



Study of Noise Pollution during Ganesh Utsav and Durga Utsav in Yavatmal City in 2016

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Available online at: www.isca.in, www.isca.me

Received 22nd March 2016, revised 17th May 2016, accepted 5th June 2016

Abstract

The study of noise pollution is a very serious problem of today. Noise levels was studied at various Ganesh and Durga Utsav places in Yavatmal city. The noise level was measured with the help of sound level meter during the utsav period. From the present study it is concluded that the noise levels are elevated due to modern electronic devices such as D.J., Drums and loud speakers. Due to elevated noise levels there is interference in communications, mental unrestfulness and sleeplessness.

Keywords: Ganesh utsav, Durga Utsav, Noise pollution, Yavatmal.

Introduction

Noise pollution during Ganeshutsav and Durgautsav is not new but it is increasing year by year and becoming worse. Man is facing an increasing problem with noise pollution which affects the mental ability, hearing capacity physiological and psychological health. Apart from noise induced deafness, most of the effects of noise can be reduced with proper monitoring and control of the noise at its source. To overcome noise pollution need proper planning and thought. Noise Pollution problem due to indiscriminate use of loudspeakers, DJ, Drums during festivals is a common menace throughout the country. Monitoring the noise level emitting from loudspeakers in some puja pandals, different communal gatherings etc. to assess the adverse impacts on the ambient noise level. The study revealed that the noise emitted due to playing loudspeakers in different community Puja pandals and bursting firecrackers cause a severe health hazard and inconvenience to the people at large¹.

Human Health and Noise Pollution

The undesirable sound is the noise pollution. Due to noise pollution there is danger to the health of person which causes stress, illness and mental instability. Therefore noise in any form which is undesirable is considered as pollution causing sleeplessness, mental instability or any type of stress reaction. Noise is considered as transient because once the noise stops the environment is free of it. Whereas the other form of pollution such as chemical, soil, water pollution etc. when introduced in the environment can be measured and we can study the amount and estimate how much material can be introduced in the environment so that it cannot harm the environment. Sound pollution differs from person to person in some person the roaring of engines may be thrilling and to other it may be annoying. The sound of D.J. may be enjoyable and amusing depending on the listeners².

Noise Pollution Standards and Measurement of noise Level

Noise is measured in decibels B (A). Whereas A symbol represents logarithmic scale. 'a' is compared to a fixed reference level 'r' and the "decibel" value is $10 \log_{10} (a/r)$. The human ear sensitivity is matched to the simulations and 125 to 200 milliseconds fast response used to measure the noise level. The frequency of sound and the response to noise level is closely related, the type also affects and the time too. The environmental protection act 1986 laid down the noise level in different areas given in Table-1.

Table-1
Showing Noise pollution limit

Category of area	Limits in dB(A), Leq		Area Code
	Day time	Night time	
Industrial	75	70	A
Commercial	65	55	B
Residential	55	45	C
Silence Zone	50	40	D

Note: (i) 6 a.m and 9 p.m.- Day time, (ii) 9 p.m and 6 a.m.- Night time (iii) 100 meters near hospitals, educational institutions and courts - Silence zone Use of vehicular horns, loudspeakers and bursting of crackers are banned in these zones.

Survey Method: Survey was carried out during Ganesh utsav and Durga utsav in 2016. Noise level measurement monitored during 18.00 hrs to 24.00 hrs. at a distance of about 50 meters to 100 meters around Ganesh pandals/ Durga pandals. The monitoring was done for a minimum period of 30 minutes. Following are the stations covered during the survey.

Measurements of Noise Level³

To measure the noise level sound level meter (SLM) type II was used which confirms to IEC651 type II internal memory can keep up to 32000 records. It can be attached to the computer and uses RS 332 interface for bidirectional communications. The instrument has range of 30 – 180 dB(A).to measure , sound level meter was set back at the distance of 50 meters to 100 meters.

Noise and Health Effects on Human

Human beings are greatly affected by noise which is physical, physiological, psychological.

Physical Effects of noise pollution: Noise pollution effects on hearing ability of humans. Due to continuous exposure to noise the hearing threshold of a person may shift temporarily or permanent which depends on the level of sound and the time of exposure of sound. Sensory cells are present in human ears for detection of sound if the cells are exposed to high intensity of repeated sound level before they have recover to normal there is possibility of getting permanently getting damages causing hearing loss, The tympanic membrane can also be permanently damaged due to sudden loud noise from fire crackers⁴.

Physiological Effects of sound pollution: i. High noise levels dilate blood vessels of the brain causing headache. ii. It increases the heart-beat. iii. High noise level narrows arteries. iv. The level of cholesterol in the blood which increases blood pressure. v. Heart out put may get decreased. vi. May cause pain in the heart. vii. High noise level increases digestive activity causing digestive juices, it causes dilation of pupil causing eye strain. viii. High noise level lowers of concentration and effect

on memory, xi. High noise level causes muscular strain and nervous breakdown. x. High noise level may result in internal cranial damage.

The psychological effects of noise pollution: i. High noise level causes fatigue and depression considerably reducing the efficiency of a person. ii. High noise level causes insomnia resulting lack of undisturbed and refreshing sleep. iii. Slow but repeating noises from motorcycle and automobile, alarm clocks, call bells, telephone rings etc.can cause anxiety which results in straining of senses. iv. Repeating of low intensity sound adds to irritation (eg.dripping of water).

Effects of varying sound intensity can cause various problems assorted in Table 2.

Table-2
Harmful effects of noise pollution

Level (in dB)	Effects of noise
up to 23	No effect
30—60	effects especially at upper range Stress, tension, psychological
60—90	psychological and vegetative illness (disturbance in stomach-gall function, pains in muscles, high blood pressure, disturbance in sleeping)
60—120	effects ontological (ear diseases)
Above 120	In long run Painful effects.

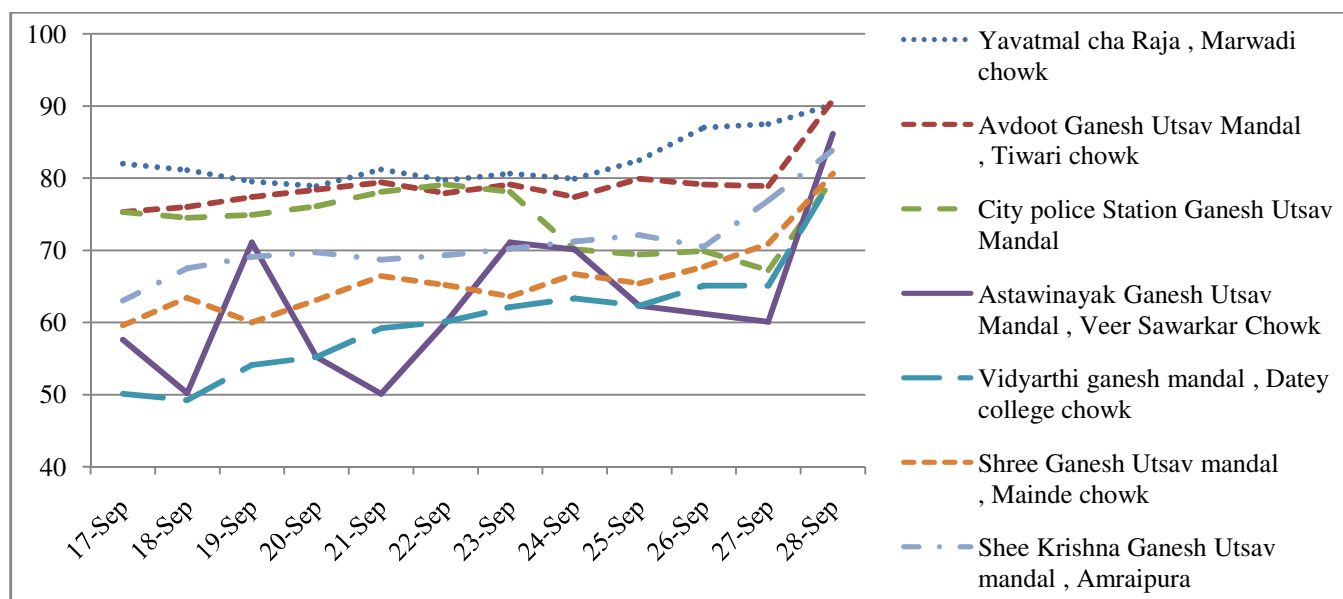


Figure-1
Graph showing Variation of noise pollution at different places during Ganesh utsav

Table-3
Sound level monitoring during Ganesh utsav 2016

Noise levels at various locations in the city. All values are in dB (A). The monitoring is done from 1800 to 2400 hr.												
Location	17 Sep	18 Sep	19 Sep	20 Sep	21 Sep	22 Sep	23 Sep	24 Sep	25 Sep	26 Sep	27 Sep	28 Sep
Yavatmalcha Raja Marwadi Chowk	82.1	81.1	79.5	78.9	81.2	79.7	80.6	79.9	82.5	87.1	87.5	90.2
Avdoot Ganesh Utsav Mandal Tiwari Chowk	75.3	76	77.4	78.4	79.4	77.9	79.1	77.4	79.9	79.1	78.9	90.8
City police station Ganesh Utsav Mandal	75.3	74.5	74.9	76.1	78.1	79.1	78.1	70.1	69.4	69.9	67.2	79.9
Astavinayak Ganesh Utsav Mandal, Veersawarkar Chowk	57.6	50.2	71.1	55.2	50.1	59.9	71.1	70.1	62.3	61.2	60.1	86.1
Vidyarathi Ganesh Mandal, Datey College Chowk	50.1	49.2	54.1	55.2	59.2	60.1	62.1	63.3	62.3	65.1	65.1	80.1
Shree Ganesh Utsav Mandal Mainde Chowk	59.6	63.4	60	63.1	66.4	65.2	63.6	66.7	65.4	67.7	70.9	80.6
Shree Krishna Ganesh Utsav Mandal Amraipura	63	67.5	69.1	69.7	68.7	69.3	70.2	71.2	72.1	70.5	76.9	83.9
Vidarbha Ganesh Utsav Mandal , Netaji Chowk	70.2	71.3	72.4	73.3	73.1	70.1	75.6	77.5	77.3	77.9	80.5	90.6
Baal Ganesh Utsav Mandal Amraipura	63.2	69.3	66.5	67.2	68.4	67.5	69.1	70.1	72.4	75.6	80.9	89.9
Tilak Ganesh Utsav Mandal Tilakwadi	75.5	76.2	69.4	68.9	69.7	69.8	67.1	71.2	70.2	69.5	69.7	69.3
Gurudev Seva Ganesh Utsav Mandal	75.5	70.1	69.7	50.1	55.9	51.1	57.2	59.9	58.4	59.3	60.1	77.9
Maa Tuljai Ganesh Utsav Mandal Wadgaon	79.3	77.2	69.5	59.7	60.4	63.9	66.7	70.1	75.1	69.7	66.9	87.7
Police Baal Ganesh Utsav Mandal Paliswadi	69.9	54.6	55.7	54.7	53.1	52.7	50.1	59.8	70.1	71.1	75.5	90.1
Kamal Ganesh Utsav Mandal	59.9	60.4	60.4	66.2	50.1	55.6	57.1	69.1	70.5	72.5	75.8	91.9
Jay Matadi Ganesh Utsav Mandal Tirupati Nagar	71.5	56.9	70.1	56.4	70.1	70.2	75.5	67.1	69.4	69.4	70.4	91.9

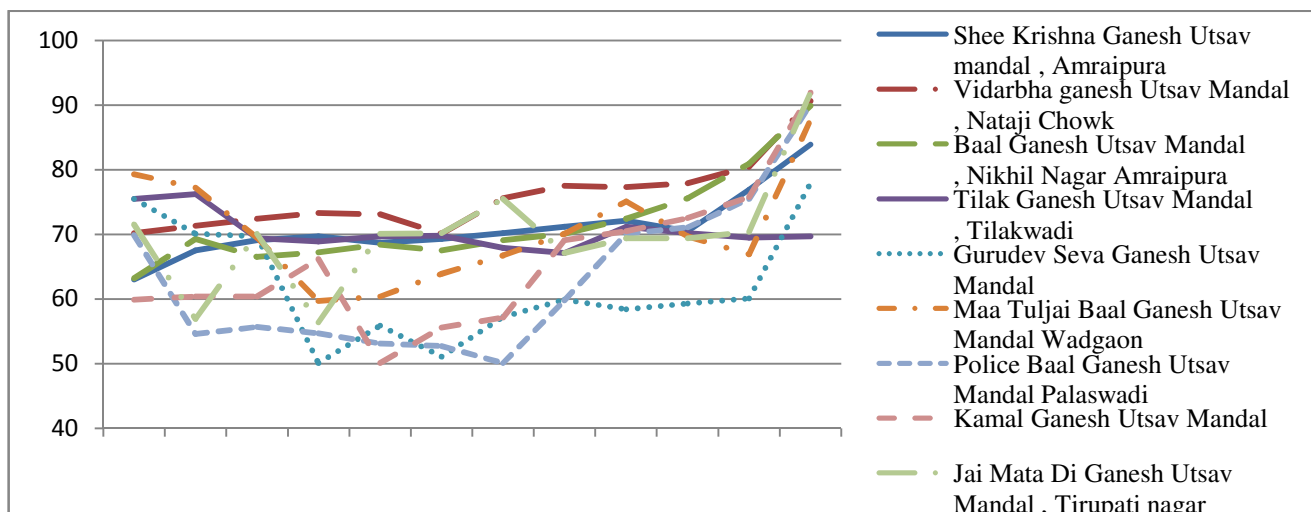


Figure-2
 Graph showing Variation of noise pollution at different places during Ganesh utsav

Table-4
Sound level monitoring during Durga utsav 2016

Noise levels at various locations in the city. All values are in dB (A). The monitoring is done from 1800 to 2400 hr.											
Location	13 Oct	14 Oct	15 Oct	16 Oct	17 Oct	18 Oct	19 Oct	20 Oct	21 Oct	22 Oct	23 Oct
Ekata Durgautsav Mandal Arminaka	82.2	75.2	74	75.9	77.9	76.1	75.1	73.1	74.1	79.9	92.7
SubashKrida Durgautsav Mandal , Wadgaon road	85.9	77.1	75.1	72.1	70.9	75.8	76.4	89.9	87.6	88.1	92.1
Utsahi Durga utsav Mandal, Saraswat Chowk	89.1	75.1	78.1	74.6	71.9	74.3	75.5	90.1	89.1	87.4	92.1
Lokmanya Durgautsav Mandal, Arni Road	88.1	74.1	78.1	79.1	79.4	80.2	84.1	85.7	87.7	89.9	91.4
Sarwajanik Durgautsav Mandal, Datta Chowk	88.1	75.4	77.8	78.9	79.2	80.1	77.2	87.7	85.9	90	90
Shivam Durgautsav Mandal, Wagapur	89.1	72	75.1	69.9	69.7	72.5	70.1	89.1	87.3	90	91.2
Balaji Durgautsav Mandal, Balaji Chowk	85.1	87.2	88.6	9.9	88.1	87.1	89.3	93.5	93.4	93.1	90.1
New Sarwajanik Durgautsav Mandal, Waghapur	75.1	69.9	70.1	71.2	72.9	74.1	76.1	79.1	77.7	90.1	89.7
Shree Swami Samarth Durgautsav, SBI Chowk	78.8	77.2	76.1	77.9	79.1	85.2	87.9	88.4	89.1	90.1	85.2
MaaVaisnavidevi Durgautsav Mandal, Arni Road	77.7	79.2	89.1	79.5	77.7	76.4	89.6	79.9	85.1	89.7	89.3
Tarun Utsahi Durga Utsav Mandal, Sakatmochan	70.1	75.3	77.3	79.1	78.1	76.2	89.7	77.7	79.1	85.2	91.2
Nagraj Durgautsav Mandal, Arni Road	78	75	78	78.9	79.9	79.1	85.2	87.1	80.6	87.6	90.2

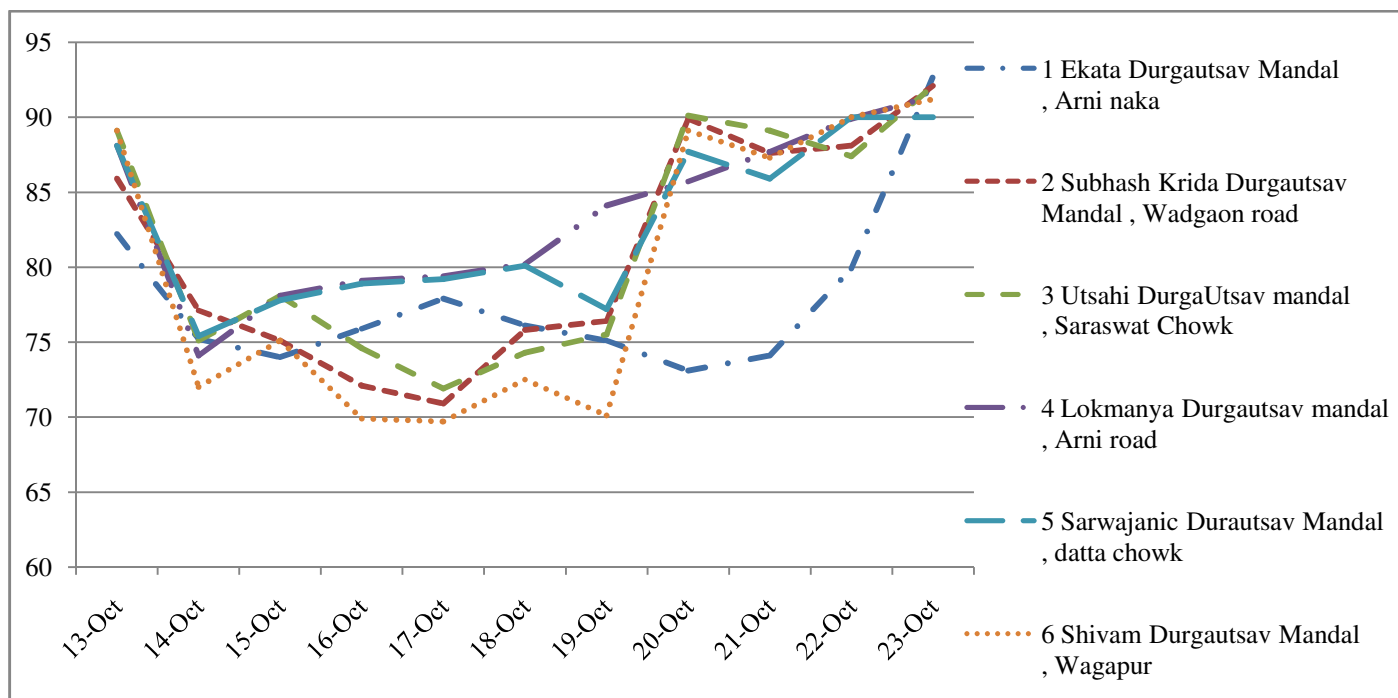


Figure-3
Graph showing Variation of noise pollution at different places during Durgautsav

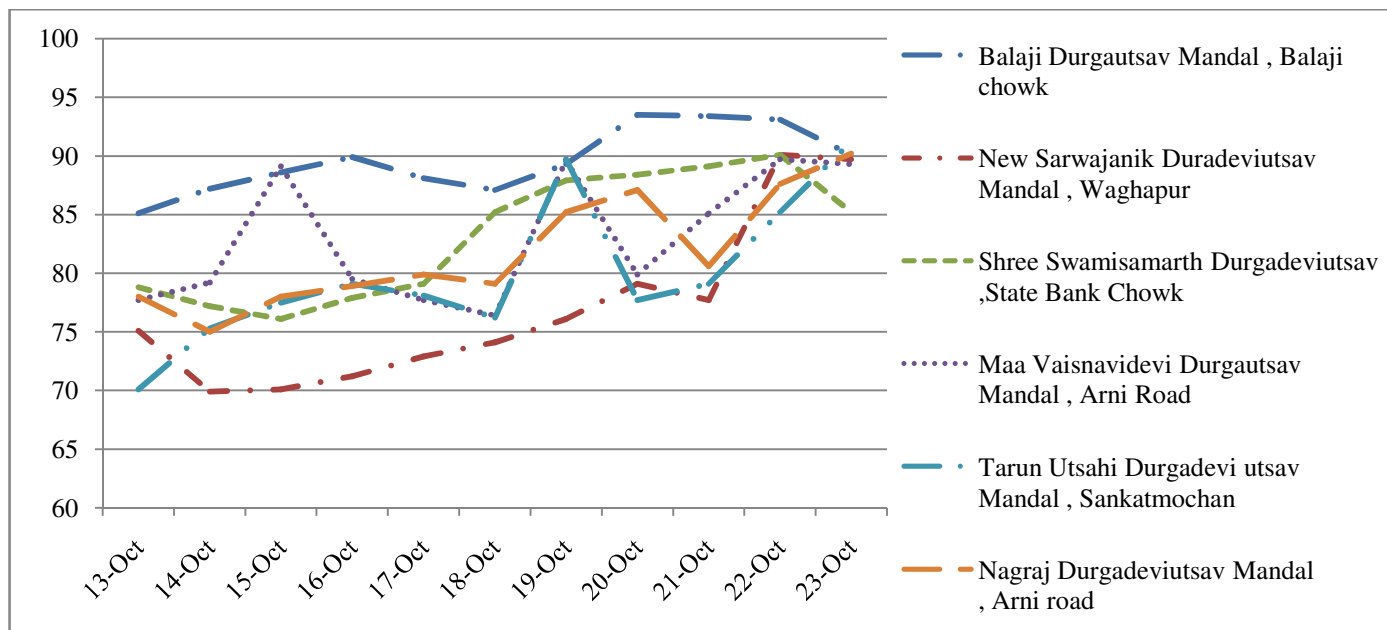


Figure-4
 Graph showing Variation of noise pollution at different places during Durgautsav

Results and Discussion

From the above study it is observed that the level of Noise Pollution during Ganesh immersion and Durga immersion is much higher when compared with the standard limits.⁶ The sound levels recorded at different locations in Yavatmal City for Ganesh utsav and Durga utsav which are shown in table 1 and table 2 results were surprising in some locations particularly in location 1 and 8 of Ganesh utsav and location 1, 7 and 10 of Durga utsav where max drums, D.J., loud speakers. It is observed that at all the locations the sound level is much greater than the permissible limit during the period in Durga utsav period as compared to Ganesh utsav.

Conclusion

Noise pollution is an environmental problem all over India during various utsav which causes negative impact on health.⁶ Considering the above aspects, it is concluded that noise dominates the spectrum of environmental pollution. The people staying and exposed to noise level above 70 dB(A) should take precautionary measures to avoid noise induced hearing loss.

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