



# Study of Noise Pollution Levels during a Hindu Festival in Dhar Town, MP, India

Ningwal Uday Singh and Shinde Deepak

Department of Zoology, Govt. Post Graduate College, Dhar – 454001, INDIA

Available online at: [www.isca.in](http://www.isca.in), [www.isca.me](http://www.isca.me)

Received 4<sup>th</sup> November 2013, revised 22<sup>nd</sup> November 2013, accepted 18<sup>th</sup> December 2013

## Abstract

*The present paper deals with monitoring of Noise Pollution at different places of Dhar town during Navratri festival. During this festival Garba dance (one of the most popular folk dances in India) is organized by local public at various places of the town. During the present study the noise levels were measured with the help of sound level meter at five different locations during Navratri festival. It was clear from our study that the noise levels are extremely elevated and are found to be above the prescribed limits of CPCB even in the silent zones. The main sources of noise pollution are loud speakers, powerful sound systems, orchestra, drums etc. Major effects of noise pollution include interference with communication, sleeplessness, and reduced efficiency.*

**Keywords:** Noise pollution, sound level, loudspeaker, Navratri, festival.

## Introduction

Noise is an unwanted sound that may cause some psychological and physical stress to human beings exposed to it. It is also considered as an environmental stressor and nuisance. Noise pollution has become an inevitable part of modern civilization. It is a fact that sound intensity above 80dB level is harmful to individual belonging to all ages. Noise is present in every human activity, and when assessing its impact on human well-being it is usually classified either as occupational noise, or as environmental noise, which includes noise in all other settings, whether at the community, residential or domestic level e.g. traffic, playgrounds, sports, music<sup>1</sup>. Noise can adversely affect general health and well being in the same manner as chronic stress<sup>2</sup>. Noise pollution is a result of human misbehaviors all over the world. Celebration of different festivals creates minimum noise levels which gives happiness and avoid adverse effects on human health<sup>3</sup>. Celebration of the festivals in India is becoming more and more non-eco friendly. Use of powerful sound systems, orchestra etc along with disturbing loud speakers have become regular features of the society and adversely affect human as well as social health. This kind of noise pollution is beyond tolerable limits which disturbs social and human life. It has become a serious threat to the quality of the environment. At present we are facing serious environmental problems in the form of noise pollution. Noise pollution can be minimized with the help of individual control. Optimum sound is pleasant to human ear, but large intensity sounds are dangerous to health and they

are major contributors to noise pollution. Environmental protection act 1986 is enforced on 19 Nov 1986 to control the noise pollution<sup>4</sup>. The Central Pollution Control Board constituted a Committee on Noise Pollution Control. The Committee recommended noise standards for ambient air and for automobiles, domestic appliances and construction equipments, which were later notified in Environment (Protection) Rules, 1986<sup>5,6</sup>. The Noise pollution (Regulation and Control) Rules, 2000 is an amendment made by Govt. of India in the year 2010. (Rule 3 (1) and 4 (1)) Ambient Air Quality Standards in respect of Noise<sup>5,6</sup>.

## Material and Methods

**Study Area:** Dhar district is situated between the parallels of 22<sup>o</sup>1'14" and 23<sup>o</sup>9'49" North and the meridians of 44<sup>o</sup>28'27" and 75<sup>o</sup>42'43" East above 1908 feet sea level. The area of Dhar town is 49 sq. kms with the population of 75374. The present study was conducted during Navratri festival between 5<sup>th</sup> and 13<sup>th</sup> Oct 2013. The ambient noise levels were monitored and recorded at 05 different selected locations of the town with the help of Sound Level Meter (SLM-4005) between 9.00 pm and 12.00 pm. The instrument used in the range of 30 – 180 dB (A). The instrument was set at a distance of 100 meters from the study areas during the study. Ambient sound levels were compared with that of the standards prescribed in environmental protection act, 1986 and standards of CPCB<sup>4</sup>.

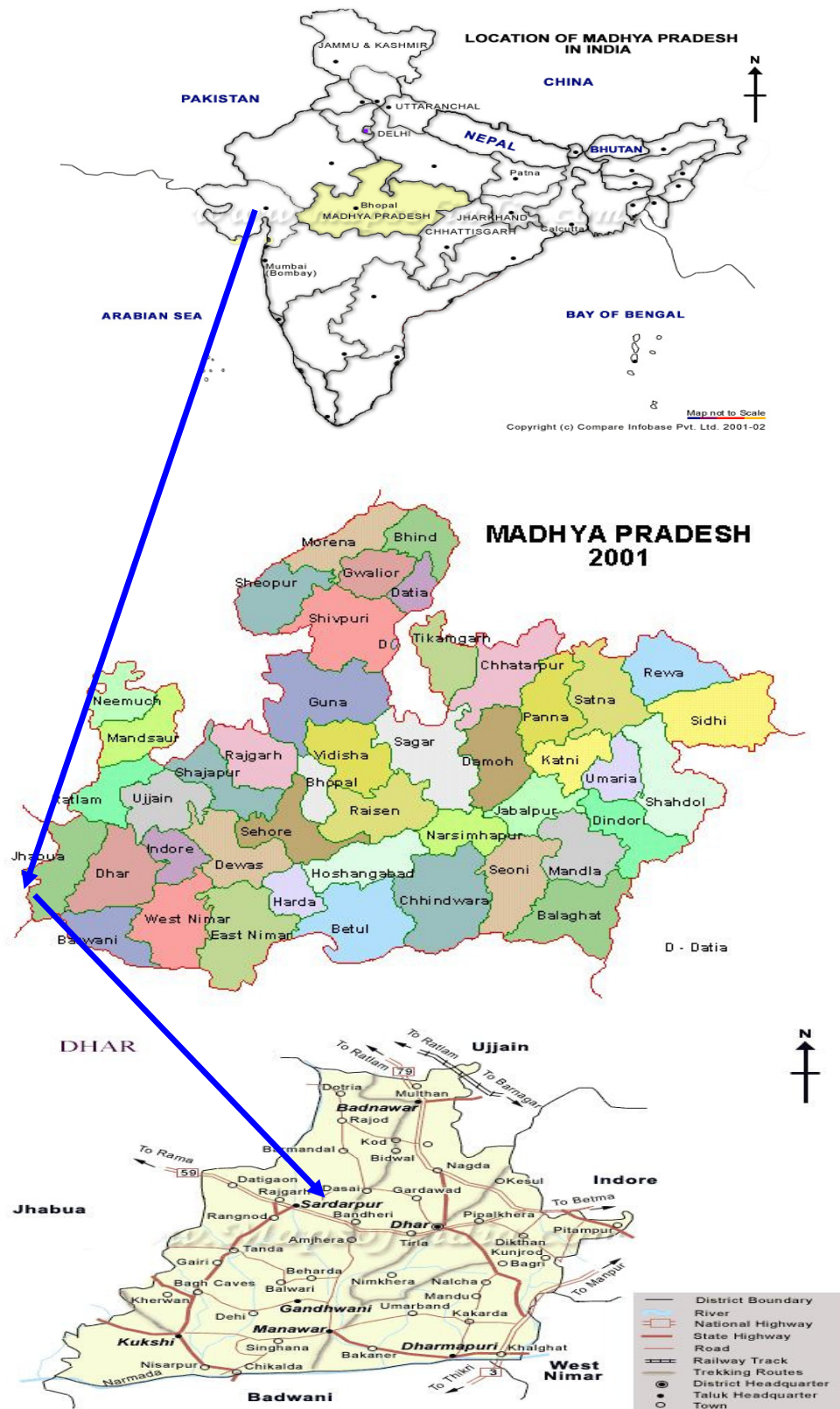


Figure-1  
Maps showing location of Dhar District in M.P., India

## Results and Discussion

The noise levels recorded at different locations in Dhar town during the study period are shown in table 2 to 4. Table 5 and figure 2 show location wise average values of noise levels.

The results obtained from the study clearly indicate that noise levels in all the five localities under study during Navratri

festival are much higher than that of the prescribed standard limits of CPCB, i.e. 45 dB(A) for residential area during night hours<sup>5, 6</sup>. It is similar to the values documented by some authors studied noise Pollution during Deepawali Festival in Kolhapur City of Maharashtra<sup>6-10</sup>. Sources, effects and control of noise Pollution and its Levels in different cities of India has also been studied by some scientists<sup>11</sup>.

**Table-1**  
**Noise standards for Ambient Noise level**

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) Leq denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing<sup>5, 6</sup>.

\* 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<sup>5, 6</sup>.

**Table-2**  
**Showing the noise level status at different locations in Dhar town between 9.00 and 10.00 pm**

Date	S-1	S-2	S-3	S-4	S-5
05/10/2013	101	98	86	80	80
06/10/2013	100	101	81	78	75
07/10/2013	102	96	79	82	78
08/10/2013	106	100	85	80	79
09/10/2013	107	96	84	81	80
10/10/2013	105	96	84	82	76
11/10/2013	108	98	82	80	78
12/10/2013	108	100	80	82	81
13/10/2013	111	101	82	84	78
Mean value	105.33	98.44	82.55	81.00	78.33

\*Parameter values are in dB (A) Leg.

**Table-3**  
**Showing the noise level status at different locations in Dhar town between 10.00 and 11.00 pm**

Date	S-1	S-2	S-3	S-4	S-5
05/10/2013	111	108	95	90	89
06/10/2013	109	110	91	89	80
07/10/2013	113	107	89	92	87
08/10/2013	115	109	94	92	88
09/10/2013	114	108	93	93	88
10/10/2013	111	107	92	94	86
11/10/2013	116	109	92	92	86
12/10/2013	113	108	90	92	90
13/10/2013	118	110	94	95	88
Mean value	113.33	108.44	92.22	92.11	86.88

\*Parameter values are in dB (A) Leg.

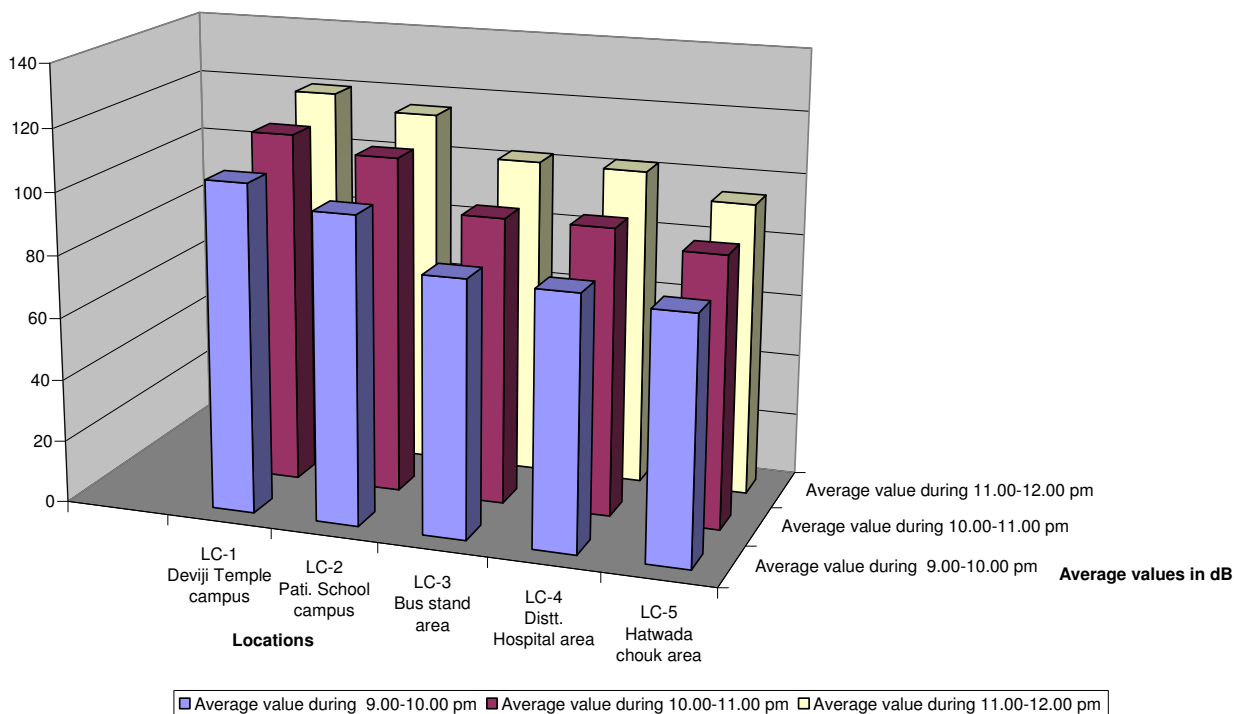
**Table-4**  
 Showing the noise level status at different locations in Dhar town between 11.00 and 12.00 pm

Date	S-1	S-2	S-3	S-4	S-5
05/10/2013	118	115	102	99	95
06/10/2013	117	117	100	101	85
07/10/2013	120	114	102	102	95
08/10/2013	121	116	105	100	96
09/10/2013	120	115	105	103	95
10/10/2013	119	114	102	104	93
11/10/2013	121	116	103	102	95
12/10/2013	120	115	101	104	97
13/10/2013	125	117	103	105	99
Mean value	120.1	115.4	102.5	102.2	94.4

\*Parameter values are in dB (A) Leg.

**Table-5**  
 Showing locality wise and period wise average noise intensity values

S. No.	Locations under study area	Category of area	Average Noise intensity dB (A) value during 9.00-10.00 pm	Average Noise intensity dB (A) value during 10.00-11.00 pm	Average Noise intensity dB (A) value during 11.00-12.00 pm
1	Kalika Temple campus (LC-1)	Commercial	105.33	113.33	120.11
2	Pati. School campus (LC-2)	Sensitive	98.44	108.44	115.44
3	Bus stand area (LC-3)	Commercial	82	92.22	102.56
4	Distt. Hospital area (LC-4)	Sensitive (silence)	81	92.11	102.22
5	Hatwada chouk area (LC-5)	Commercial	78.33	86.89	94.44



**Figure-2**

Figure showing average values of noise status at five selected locations in Dhar town during observation period

The minimum value recorded was 75 dB at LC-5 location between 9.00 and 10.00 pm on 6<sup>th</sup> Oct 13 because It was the first day of the festival and more over Garba dance was not being performed in this locality. The maximum value recorded was 125 dB at LC-1 location during 11.00 and 12.00 pm on 13<sup>th</sup> Oct 13 as it was the last day of the festival and the Garba dance which was being performed in this area was at the pick along with the annual fair organized by local Municipal Corporation. Both the maximum and minimum values are much more higher than that of the prescribed limits<sup>6</sup>. The most striking feature of the study is the fact that the average noise intensity even in district hospital area (LC-4) which comes under sensitive / silence area as per CPCB, is much higher than that of the prescribed limits<sup>6</sup>. This is something very disturbing and disappointing that people become over sensitive in the name religious festivals without taking care of their own environment. Noise pollution has become an environmental problem in Dhar and also in other parts of India during religious festivals. This can cause negative impact on public health and welfare. Noise interferes in complex task performance, modifies social behaviour and causes annoyance<sup>12</sup>.

## Conclusion

Considering the above aspects, we can conclude that noise dominates the spectrum of environmental noise. The people living in noisy area especially above 70 dB(A) should take precaution in order to avoid noise induced hearing loss and other problems. Celebration of festivals should be eco friendly. Unlimited use of powerful sound systems should be controlled. Public education appears to be the best method as suggested by the respondents. However, government and NGOs can play a significant role in this process.

## References

1. Concha-Barrientos M. Campbell-Lendrum D. and Steenland K., Occupational Noise, Assessing the Burden of Disease from Work- Related Hearing Impairment at National and Local Levels. Environmental Burden of Disease, Series No. 9, World Health Organization Protection of the Human Environment, Geneva, **1**, (2004)
2. Schomer P.A, White Paper on Assessment of Noise Annoyance, Schomer and Associates, Inc., Champaign, **1**, (2001)
3. PH. Bhagwat and Pramod M. Meshram, International *Journal of Pharmaceutical and chemical sciences*, **2(1)**, (2013)
4. Tripathy D.B., Noise pollution, A.P.H. Publishing Corporation, New Delhi, India, (1999)
5. CPCB, The Noise Pollution (Regulation and Control ) Rules, published in the Gazette of India, vide S.O. 123(E), dated 14.2.2000 and subsequently amended vide S.O. 1046(E), dated 19.09.2006 and S.O. 50 (E) dated 11.01.2010 under the Environment (Protection) Act 1986, (2000)
6. C.P.C.B., (Pollution Control Acts, rules, and notifications issued there under. Pollution Control Series, PCL/2/1992 (I), New Delhi, (1995)
7. Mangalekar S.B., Jadhav A.S. and Raut P.D., Study of noise pollution in Kolhapur city, Maharashtra, India, *Universal journal of Environmental research and technology*, **2(1)**, 65-69 (2012)
8. Lad R. J., Patil V. N. and Raut P. D., Study of Noise Pollution during Deepawali Festival in Kolhapur City of Maharashtra, India, *Indian Streams Research Journal*, **1(VII)**, 82 (2011)
9. Agarwal S. and Swami B.L., Status of Ambient Noise Levels in Jaipur City, *Environment Conservation Journal*, **11(1and2)**, 105-108 (2010)
10. Sampath S., Das S.M. and Kumar V.S., Ambient Noise Levels in Major Cities in Kerala, *J. Ind. Geophys. Union*, **8(4)**, 293-298 (2004)
11. Sagar T.V. and Rao G.N., Noise Pollution Levels in Visakhapatnam City (India), *Journal of Environ. Science and Engg.*, **48(2)**, 139-142 (2006)
12. Singh N. and Davar S.C., Noise Pollution- Sources, Effects and Control, *J. Hum. Ecol.*, **16(3)**, 181-187 (2004)
13. Stephen A, Stansfeld and Mark P Matheson, Noise pollution: non-auditory effects on health, *British Medical Bulletin*, **68**, 243-257 (2003)