

Vol 6 Issue 9 June 2017

ISSN No : 2249-894X

*Monthly Multidisciplinary
Research Journal*

*Review Of
Research Journal*

Chief Editors

Ashok Yakkaldevi
A R Burla College, India

Ecaterina Patrascu
Spiru Haret University, Bucharest

Kamani Perera
Regional Centre For Strategic Studies,
Sri Lanka

Review Of Research Journal is a multidisciplinary research journal, published monthly in English, Hindi & Marathi Language. All research papers submitted to the journal will be double - blind peer reviewed referred by members of the editorial Board readers will include investigator in universities, research institutes government and industry with research interest in the general subjects.

Regional Editor

Dr. T. Manichander

Advisory Board

Kamani Perera Regional Centre For Strategic Studies, Sri Lanka	Delia Serbescu Spiru Haret University, Bucharest, Romania	Mabel Miao Center for China and Globalization, China
Ecaterina Patrascu Spiru Haret University, Bucharest	Xiaohua Yang University of San Francisco, San Francisco	Ruth Wolf University Walla, Israel
Fabricio Moraes de Almeida Federal University of Rondonia, Brazil	Karina Xavier Massachusetts Institute of Technology (MIT), USA	Jie Hao University of Sydney, Australia
Anna Maria Constantinovici AL. I. Cuza University, Romania	May Hongmei Gao Kennesaw State University, USA	Pei-Shan Kao Andrea University of Essex, United Kingdom
Romona Mihaila Spiru Haret University, Romania	Marc Fetscherin Rollins College, USA	Loredana Bosca Spiru Haret University, Romania
	Liu Chen Beijing Foreign Studies University, China	Ilie Pinteau Spiru Haret University, Romania
Mahdi Moharrampour Islamic Azad University buinzahra Branch, Qazvin, Iran	Nimita Khanna Director, Isara Institute of Management, New Delhi	Govind P. Shinde Bharati Vidyapeeth School of Distance Education Center, Navi Mumbai
Titus Pop PhD, Partium Christian University, Oradea, Romania	Salve R. N. Department of Sociology, Shivaji University, Kolhapur	Sonal Singh Vikram University, Ujjain
J. K. VIJAYAKUMAR King Abdullah University of Science & Technology, Saudi Arabia.	P. Malyadri Government Degree College, Tandur, A.P.	Jayashree Patil-Dake MBA Department of Badruka College Commerce and Arts Post Graduate Centre (BCCAPGC), Kachiguda, Hyderabad
George - Calin SERITAN Postdoctoral Researcher Faculty of Philosophy and Socio-Political Sciences Al. I. Cuza University, Iasi	S. D. Sindkhedkar PSGVP Mandal's Arts, Science and Commerce College, Shahada [M.S.]	Maj. Dr. S. Bakhtiar Choudhary Director, Hyderabad AP India.
REZA KAFIPOUR Shiraz University of Medical Sciences Shiraz, Iran	Anurag Misra DBS College, Kanpur	AR. SARAVANAKUMAR LAGAPPA UNIVERSITY, KARAIKUDI, TN
Rajendra Shendge Director, B.C.U.D. Solapur University, Solapur	C. D. Balaji Panimalar Engineering College, Chennai	V. MAHALAKSHMI Dean, Panimalar Engineering College
Awadhesh Kumar Shirotriya	Bhavana vivek patole PhD, Elphinstone college mumbai-32	S. KANNAN Ph.D , Annamalai University
	Awadhesh Kumar Shirotriya Secretary, Play India Play (Trust), Meerut (U.P.)	Kanwar Dinesh Singh Dept. English, Government Postgraduate College , solan

More.....



NOISE POLLUTION IN SILENCE & COMMERCIAL ZONES – A STUDY OF VISAKHAPATNAM CITY (INDIA)

Vikas Gupta

Research Scholar,

Department of Environmental Science,
Andhra University, Visakhapatnam.



ABSTRACT:

Noise is the unwanted sound. With the development all around the sources of unwanted sound are increasing day by day by knowingly or unknowingly. Hence the noise monitoring at two silence and two commercial zones in the Visakhapatnam city was carried out. The locations for Silence zone were 'Sri Shanthi Ashram' and 'Biodiversity Park' and for Commercial zones were 'Purna Market' and 'Dabagarden'. The results show that the equivalent noise levels are higher in the both commercial zones than the both silence zones with clear differences. The Noise levels are least at Biodiversity Park and highest at Purna Market. However, the noise levels at all the places are exceeding over the set limits described by the Central Pollution Control Board. The congested roads, unplanned growth, increase in personal vehicle, overuse of horns, ignorance of noise controlling rules & legislation are the causes of increasing the background noise in the human habitats.

KEYWORDS: Noise Pollution, silence zone, commercial zone.

INTRODUCTION

The simplest definition of noise is "unwanted sound". It is caused by human activities that are detrimental to quality of life. The rapid increase in the urbanisation, industrialization and individual transport for the sake of being smart has silently raised the level of ambient noise in our environment. India and all other countries are facing noise pollution problem for a long period due to increasing number of vehicles, musical instruments, small scale industries, urbanization and human activities are the main source of noise pollution¹. Noise pollution is distinguished from other pollution categories due to its source and diffusion characteristics, which can adversely affect public health and environmental quality in urban environment². Noise often causes discomfort and sometimes pain, noise does not causes ears to bleed yet noise induced hearing loss usually takes years to develop³. Continuous exposure to the noise may cause undesirable & unavoidable health issues. Evidence of the non-auditory effects of environmental noise exposure on public health is growing. Observational and experimental studies have shown that noise exposure leads to annoyance, disturbs sleep and causes daytime sleepiness, affects patient outcomes and staff performance in hospitals, increases the occurrence of hypertension and cardiovascular disease, and impairs cognitive performance in schoolchildren⁴. It was found that 60-85% people opined that vehicular road traffic was major source of noise pollution and creates annoyance among people. Most of the population is suffering from frequent irritation and common noise related problems like headache or loss of sleep⁵.

In the present study, two locations were selected to carry out ambient noise survey in Visakhapatnam City. Visakhapatnam is a coastal, port city, often called "The Jewel of the East Coast", situated in the of Andhra

Pradesh, located on the eastern shore of India, nestled among the hills of the Eastern Ghats and facing the Bay of Bengal to the east. It is the largest city in Andhra Pradesh and it is primarily an industrial city, apart from being a port city. Visakhapatnam is district headquarter in Andhra Pradesh State. It is a coastal city with all types of connectivity from land, sea and air.

MATERIAL AND METHOD

The noise monitoring was carried out in two zones viz. Silence and commercial zones taking two locations each for respective zones in different parts of the city of Visakhapatnam. The locations for Silence zone were 'Sri Shanthi Ashram' and 'Biodiversity Park'. Sri shanthi ashram is the place with where a school for deaf & dumb children, an ashram & a primary school is situated. Bio-diversity park is the nature's park with a large number of plant species from different parts of India & home to lot of birds & butterflies in the middle of the city. The locations for Commercial zones were 'Purna Market' and 'Dabagarden'. Purna Market is old commercial area with retail & wholesale shops of household goods including vegetables & fish shop and hawkers & street vendors. It is a fully crowded area due to narrow roads. Dabagarden is a modern commercial area with retail & wholesale shops and company owned showrooms & offices.

Noise levels were recorded in 'A' weighed network using Sound Level Meter (HTC SL-1350). The meter was held 1.3 to 1.5 m above the ground surface and away from reflecting surface. The noise data was recorded over a period of twelve months from March 16 to February 17. Readings were tabulated taking one week for each zone i.e. in first week for Silence zone and in third week for Commercial zone every month. The Leq value was recorded for five minutes every half an hour. A total of 30 readings were recorded on the days of monitoring commencing 0730H to 2200H. The data recorded from all the locations was statistically analysed.

NOISE POLLUTION INDICES

The average equivalent values for the months were calculated for each location. Also the percentile values like L₁₀, L₅₀ and L₉₀ for noise levels were calculated using statistical formulas.

Leq – Time Weighed Average or Equivalent Continuous Noise Level

L₁₀ – Level of Sound exceeding 10% of the time of measurement or Peak Noise

L₅₀ – Level of Sound exceeding 50% of the time of measurement or Mean Noise

L₉₀ – Level of Sound exceeding 90% of the time of measurement or Background Noise

The noise limit decided by Central Pollution Control Board is 50 dB (A) & 65 dB (A) for Silence Zone and Commercial Zone respectively during the day time.

RESULT

The final data obtained from noise monitoring from two Silence and two Commercial Zones is tabulated. Table 1, 2, 3 & 4 shows the noise pollution data of Sri Shanthi Ashram, Biodiversity Park, Purna Market and Dabagarden respectively. All the values are in dB (A) scale calculated for a period of 12 months.

Table 1: Noise Pollution data of Silence Zone 1 (S1) Sri Shanthi Ashram

dB(A)	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month
	1	2	3	4	5	6	7	8	9	10	11	12
L _{eq}	59.08	59.30	54.73	59.72	59.08	58.82	58.90	59.18	59.10	59.64	59.23	59.88
L ₁₀	62.54	63.55	56.06	63.94	62.20	60.66	60.56	60.33	60.40	60.84	60.58	60.62
L ₅₀	55.41	56.04	54.72	55.61	55.92	55.80	55.62	55.61	55.80	56.04	55.65	55.71
L ₉₀	50.41	51.59	50.26	52.13	50.21	50.25	50.49	50.34	50.06	50.11	51.16	50.28

Table 2: Noise Pollution data of Silence Zone 2 (S2) Biodiversity Park

dB(A)	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month
	1	2	3	4	5	6	7	8	9	10	11	12
L_{eq}	49.34	51.07	51.83	51.29	51.86	54.02	54.11	54.05	54.12	53.53	53.83	53.70
L_{10}	50.94	52.59	53.58	53.23	53.65	55.35	55.69	55.82	55.65	55.44	55.63	55.26
L_{50}	48.98	51.23	51.68	51.31	52.25	54.36	54.35	54.35	54.37	53.67	53.98	53.92
L_{90}	46.05	48.11	48.26	47.84	46.98	49.84	49.91	50.24	49.99	49.40	49.23	49.57

Table 3: Noise Pollution data of Commercial Zone 1 (C1) Purna Market

dB(A)	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month
	1	2	3	4	5	6	7	8	9	10	11	12
L_{eq}	70.59	70.45	70.89	70.73	70.90	71.08	71.11	71.19	70.92	70.94	71.08	71.09
L_{10}	72.98	72.80	72.65	72.55	72.92	73.05	73.21	73.14	73.21	73.27	73.48	73.54
L_{50}	70.10	69.90	70.98	70.80	70.45	70.96	70.66	71.20	70.57	70.67	70.64	70.57
L_{90}	65.72	66.70	65.72	65.09	67.77	68.04	67.71	67.96	66.09	65.72	66.08	66.25

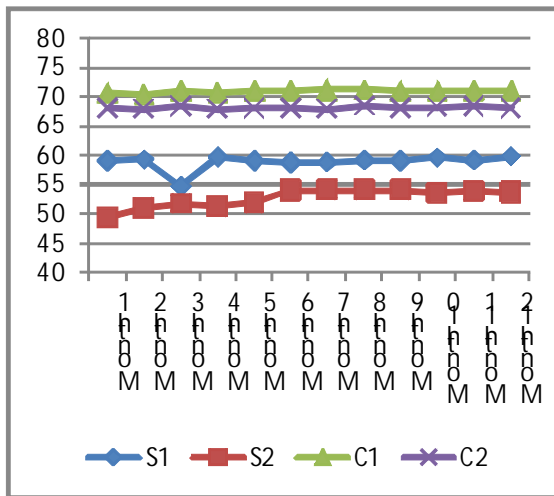
Table 4: Noise Pollution data of Commercial Zone 2 (C2) Dabagarden

dB(A)	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month	Month
	1	2	3	4	5	6	7	8	9	10	11	12
L_{eq}	67.99	67.86	68.31	67.95	67.99	67.99	67.92	68.42	68.14	68.27	68.38	68.16
L_{10}	69.80	69.63	70.84	70.31	70.11	70.12	70.34	71.24	70.49	70.41	70.78	70.24
L_{50}	67.61	67.73	67.86	67.20	67.61	67.50	67.52	67.75	68.04	68.34	68.39	68.44
L_{90}	64.93	64.65	64.57	64.77	64.74	64.51	64.57	64.41	64.12	64.25	64.54	64.20

DISCUSSION

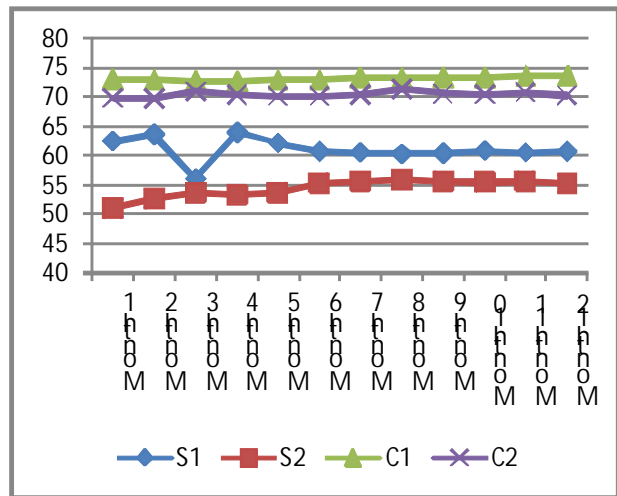
The data from above tables was then compared and the graph 1, 2, 3 and 4 were drawn for the values of L_{eq} , L_{10} , L_{50} and L_{90} respectively for all locations. All the graphs show that the equivalent noise levels are higher in the both commercial zones than the both silence zones with clear differences. The Noise levels are least at Biodiversity Park and highest at Purna Market. However, the noise levels at all the places are exceeding over the set limits described by the Central Pollution Control Board most of the time of the year, which is 50 dB(A) for silence zone and 65 dB(A) for commercial zone during day time. The observed equivalent noise levels ranges from 54.73 – 59.90 dB (A), 49.34 – 54.12 dB (A), 70.45 – 71.19 dB (A) and 67.86 – 68.42 dB (A) at Sri Shanthi Ashram, Biodiversity Park, Purna Market and Dabagarden respectively. The noise indices are lower in the Shanthi Ashram area due to the summer vacations in school month 3. The noise indices are rising in the biodiversity park area over the year due to increase in vehicular traffic near boundary wall. The noise indices in both the commercial areas is comparatively high due to overcrowding of customers & their personnel vehicles, which most of the time leads to traffic jams & honking. The condition is worse in the Purna market than in Dabagarden.

Leq at various locations in dB (A)



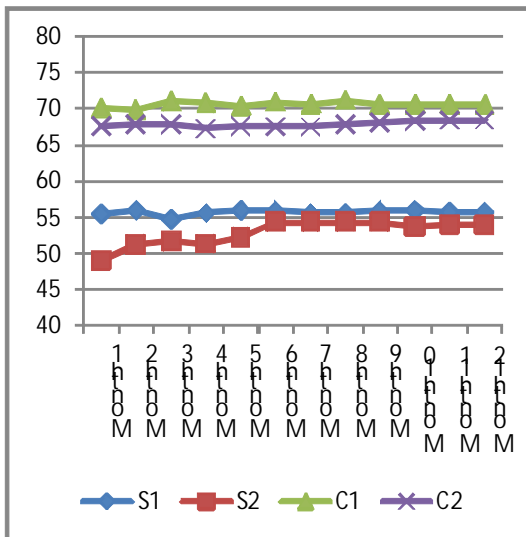
Graph 1

L10 at various locations in dB (A)



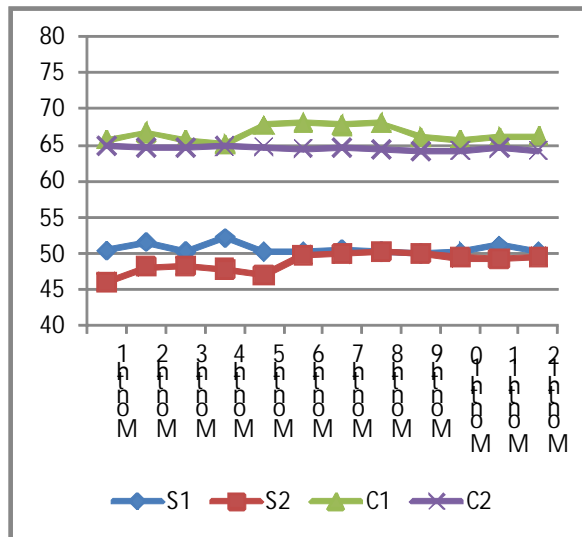
Graph 2

L50 at various locations in dB (A)



Graph 3

L90 at various locations in dB (A)



Graph 4

The congested roads, unplanned growth, increase in personal vehicle, overuse of horns, ignorance of noise controlling rules & legislation are the causes of increasing the background noise in the human habitats.

REFERENCES

1. Chauhan A., Pawar M., Kumar D., Shukla S.K., Bainola P.K., Gupta M.K. and Chauhan S.P.S. Assessment of noise level in different zones of Haridwar City, Uttarakhand. *Researcher*, 2(7), 56-59(2010).
2. Hunashal R.B. and Patil, Y.B. Assessment of noise pollution indices in the city of Kolhapur, India. *Environmental noise pollution in Kolhapur city, Maharashtra, India. Procedia - Social & Behavioral Sciences* 37, 448-457(2012).
3. Kisku G.C., Sharma K., Kidwai M.M., Barman S.C., Khan A.H., Singh R., Mishra D., Bhargava S.K. Profile of noise pollution in Lucknow city and its impact on environment. *J. Env. Bio.*, 27(2), 409-412(2006).
4. Basner, M., Babisch, W., Davis, A., Brink, M., Clark, C., Janssen, S., Stansfeld, S. (2014). Auditory and non-auditory effects of noise on health. *Lancet*, 383(9925), 1325-1332(2014).
5. Agarwal S. and Swami B.L. Road traffic noise, annoyance and community health survey - A case study for an Indian city. *Noise and Health*, 13 (53), 272-276(2011).

**Vikas Gupta**

Research Scholar, Department of Environmental Science, Andhra University, Visakhapatnam.

Publish Research Article

International Level Multidisciplinary Research Journal For All Subjects

Dear Sir/Mam,

We invite unpublished Research Paper, Summary of Research Project, Theses, Books and Books Review for publication, you will be pleased to know that our journals are

Associated and Indexed, India

- ★ Directory Of Research Journal Indexing
- ★ International Scientific Journal Consortium Scientific
- ★ OPEN J-GATE

Associated and Indexed, USA

- DOAJ
- EBSCO
- Crossref DOI
- Index Copernicus
- Publication Index
- Academic Journal Database
- Contemporary Research Index
- Academic Paper Database
- Digital Journals Database
- Current Index to Scholarly Journals
- Elite Scientific Journal Archive
- Directory Of Academic Resources
- Scholar Journal Index
- Recent Science Index
- Scientific Resources Database

Review Of Research Journal
258/34 Raviwar Peth Solapur-
413005, Maharashtra
Contact-9595359435

E-Mail-ayisrj@yahoo.in/ayisrj2011@gmail.com