



A Study of Level of Noise Pollution in Silence Zones of Peth Vadgaon in Kolhapur District (M.S.)

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Abstract:

In the age of modernization, the environmental problems are increasing with modern activities. Out of all types of pollution noise pollution remains undisturbed and reacts very deeply on the human body and mind. Considering this issue the silence zones of Kasba Vadgaon in Kolhapur District of Maharashtra State have been surveyed to determine the level of noise at educational institutions, hospitals and government offices. The level of noise has been collected by fieldwork with GPS and Android application. The collected data has been analyzed and the level of noise has been calculated. Through this result, the conclusion could be useful for policy making for future and current development in Kasba Vadgaon in the sense of Noise pollution.

Keywords: *Noise level, Hospital, Educational institution, Government offices, decibel.*

Introduction:

The present world is the world of globalization. In this era service sector and industrial growth is resulting in the maximum use of resources which reacts to the increase in air, water, noise and solid waste (land) pollution. This problem is increasing in the urban areas particularly. The changing lifestyle is also the main reason behind this issue. The modern lifestyle also creates hidden and ignored pollution i.e. noise pollution. The noisy horns of vehicles, entertainment, Loudspeakers in religious places, noisy sounds during festivals and industrial noise are some examples of noise pollution in general. This could result in the loss of

peace and an increase of physical and mental health issues. Noise pollution cannot be eradicated completely but it is possible to decrease it at some extent. The Govt. of Maharashtra and Govt. of India have taken some steps to deal with this issue. Govt. of Maharashtra and High Court of Mumbai made the act to decrease in noise pollution levels in 2000, followed by the act in 2003, 2007 and 2009 have been sanctioned to cope up with the noise pollution issue. In these acts ‘Silence zone’ concept has been included. For the present study, the researcher has used this concept to elaborate the noise pollution.

Study Area:

Kasba Vadgaon town is located in north-east part of Kolhapur district. It is 20 km long from Kolhapur district head quarter. It is the part of Deccan plateau where the western part of this town is covered by small hills whereas the eastern part is covered by Warana river flood plain. Due to the erosion of local rills this area has undulated landscape. This town is located from 16° 49'27.70" to 16° 50' 33.11" North Latitude and 74° 18' 22.50" to 74° 19' 33.26" East Longitude. It is 580 m. high from mean sea level. The general slope of study area is from south to north direction. The maximum and minimum temperature of Kasba Vadgaon is 39° C. and 7.60° C respectively. The total population of Kasba Vadgaon is 25,651 as per 2011 Census.

Importance of the study:

Kasba Vadgaon is known as a marker place for the surrounding villages for agricultural products and the trade activity. It is also the central place for education and health facility. The constant transportation of heavy vehicles takes place through this town. The noisy atmosphere of this town result into increase of noise pollution at silence zones of this town. Govt. of Maharashtra has made the rules for the decrease of noise pollution in the silence zones. For this purpose the study has been carried out.

Objective:

The present study aims at the classification and analysis of noise

pollution at Silence zones of Kasba Vadgaon.

Data collection and Methodology:

For the present study primary and secondary data have been collected. Primary data is collected from silence zones by taking measurement of noise level by iNVH SLM (Sound Level Meter) mobile application of Robert Bosch Engineering and Business solution Pvt. Ltd. With the help of this application SPL (Sound Pressure Level) have been acquired. Leq (Equivalent Continuous Sound Level) tool is also used to collect the data. With the help of Leq the average energy acquired is converted into Leq value. This value is not equal to Arithmetic Mean. This method collects the information into logarithmic data and it is used to convert the decibel into SPL. The values are also measured into decibel into SPL. In this application L-min (Minimum level) and L-max (Maximum level) is used to collect the information of noise from silence zones. The primary data has been collected for two times in a day and the big rush day of weekly market on Monday is excluded which could result into enormous increase into the noise level. The secondary data has been collected from Talathi office, Municipal Corporation, government reports and judicial acts of Government of Maharashtra and India. The stratified random sampling has been used to select the silence zones in case of multiple numbers of units. For that purpose the G.P.S. coordinates have been taken for each sampled units. The

collected information has been analysed into the statistical and mathematical calculations and inferences have been made.

Silence Zone:

As per Government of Maharashtra and High Court order of Mumbai Resolution-No) Dhwanipra2009/c.r95/t.c.-1 dated on 21st April 2009 and 7th August 2009 to effectively implement Noise pollution (Control and Regulation rules 2000) the silence zones in the urban area are as follows.

- a) Educational Institute
- b) Courts
- c) Hospitals

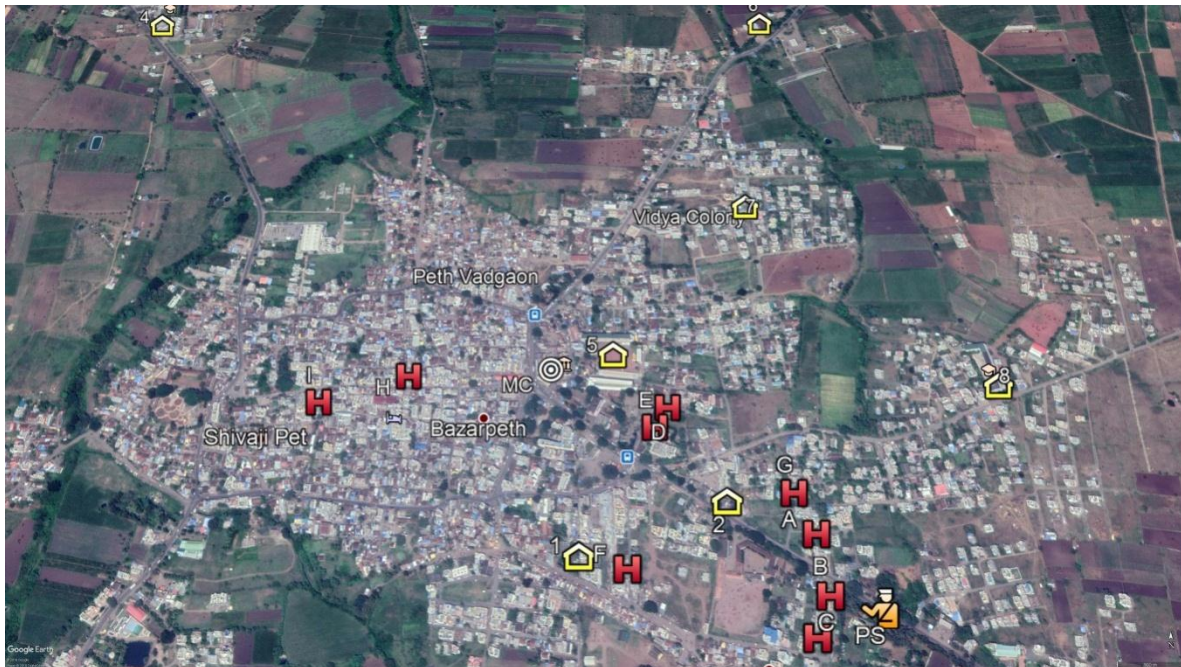
d) Religious places

In the above areas of silence zones fire cracker bursting, horns of vehicles, load speakers are prohibited. These places are known as 'peace zones'. In these areas noise level has been decided during 6 am to 10 pm at night is 50 decibel (dB) and during 10 pm at night to 6 am in the morning is 40 decibel (dB) (Environmental Protection Act 1986-rule 3 (1) and 4 (1)).

Silence zones in Kasba Vadgaon:

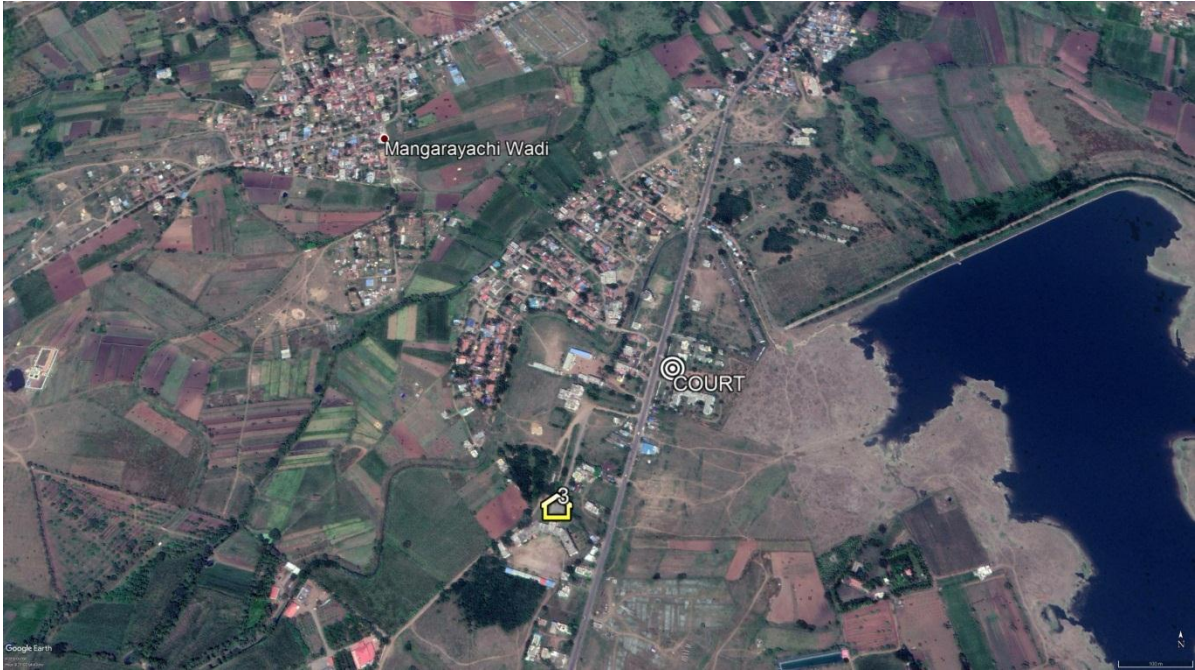
Kasba Vadgaon town comprises the hospitals, Court, Police Station, S.T. Depot, and Educational Institutions in all levels. In the following Google image all sample silence zones have been indicated.

Image No. 1.1



Source: Google Image, Google Earth, 2023.

Image No. 1.2



Source: Google Image, Google Earth, 2023.

With the help of above Google image the silence zones have been indicated by signs and symbols. The distribution of the sampled units of silence zones is in the following.

Hospitals:

- a) Samarth Hospital
- b) Bharati Hospital
- c) Hirai Hospital
- d) Ashok Patil Hospital
- e) Chowgule Hospital
- f) Shankardas Hospital
- g) Mahapure Hospital
- h) Momin Hospital
- i) Gadhave Hospital

**School/ High School/ College/
Educational Institute:**

- 1) Yash Semi-English School
- 2) Vadgaon High School
- 3) Dr. Babasaheb Ambedkar College
- 4) Ashokrao Mane College
- 5) Balwantrao Yadav High School
- 6) Genius English Medium School
- 7) Warana Valley School
- 8) Shri Vijaysinha Yadav College

Government Offices:

- PS: Police Station
MC: Municipal Corporation
COURT: Criminal Court

Level of Noise at Silence Zones in Kasba Vadgaon:**Table No. 1.1 Analysis of Noise level at Hospitals Silence zones in Kasba Vadgaon**

(Noise Level for Day 50 dB and Night 40 dB)

Sr. No.	Name of Hospital	10.00 am			7.00 pm			Deviation of Leq (Leq +/- Noise limit)	
		Lmin	Lmax	Leq	Lmin	Lmax	Leq	Morning	Evening
								g	g
1.	Samarth Hospital	58.70	80.60	68.10	46.00	81.90	64.50	+18.10	+14.50
2.	Bharati Hospital	57.60	82.20	68.80	52.30	83.60	70.40	+18.80	+20.40
3.	Hirai Hospital	47.00	73.90	65.30	61.90	90.10	74.60	+15.30	+24.60
4.	Ashok Patil Hospital	50.90	91.10	72.90	53.40	81.70	71.00	+22.90	+21.00
5.	Chowgule Hospital	59.00	92.90	74.30	56.10	87.80	75.50	+24.30	+25.50
6.	Shankardas Hospital	48.40	84.00	66.40	44.80	84.40	64.30	+16.40	+14.30
7.	Mahapure Hospital	52.30	83.60	65.50	48.10	93.70	74.50	+15.50	+24.50
8.	Momin Hospital	49.10	84.70	67.80	47.60	93.70	72.70	+17.80	+22.70
9.	Gadhawe Hospital	47.60	85.20	70.10	57.00	90.00	71.50	+20.10	+21.50

Source: Compiled by Researcher, 2023.

As per the above table, it is observed that all the hospitals have been crossed their limit of noise level. All the sampled hospitals have indoor and outdoor patients. Near the Chowgule Hospital the highest

level of noise above limit is observed i.e. 24.3 dB and 25.5 dB for two times respectively. This is happened due to the proximity of Bus Depot to the hospital.

Table No. 1.2 Analysis of Noise level at Silence zone of Educational Institutions in Kasba Vadgaon

(Noise Level for Day 50 dB and Night 40 dB)

Sr. No.	Name of Hospital	10.00 am			7.00 pm			Deviation of Leq (Leq +/- Noise limit)	
		Lmin	Lmax	Leq	Lmin	Lmax	Lmin	Morning	Evening
								Lmax	Lmax
1.	Yash Semi English School	58.60	75.30	69.8	54.60	79.50	68.20	+19.80	+18.20
2.	Vadgaon High School	60.10	99.10	84.2	56.80	89.80	68.40	+34.20	+18.40
3.	Dr. Babasaheb Ambedkar College	38.90	84.60	65.9	59.80	102.3	85.10	+15.90	+35.10
4.	Ashokrao Mane College	62.50	79.60	68.5	56.70	90.70	71.50	+18.50	+21.50
5.	Balwantrao Yadav High School	52.30	86.30	70.8	47.10	82.30	56.20	+20.80	+06.20
6.	Genius English Medium School	44.30	102.5	80.5	53.30	86.00	72.30	+30.50	+22.30
7.	Warana Valley School	56.50	92.30	73.1	53.20	83.10	68.50	+23.10	+18.50
8.	Shri Vijaysinha Yadav College	56.90	89.30	68.3	47.20	92.40	72.60	+18.30	+22.60

Source: Compiled by Researcher, 2023.*Dr. Bhandare Dinesh Jagannath*

As per above table it is observed that, all the sample places have noise level more than the limit. Vadgaon High School and Dr. Babasaheb Ambedkar College have

highest proportion of noise level due to their proximity to the state highways. This results into the increased disturbance of noise level to the students.

Table No. 1.3 Analysis of Noise level at Silence zone of Government offices in Kasba Vadgaon

(Noise Level for Day 50 dB and Night 40 dB)

Sr. No.	Name of Govt. Office	Morning			Afternoon			Deviation of Leq (Leq-/+ Noise limit)Lmax	
		Lmin	Lmax	Leq	Lmin	Lmax	Leq	सकाळी	दुपारी
1.	Police Station	48.30	94.60	74.30	54.30	91.10	74.80	+24.30	24.30
2.	Vadgaon Municipal Corporation	52.30	100.20	77.90	71.50	94.00	82.00	+27.90	+32.00
3.	Civil and Criminal Court	63.30	85.60	72.00	61.80	88.30	75.50	+22.00	+25.50

Source: Compiled by Researcher, 2023.

As per the above table the noise level near the government offices is high than the limit assigned for that place. At Municipal Corporation area the noise level was very high resulted due to the proximity to market place and Central business district (C.B.D.) zone.

Conclusion:

After the study of the silence zone it is observed that the location, importance of Kasba Vadgaon in trade activity, joining of state and district roads in the town area affects the noise level in educational institutes, government offices and hospitals. None of the sampled place has low or limited noise level. All places exceed the noise level above their decided level of noise. In the area of Central Business District (C.B.D.) of Kasba Vadgaon town none of the hospital or educational institute construction has noise resistant construction. It is observed that

Dr. Bhandare Dinesh Jagannath

the difference between L-min and L-max affects on the Leq average value. The sudden increase of noise due to the vehicle is making difference between the L-min and L-max values.

Recommendations:

1. Strictly implementation of installation of Silence zone board wherever possible.
2. Inclusion of the prohibition of horn in silence zone in the curriculum of vehicular license examination.
3. Prohibition on the noisy horns in the silence zone with quick action of fine.
4. Alternative road or bypass for heavy vehicles to avoid the traffic situation in the central business district zone.

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