NOISE POLLUTION, ITS SOURCES AND EFFECTS: A CASE STUDY OF YEOLA TOWN IN NASHIK DISTRICT

REPORT SUBMITTED

TO

DEPARTMENT OF PHYSICS

SWAMI MUKTANAND COLLEGE OF SCIENCE, YEOLA (NASHIK), INDIA

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF BACHLOR OF SCIENCE

IN PHYSICS

By

BHAGAT PARAS

GAIKWAD NEHA
BHALERAO VRUSHALI
CHAVAN PRATIKSHA
DHOLE SEEMA
BHISE DIPALI
SONWANE VANITA
GHOTEKAR PRIYANKA

DEPARTMENT OF PHYSICS

SWAMI MUKTANAND COLLEGE OF SCIENCE, YEOLA (NASHIK), INDIA

Project Supervisor

DR.S. V. DHANWATE

HEAD,DEPARTMENT OF PHYSICS

SWAMI MUKTANAND COLLEGE OF SCIENCE, YEOLA (NASHIK), INDIA

CERTIFICATE

This is to certify that the report entitled **" NOISE POLLUTION, ITS SOURCES AND EFFECTS: A CASE STUDY OF YEOLA TOWN IN NASHIK DISTRICT"** submitted by **Bhagat Paras ,Gaikwad Neha ,Bhalerao Vrushali, Chavan Pratiksha ,Dhole Seema ,Bhise Dipali ,Sonwane Vanita , Ghotekar Priyanka *Of T. Y.B.Sc class*** of project work done under my guidance and supervision and the report has not formed the basis for the award to the scholar for any Degree, Diploma, Associateship, Fellowship or any other similar title and I also certify that the report represents an independent work on the part of the candidates.

Place :- Yeola **Dr. Dhanwate S V**

Date : 30/ 01/2020 **(Project Supervisor)**

ABSTRACT

Noise is a type of pollution and impacts on our wellness and health , Sound that is unwanted or disrupts one's quality of life is called as noise. When there is lot of noise in the environment, it is termed as noise pollution. it disturbs the normal activities such as working, sleeping, and during conversations Community noise, or environmental noise, is one of the most common pollutants Community noise includes the primary sources of road, rail and air traffic, industries, construction and public works and the neighborhood 'The prevalence of noise is increasing in magnitude and severity because of urban life style Noise pollution leads to many chronic and socially significant impacts (WHO, 1999).Environmental noise is increasingly becoming a community concern internationally Considerable efforts have been made over about the last four decades to reduce noise impacts from transportation sources such as road and rail traffic

Most of the towns in the Nashik district of Maharashtra are congested and densely populated. Towns having the combinations of old and new structure. Because of heavy traffic, urbanization, migrants of peoples from village to town for their civil work with vehicles and residential has been increased noise level.

KEY WORDS: Noise pollution, Noise data, sound level meter, peoples awareness Environment projection Act.1986.

INTRODUCTION

Vibration in air pressure produce sound. Sound may be pleasant as well as unpleasant, vibrating sound reaches our ears and we hear the sound. The unwanted sound (Loud sound) irritates ear and human health and it is known as noise. We can not hear all sound. Human ear can hear sound between frequency range 20 Hz to 20 KHz. Below 20 Hz is called infrasonic and above 20 KHz is called Ultrasonic, Loudness, and pitch and quality three characteristics of sound. Loudness is measured in decibel (dB)

The speech zone lieu in the range of 500 to 2000 Hz. The human ear is most sensitive in the range of 2,000 to 5,000 Hz. Noise has been recognized as ambient air pollutant. Standards in this regard are laid down under Environment (protection) Rules, 1986 and under the model rules of the factories Act. 2948.

We were mentioned noise level by sound level meter at different location of Yeola town Noise level is notably high at some location as compared to prescribed standard of pollution control Board at both towns, but the present study investigate that noise level in Yeola town is comparatively lower than the previous . New planned development of Yeola town, roads are widened, modern construction of building, good plantation cover, modern design of hospitals, Govt. Official building with proper spacing and acoustic design consideration. We conclude that public awareness and public environmental education is essential to safeguard natural environment and to control pollution. Peoples showed be aware about importance of human health and environment protection Act.1986.

Noise pollution is one of the major problems faced by the people of Yeola town in Nashik district . A rapid growth of population, uncontrolled urbanization, rural urban migration, industrialization, rail and road transportation, traffic jamming, civil work and machinery,

human activities in festivals & cultural programme and unnecessary use of loudspeakers, loud musical systems, harsh sounds of vehicle horns, barking of dogs are the major source & contributors in noise pollution.

Noise is derived from the Latin word "NIVSEA' means unwanted sound. It is undesired. Unpleasant, unexpected, irritant and source of stress. Sound is measured in decibel (dB). It is a logarithmic scale invented by engineers of the bell telephone network in 1923 and named in the honor of the inventor of Telephone Alexander Graham Bell (1847-1922) Audio Engineering Society recommends that a space be used dB A. In India it is often written as dB (A)

LEGAL PROVISION

According to Report of WHO to the UN Conference on environment, out of all environmental problems noise is easiest to control. It is controlled by law & awareness of people. Constitution of India provides in Article 48A the provision of environment protection improve the environment and to safeguard the forest and wildlife of the country. Article 51(A) (G) which says that every citizen shall have the duly to protect and improve the natural environment including forest, lakes, rivers and the wildlife. In India number of legislation have been enacted for the protection and preservation of environment. The important legislation Act were framed as Environment Protection Act.1986. under which noise pollution, regulation and control rules 2000 have been framed. Now noise has been recognize as a pollutant and the production and use of high sound intensity firecrackers have been banned. The Central pollution control board (CPCB) committee has recommended permissible noise level for different locations as given be Table.

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

When sound level reaches 140 dB our ears are hurted and long exposure to noise results in permanent damage to ears and even at 85 dB (A) can cause hearing loss begins. The noise level 120 dB (A) is known as threshold of pain, a level 140 dB (A) is very harmful and causes permanent hearing deafness and 150 dB (A) could kill the person. The international reference pressure level of 2×10^{-5} Pa is the average threshold of hearing. A survey by Central Pollution control Board (CPCB) shown in Delhi, the noise level in most places exceeds the permissible limits, similarly a survey and study of Maharashtra Pollution Central Board (MPCB) shown that people in residential commercial, industrial and silence zone of Mumbai too suffers from high levels of noise pollution. Pinkle and Koppen (1948) showed that there is a sharp decline in auditory acuity rise in fasting blood sugar and increases fatigue. According to Kryster (1970) noise causes heart out put to decrease with greater fluctuation in an arterial blood pressure, Johnson and Hansin (1977) in one of their studies found that systolic and diastolic blood pressures were significantly higher in industrial workers because of continuous exposure to noise. Shetyle et al (1982) had estimated that noise level in crowded places in Mumbai was almost double that of residential standards. J.K. Datta (2005) was found that sound level lies within a range of 65-83 dB or above in different places of Burdawan town. West Bengal. P.

Bhatia (1995) showed that noise level 100 dB (A) was increased blood pressure and pulse rate. According to De (2000) 65 dB noise level at distance of one meter affect human heart while 125 dB gives sensation of pain in the ear. D Banerjee (2007) estimated increase in noise level in Asansol during Kali Puja Festival.

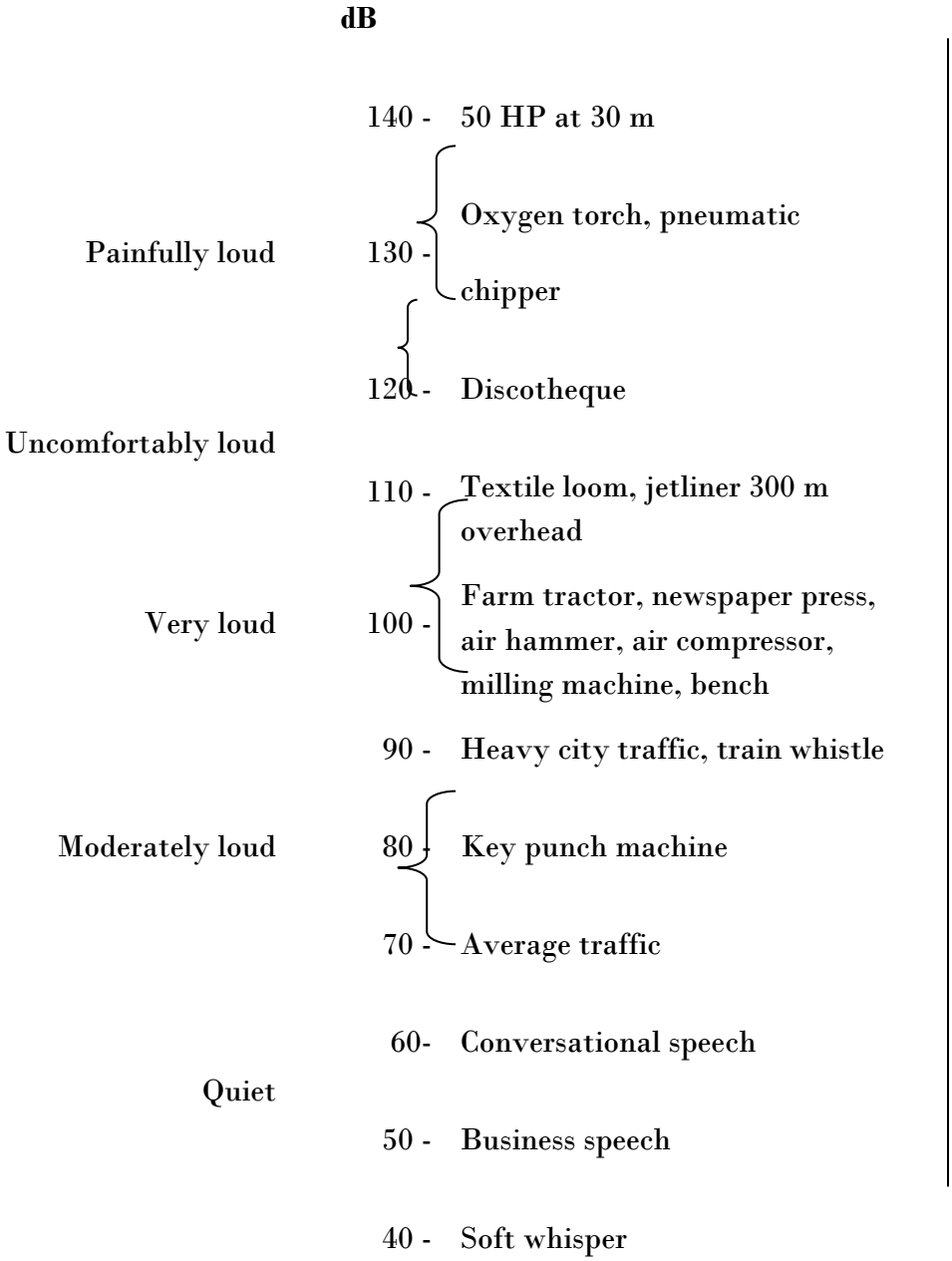
Noise1 pollution is a growing global problem but has seriously grown in urban areas of developing countries ,Noises harm the body and mind both. Effects of noise pollution are auditory and non-auditory; Number of researchers & investigators discussed the impact of noise pollution on human health and behavior. World Health Organization (WHO) suggested that the people should aware and everyone should know the impact of noise pollution on human health.

Effects of Noise Pollution : Noise affects health both by physiologically and psychologically Hearing loss, damage of ear, hearing deafness increasing systolic & diastolic blood pressure reduction in birth weight of baby, premature birth skin resistance alteration headache, neurological disorder, respiratory modification loss of memory hyper tension cardiovascular constriction are the physiological effects and annoyance anxiety fatigue, tension, tear, lack of concentration change in behavior interference in communication task inference in performance reduction in work efficiency loss of sleep, cause of irritation, frustration, depression and birds, increases in heart beat rate causing respiratory difficulties in animals and birds, general stress, reaction changes the behaviors of bird, abandonment of territory, loss of ability to produce.

INTRODUCTION OF TOWN : Yeola is history of Pilgrims. It is popular and Historic background. It is populated with near about fifty thousand population. Holistic place Shirdi is near to Yeola. Yeola is located on Aurangabad and Nagar-Dhule Highway. Yeola is not at side of big rivers. Yeola town is known as textile, silk manufacturer. So indoor noise in

handlooms and impact on workers. Yeola is also introducing as a birth origin of Senapati Tatya Tope and Raghuvir Baba. Manmad is (famous) & popular for place of Lord Jabdamba Mata near at Kotamgaon , four Kms away from city.

NOISE POLLUTION



	30-	A room in a quiet house at night
Very quiet	20 -	Motion picture studio
Just audible	10 -	Motion picture studio
Threshold of hearing	0 -	

MATERIALS AND METHODS : Noise levels were monitored at different location of Yeola. it was monitored both on normal working days. This study was conducted in the month of December 2019. Noise sampling being done between 18.00-22.00 Hrs. at night time. The noise levels were observed with sound level meter YF-20 having low range 40-80 (A) and high range 80-120 dB (A) in 2-5 minute intervals at each location average noise levels were recorded. All readings were taken at height of 1.5 meters from ground level and more than 3 meters away from roads. The sound level meter consists of capacitance microphone calibration with signal generator amplifier, weighing network and display, indicator meter. The data noted is tabulated in table.

TABLE – SOUND LEVEL INFORMATION OF MAIN AREAS IN YEOLA

(PEAK HOURS)

Sr. No.	Location in Yeola	Noise Level in dB (A)			
		Morning	Afternoon	Evening	Night
1	S.M.UG College Zone	65	70	60	50
2	Rural Hospital	57	55	55	42
3	Yeola-A.bad Road	62	67	70	62
4	Nagar-Manmad Road	60	72	73	68
5	Yeola Nasik Road	62	70	68	64
6	Bus Stand Inside	58	80	73	60
7	Bus Stand Out Side	55	70	69	57
8	Agricultural Market	48	67	60	47
9	Main Road in city	50	68	70	55
10	Vitthal Nagar Zone	49	52	48	45

11	Ganga Darwaza Corner	65	60	68	65
12	Railway Station Inside	56	57	59	45
13	Mini Sachivalaya	45	56	50	45
14	Krida Sankul	55	40	48	35
15	Dr.Babasaheb Ambedkar Chouk	60	77	80	50
16	Fattepur Gate	78	75	76	60
17	M.G.V.M.'S,UG College	64	69	60	45
18	Vishvalata UG College	60	65	55	46
19	SND College of Science and Manegment	63	64	54	40
20	SND College of Engineering	64	75	67	48
21	Enzo-ChemHigh School	64	71	63	52
22	Azad Maidan	50	65	68	57
23	Shani Patangan	55	70	73	53
24	Nagad Darwaja	60	75	76	55

15	Chanwad Road	85	75	70	60

The comparative results of noise survey for normal days at different location in Yeola Citiy shown that noise pollution level in few places is significantly high . In Commercial zone in salience zone and residential zone in noise levels are near by equal reduction of noise level in Yeola because of road winding, good plantation cover and over all developments there is need of same development in some places in town. In main road and the place of school and colleges frequency is more beceuse of old construction of building and road . Thats why noise level is high in that particular area. in commercial area and other specific zones noise level is notable high as compare to standard data prescribed by Central Pollution Control Board. To control nice level the easiest control measure is public awareness and public environmental education. It is duty of every citizen that obey rules and regulation and safeguard protect the natural environmental and step should taken to reduce noise and overall pollution.

Conclusion:

This project explores the sources, effects, assessment of noise level and offers suggestions for controlling the excessive noise. There is urgent need to implement good noise control policy and to increase people's awareness by public education and an active participation of schools & colleges in public places. The need of increase funds for environmental policy and educational programmes. The future development plan should be considered with adequate plantation, walkways and underground roads at road crossings, use

of insulation and sound absorbing materials in construction is essential. There should be compulsion in use of earplugs and earmuff for industrial workers, handloom, power loom, textile workers.

Refrences

1. Li B., Taoa.S, Dawsona. R.W., Caoa. J. and Lamb. K.A. GIS based road traffic noise prediction model, Applied Acoustics, 2002;63:679–691.

2. Alam, J.B., Jobair.J. Rahman.M.M, Dikshit. A.K. and Khan S.K. Study on traffic noise level of sylhet by multiple regression analysis associated with health hazards‖, Iran. J.Environ. Health. Sci.Eng., 2006; 3(2):71-78.

3. Murthy,V.K., Khanal, S.N., Assessment of traffic noise pollution in Banepa, a semi urban town of Nepal, Kathmandu university,Journal of science, engineering and technology, 2007;1:1-9.

4. Baaj,M.H., El-Fadel.M., Shazbak.S.M. and Saliby.E. odeling noise at elevated highways in urban areas: a practical application, Journal of Urban Planning and Development, 2001;127 (4):169-180.

5. Fyhri, A. and Klæboe.R. Road traffic`c noise, sensitivity, annoyance and self-reported health—A structural equation model exercise‖ Environment International, 2009; 35: 91–97.

6. Belojevic GA, Jakovljevic BD, Stojanov VJ, Slepcevic VZ, Paunovic KZ: Nighttime road-traffic noise and arterial hypertension in an urban population. Hypertens Res 2008, 31(4):775-781

7. Babisch W: Noise and health. Environ Health Perspect, 2005, 113(1):A14-15.

8. Babisch W: Traffic Noise and Cardiovascular Disease: Epidemiological Review and Synthesis. 2000, 2(8):9- 32.

9. Lundberg U: Coping with Stress: Neuroendocrine Reactions and Implications for Health. Noise Health 1999;1(4):67-74.


स्वामी मुक्तानंद विज्ञान
महाविद्यालय,येवला,जि.नासिक
तृतीय वर्ष विज्ञान
पदार्थ विज्ञान विभाग
ध्वनी मापन यंत्र
प्राचार्य
डॉ.डी.बी.गोस्वामी
मार्गदर्शक व विभाग प्रमुख
डॉ.साहेबराव धनवटे


स्वामी मुक्तानंद माध्य.उच्चमाध्य.व विज्ञानमहाविद्यालय.येवला.
स्वामी मुक्तानंद विज्ञान
महाविद्यालय,येवला,जि.नाशिक
पदार्थ विज्ञान विभाग
तृतीय वर्ष विज्ञान
ध्वनी मापन यंत्र


ग्रामीण रुग्णालय येवला
स्वामी मुक्तानंद विज्ञान
महाविद्यालय,येवला,जि.नाशिक
पदार्थ विज्ञान विभाग
तृतीय वर्ष विज्ञान
ध्वनी मापन यंत्र

Head

(Dr. Dhanwate S V)