

Study of Noise Level during Ganesh Festival in Solapur City

DR. H. B. Tipe¹, Mr. Sandeep S. Chendkapure²

¹Research Guide, Professor, Head Dept. of Geography
Vasundhara Kala Mahavidyalaya, Solapur.

²Research Student, Punyashlok Ahilyadevi Holkar Solapur University
Walchand College of Arts and Science, Solapur

Email- tipeharish@gmail.com

Introduction

Solapur city is known as multi-lingual, multi-religious and multi-caste city. The city of Solapur is blessed with religious and cultural heritage. Public Ganesh Festival started at Pune in Maharashtra in 1893 but before that Public Ganesh Festival was started in Solapur city in 1885 at Skukravar Peth (Aajoba Ganpati). Such is history of Solapur city. Initially, Public Ganesh Festival was celebrated for the benefit of society. But in recent times, there is a lack of awareness of the environment while celebrating the festival with enthusiasm. Celebrating festival in loud noise cause noise pollution. The word 'Noise' is derived from the Latin word 'Nausea'. It means unnecessary or unpleasant sound. The waves or energy produced by the vibration of an object is called sound.

Adverse effects of sound can be seen when it turns in to noise and disturbs the hearing systems of animals, humans and birds. In recent time, noise pollution is being considered as an environmental problem and is receiving more attention. (H.M. Saxena and M.Z.A. Khan 2016) In the urban lifestyle, noise pollution is seen as a factor affecting people's health and public life.

Sound is measured in decibels (dB) units. The decibels (dB) unit is named Bell after the American scientist Alexander G. Bell (d- deci stands for 10, B- stand for Bell.) (C.P. Sathe, A.M. Kadam, K.D. Ahire 2019) The noise generated during the festival due to bursting of firecrackers, music system, sound system, etc. has a bad effect on the environment. (Nitinkumar.L. Patel And Prashant.P. Bhave 2014)

Objective

To study of noise level during Ganesh Festival of Solapur city. (2017 to 2020) .

Datab Base

This research article is based on MPCB (Maharashtra Pollution Control Board) report on ambient noise pollution during Ganesh Festival and report is published every year after Ganesh Festival, other information has been collected through the internet . In this research paper a simple statistical method is used to indicate the Noise level in the city of Solapur . Data is processed and represented with various graph.

Methodology

Noise level has been measured at 4 places in Solapur city. In this, the noise level of the first two days of Ganesh Festival, 5th day and 7th day and last day have been measured. Although there are commercial, residential and industrial sections in this place, but only residential section has been considered in the research.

Noise monitoring for 6 hours during the 5 days (2017 to 2020) of Ganesh Festival from 6 pm to 12pm was measured using calibrated sound level meter.

Formula to calculate Noise Level-

$$L_{eq} = 10 \log \left(\frac{1}{n} \sum_{i=0}^n 10 \frac{L_i}{10} \right)$$

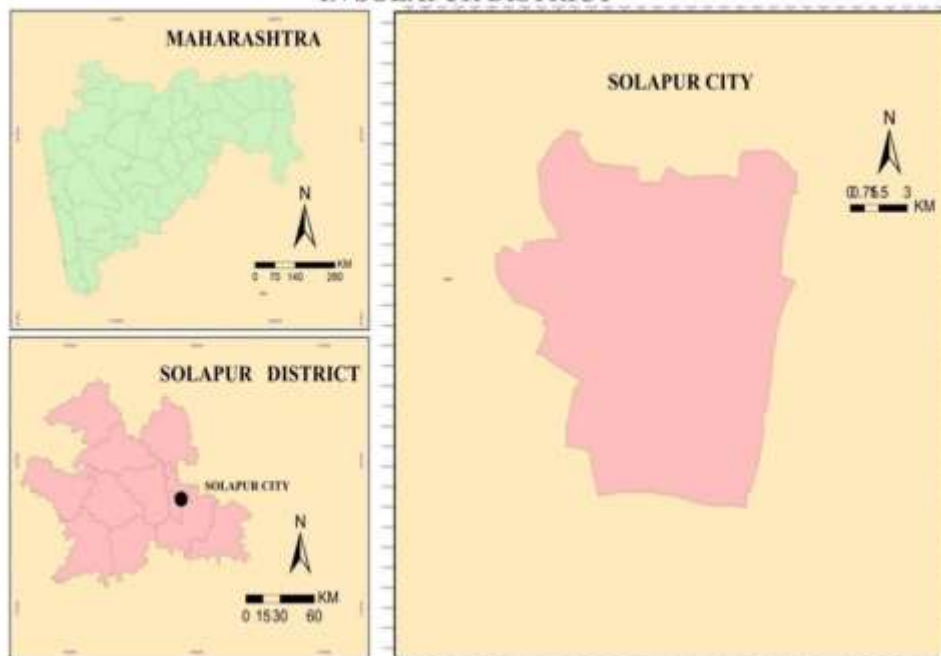
Table 1 : Standard of Noise level under EPA(1986), Noise Pollution (Regulation and Control) Rules 2000

Area code	Category of Area	Limits in dB(A) log	
		Day time	Night Time
A	Industrial Area	75	70
B	Commercial Area	65	55
C	Residential Area	55	45
D	Silence Area	50	40

Study Area

Solapur is city located geographically in the rain shadow region. The latitudinal extension is 17°43'30" north 17°46'15" north and longitudinal extension is 75°52'10" to 75°58'20" east. The height of the city is 458 meter above MSL.

Fig. No. 1
LOCATION MAP OF SOLAPUR CITY
IN SOLAPUR DISTRICT



Solapur city is known as a major city in western Maharashtra. In the city of Solapur, the population of different castes and religions is seen living in harmony. As per 2011 census, the city has a population of 9.51 lakh and the total area of the city is 178.57 square kilometers.

Total four locations were covered during Ganesh Festival in Solapur city by MPCB. The detailed list of locations is as follows.

Table 2: List of Monitoring Location (Source MPCB Report 2017 to 2020)

Sr. No	Monitoring Location of Solapur City
1	Balives Area
2	Ashok Chowk Area
3	Hotagi and Vijapur Road Area
4	Satrapata Railway Station Area

Table 3: Noise level on the Ganesh Festival at Balives Area (2017 to 2020) (source MPCB report)

Day	Leq dB(A)			
	2017	2018	2019	2020
1st	74.7	79.3	96.6	60.5
2nd	69.4	78.8	97.1	58.2
5th	73.4	80.8	93.5	62.5
7th	73.5	85.5	92.1	57.8
Last	89.3	86.6	84.9	58.2

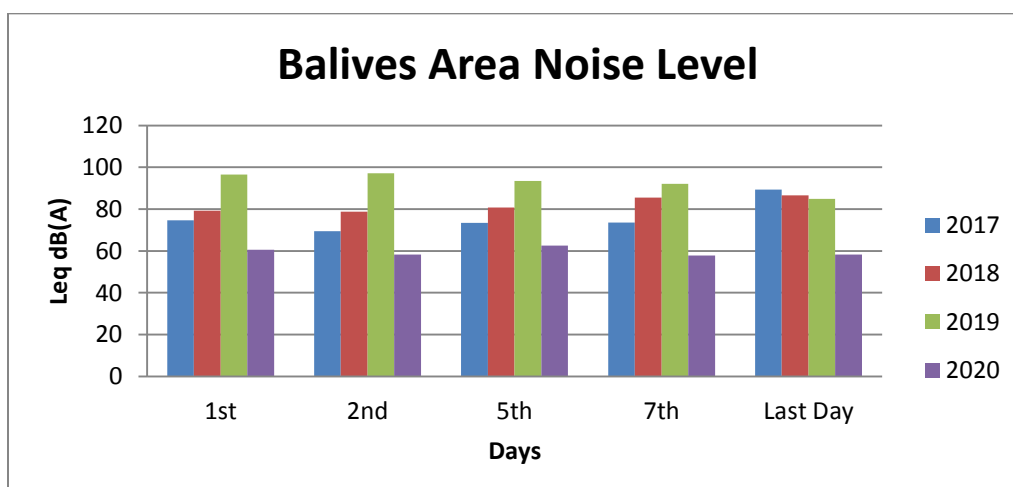


Figure 2 Pattern of Variation of Noise level on Balives Area

Table 4: Noise level on the Ganesh Festival at Ashok Chowk (2017 to 2020) (source MPCB report)

Day	Leq dB(A)			
	2017	2018	2019	2020
1 st	79.2	80.9	93.0	71.4
2 nd	69.9	79.8	95.0	67.6
5 th	74.6	75.8	92.6	59.5
7 th	76.6	83.0	76.6	63.6
Last	87.9	77.4	88.3	61.6

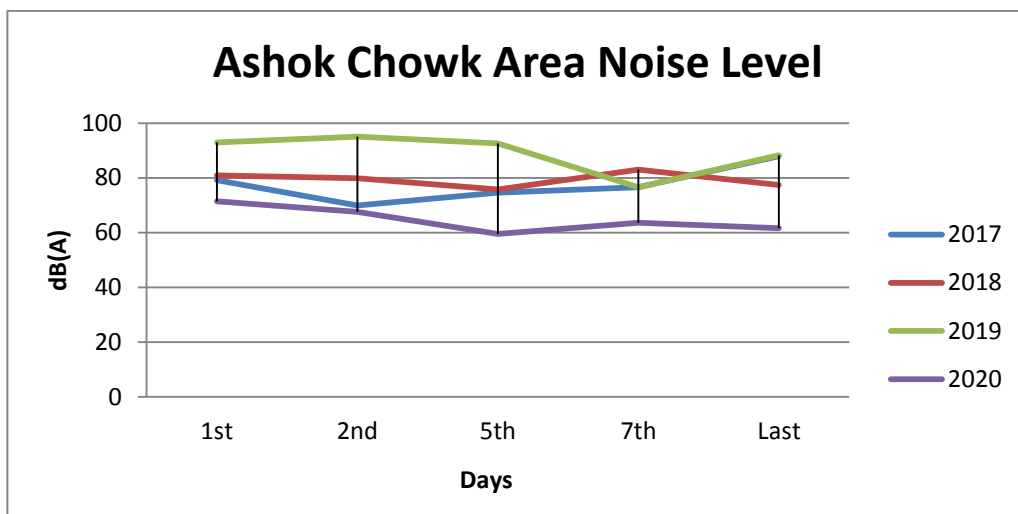


Figure 3 Pattern of Variation of Noise level on Ashok Chowk Area

Table 5: Noise level on the Ganesh Festival at Hotgi and Vijapur Road (2017 to 2020) (source MPCB report)

Day	Leq dB(A)			
	2017	2018	2019	2020
1 st	79.0	82.9	94.9	53.7
2 nd	76.7	81.5	87.8	58.4
5 th	76.0	88.5	92.7	58.4
7 th	71.6	93.3	89.1	55.9
Last	81.4	86.2	88.3	57.0

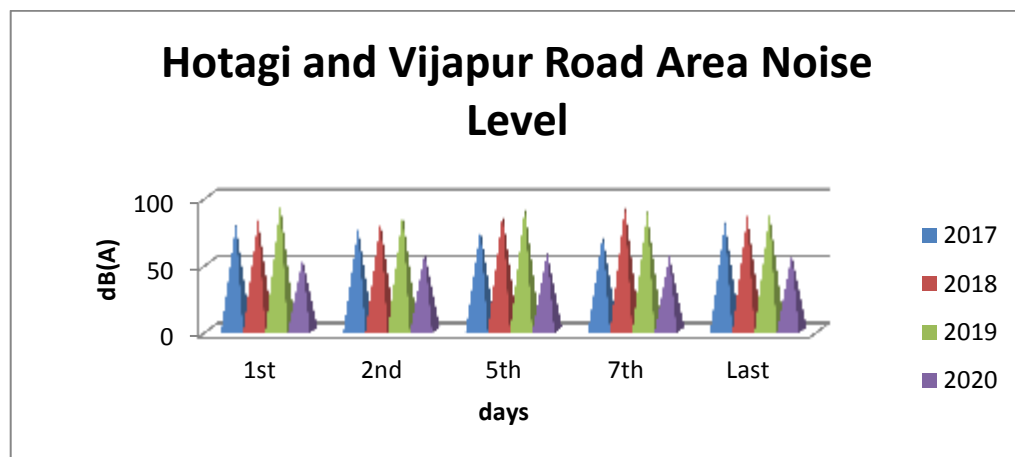


Figure 4 Pattern of Variation of Noise level on Hotagi and Vijapur Road Area

Table 6: Noise level on the Ganesh Festival at Satrastta and Railway Station Road (2017 to 2020) (source MPCB report)

Day	Leq dB(A)			
	2017	2018	2019	2020
1 st	73.8	85.1	85.5	48.1
2 nd	77.2	79.5	92.5	52.1
5 th	71.5	80.9	89.7	53.1
7 th	78.0	82.7	83.9	57.9
Last	73.0	84.6	88.8	56.4

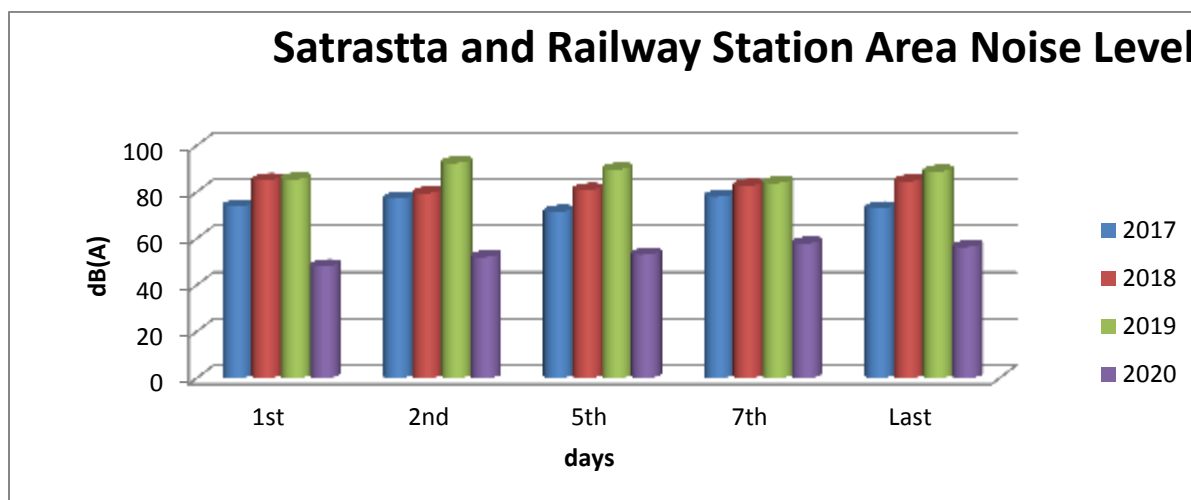


Figure 5 Pattern of Variation of Noise level on Satrasttaand Railway Station Area

The observations made revealed that the noise levels at all locations were much higher than the permissible noise levels for residential areas as per the norms of CPCB.

Although the residential sector is considered, noise levels higher than the permissible noise levels for industrial and commercial sectors as per CPCB standards were observed at all places during the period 2017 to 2019, while the noise level in 2020 was lower compared to the previous three years.

If we observe the data of all the four years, it can be seen that the noise level has increased in 2017, 2018 and 2019 respectively and the noise level has decreased in the year 2020. In 2017, the noise level was the highest at Balives ares at 89.3dB.

In 2018, the noise level was highest at Hotagi and Vijapur Road at 93.3 dB.

In 2019, the noise level has increased in all the four places as compared to the previous two years but Balives area recorded the highest noise level of 97.3dB.

In the year 2020, The noise level decreased from the previous three years, but exceeded the limit. Among them, Ashok Chowk area saw the highest noise level of 74.8dB.

Conclusion

From the above research article it is concluded that noise level increases significantly during Ganesh Festival in Solapur City. Large number of music system, traditional instruments (drums, tashes, etc.), traditional group dance (like lazims, cymbals, etc) and the sound level increases in Ganesh Festival.

Overall noise level during Ganesh Festival is higher than the standard prescribed by CPCB due to music system, traditional instruments, traditional group dance, DJ (disc jockey) sound system, bursting of firecrackers, rush of people, rush of vehicles etc. in Solapur city.

In 2020, due to the the global pandemic (due to CORONA), the government imposed restrictions on public life, as a result of which the noise level in the city of Solapur was reduced, but it was more than normal.

References:

1. Nitinkumar.L.Patel and Prashant.P.Bhave (2014) Study of Noise Pollution during Deepawali Festival. *International Journal of Innovative in Advanced Engineering*.1(6)1-4.
2. C.P.Sathe, A.M.Kadam, K.D.Ahira (2019) Assessment of Noise Level during Ganesh Festival in Residential Zone of Kolhapur City. *International Journal of Trend in Scientific Research and Development (IJTSRD)*.126-128.
3. H.M.Saxena and M.Z.A.Khan (2016) Urbanisation, Environmental Degradation and Quality of Life. 1st edition Rawat Publications(India)
4. Report on Ambient Noise Monitoring During Ganesh Festival, 2017(Maharashtra Pollution Control Board) (www.mpcb.gov.in)
5. Report on Ambient Noise Monitoring During Ganesh Festival, 2018(Maharashtra Pollution Control Board) (www.mpcb.gov.in)
6. Report on Ambient Noise Monitoring During Ganesh Festival, 2019(Maharashtra Pollution Control Board) (www.mpcb.gov.in)
7. Report on Ambient Noise Monitoring During Ganesh Festival, 2020(Maharashtra Pollution Control Board) (www.mpcb.gov.in)