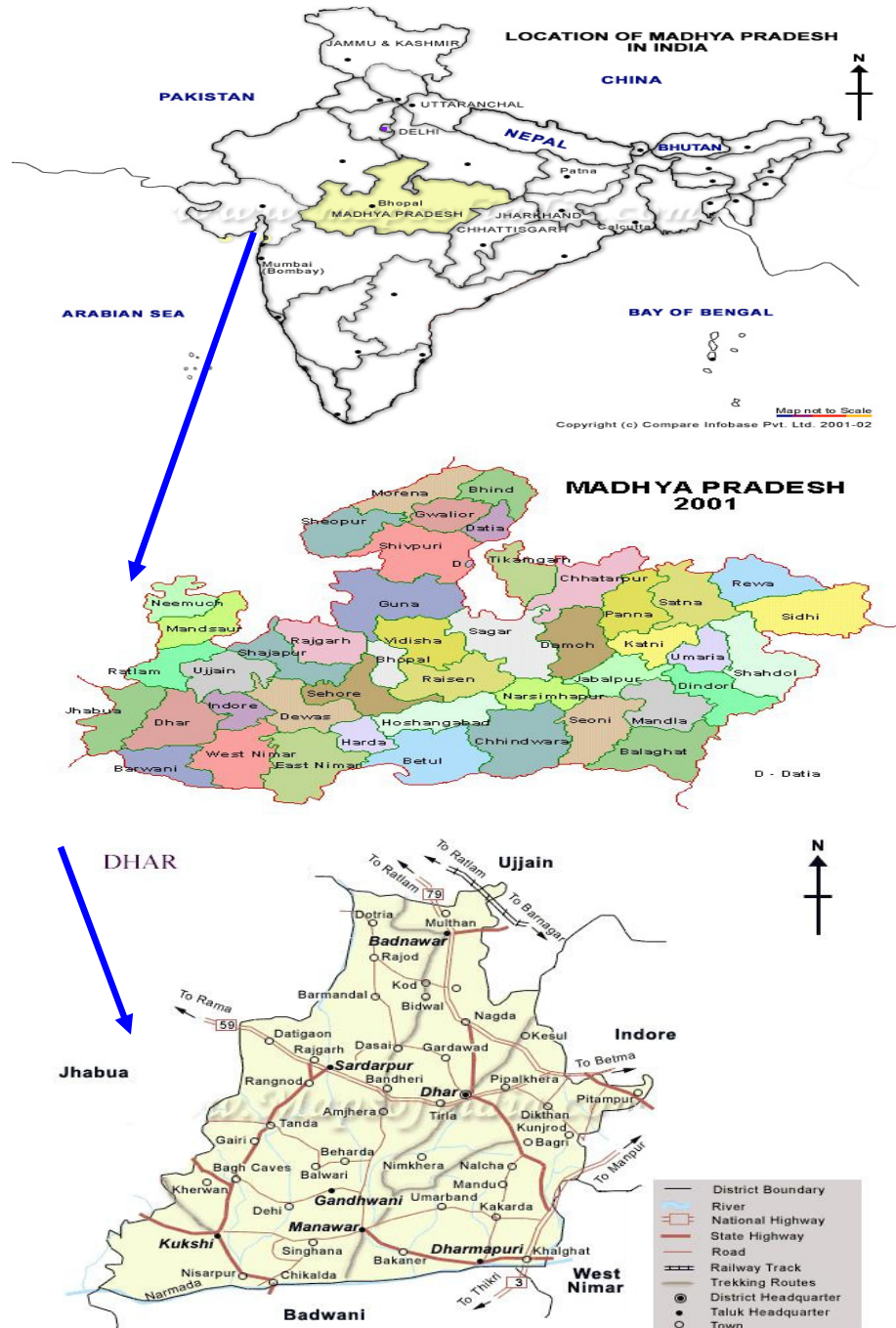


Figure-1
 Maps showing location of Dhar District in M.P., India

Results and Discussion

During the study period noise levels were recorded at ten selected locations of Dhar town including hospitals and educational institutes considered to be included in the silence zones as per the Central Pollution Control Board norms (CPCB). The result obtained from the study is shown in table 2 which clearly indicate that noise levels in all the ten locations including silence zones are much higher than that of the prescribed standard limits of CPCB^{5,6}.

The maximum value recorded was 90.7 dB at L4 location (silence zone) during evening hours while the minimum was 60.2 dB at L10 location (residential zone) during evening hours. Both the maximum and minimum values are much higher than that of the prescribed limits. The most striking feature of the study, as evident by table-2, is the fact that the noise levels even in the silence zones which include educational institutes and hospitals (L1, L2, L3 and L4) are much higher than that of the other

residential and commercial zones of the town. The main reason for this situation is the location of these schools and hospitals on the main road of the city with heavy vehicular traffic along with the road side vendors. Use of pressure horns is another problem. This not only disturbs the schools up to the larger extent but also causes negative impact on public health and welfare. Noise interferes with individual performance, modifies social behaviour and causes annoyance specially in children⁷⁻¹⁰. It is a fact that higher noise levels cause lack of communication, annoyance and stress³. Noise may influence health directly instead of through annoyance. Non-auditory effects of noise can be seen in the students and patients of such schools and hospitals respectively. These are the effects on health caused by exposure to noise, with the exception of effects on the hearing organ⁷.

According to Deepak Parasher, a professor of audiology at University College in London, noise pollution causes more deaths than heart diseases around the world¹¹.

Table-2
Table showing average noise levels at ten selected locations of Dhar town

S. NO.	Locations	Name of Locations	Area Category	Noise levels / Values (Maximum) dB(A), Leg			
				Standard Value		Average Value	
				Day Time	Night Time	Day Time (11.00-01.00 pm)	Night Time (08.00-10.00 pm)
1	L1	St. Teresa H.S. School	Silence Zones (CPCB)	50	40	86.5	80
2	L2	Govt. Distt. Hospital				87.7	78.5
3	L3	Patidar hospital				82.9	78.2
4	L4	Govt. School of Excellence				90.7	83.9
5	L5	Govt. P. G. College				78.8	71.8
6	L6	Bus stand area	Commercial Zones (CPCB)	65	55	88.1	82.3
7	L7	Mohan talkies area				87.5	81.2
8	L8	Trimurti Colony	Residential Zones (CPCB)	55	45	70.2	68.4
9	L9	Rjwada Chouk				68.2	66
10	L10	Dhanmandi area				64.2	60.2

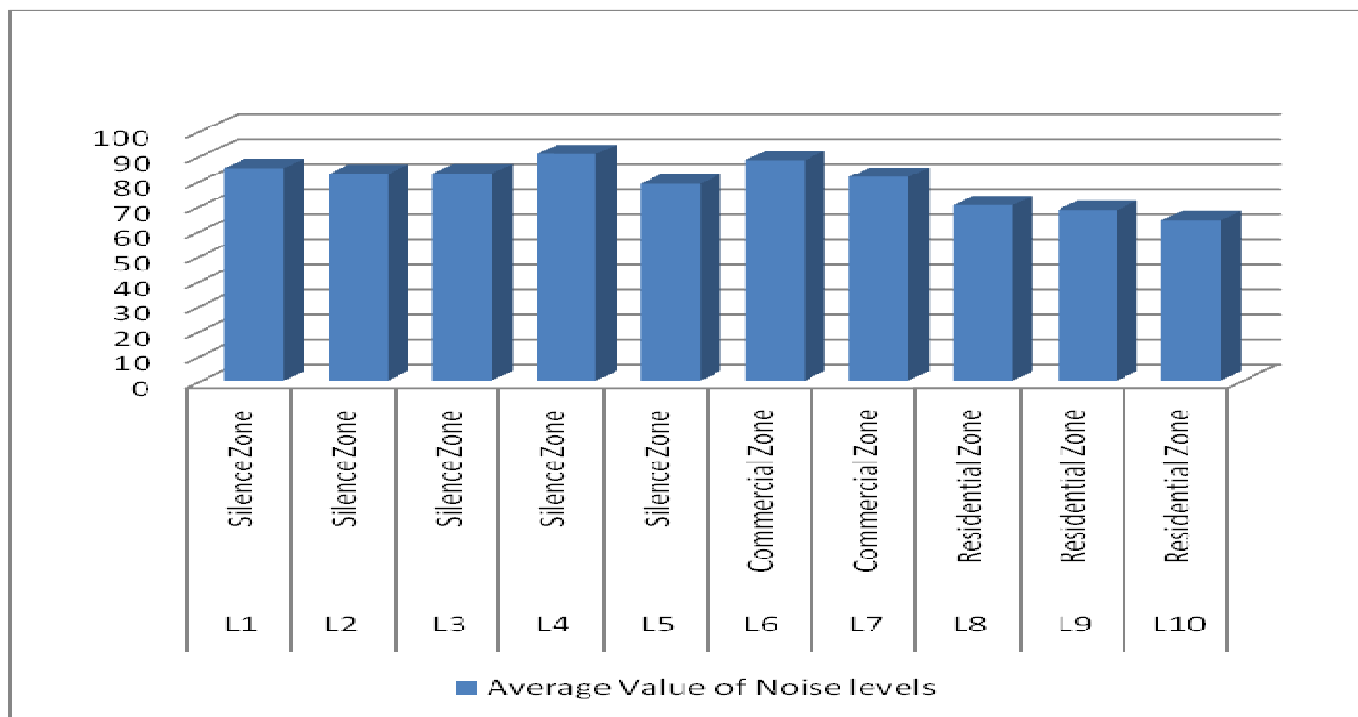


Figure-2
 Figure showing average noise levels at different locations of Dhar town during day time

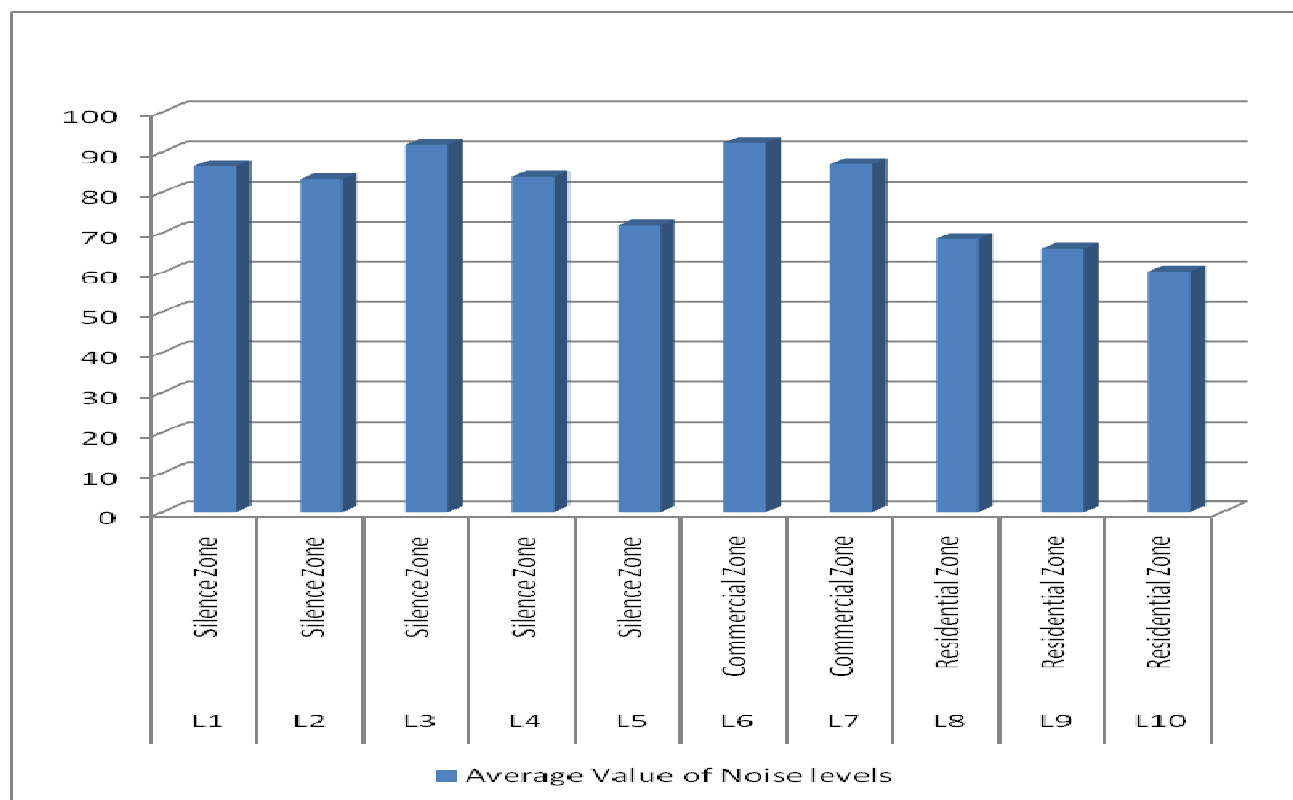


Figure-3
 Figure showing average noise levels at different locations of Dhar town during night time.

Conclusion

From the above discussion it can safely be conclude that the people living in noisy area especially above 70 dB(A) must take precaution to prevent noise induced hearing problems¹². The educational institutes and hospitals comes under the category of silence zones of the town as per the norms laid down by CPCB, must also be declared as silence zones by the competent authority of District administration and a symbols of this regard should be placed on the right location. Pressure horns must be prohibited. The main problem with these institutions and hospitals is their respective locations on the main road. The best solution of this problem is the diversion of the traffic on some alternative roads. Public awareness seems to be the best method. However, role of government and NGOs cannot be ruled out.

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