



Assessment of Noise Level Near Silence Zones in Chromepet

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ABSTRACT

The present study aims to compute noise level in an urban environment like Chromepet in Chennai, Tamil Nadu, India. A total of 15 locations were selected for collection of data in silence zones (i.e. hospitals, schools and college) according to noise pollution (regulation and control) rules, 2000. Noise recordings were conducted during day time (9am-6pm). Noise level ranged between 68.6-88.5(dB). The study revealed that present noise level in all the locations exceeds the prescribed noise pollution (regulation and control) rules, 2000 limit. Based on the analysis of data, it can be concluded that excess noise level is due to road traffic. The study reveals that areas under silence zones like schools, hospital and colleges are subjected to significantly high noise level throughout the day. Hence proper regulatory measures should be taken to control noise pollution in study area (silence zones).

Keywords: Noise Level Chromepet, Noise Level Meter, Geographic Information System, Pollution, Risk Zones

1. Introduction

Sound a normal feature of our life is the means of communication and entertainment in most animals including human beings. It is also a very effective alarm system. A low sound is pleasant whereas, a loud sound is unpleasant and is commonly referred to as “noise”. Noise can be defined as an unpleasant and unwanted sound at a wrong time and at a wrong place. The instrument used for measurement was sound level meter. Unit of measurement of sound is represented by dB (decibels). Environmental noise present in hospitals all over the world is a common stressor and is recognized as a serious health hazard and not just as a nuisance. The World Health Organization (WHO) has drawn up guidelines to promote a community noise management plan and to reduce the effect of noise exposure on health. One place that seemed free from this pollution where hospitals nonetheless many of them are located in area exposed to external noise source such as traffic in major through forces, airports etc., Hospital noise has been associated with patient risk for sleep disturbance, cardio vascular response, increased length of stay. Increased length of stay increased incidence of re-hospitalization and other problems. Generally, speech is most difficult to understand in loud, reverberant environments where multiple noise sources are present. So, the objective of this study are to establish baseline noise climate by measurement, take appropriate initiative, suggest appropriate course of action and recommend mitigation measures. Sound is a longitudinal wave. There are three fundamental characteristics speed, frequency, loudness. Vehicles zooming past city roads including silence zones like hospitals, schools, colleges and residential areas producing high decibel sound with horns might be cause severe effects.

2. Objectives

The main objectives of the study are

- Location of various hospitals, schools and colleges (silence zones) in Chromepet.
- Measurement of noise level during day time at silence zones located in Chromepet. [At regular interval for 8 hours (9AM-5PM)].
- Comparison of measured noise level with ambient noise standards “The Noise Pollution (Regulation And Control) Rules, 2000” (17).

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3. Study Area

3.1 General

Noise level measurement around silence zones in Chromepet area .It is an outer city residential locality & lies in the outer of Chennai city limits. Latitude & Longitude is 12.95161°N 80.14097°E



Figure 1 Location of Silence Zones Using Google Earth Map

4. Noise Level Standards

According to noise level 2000 the ambient noise level is

SI.NO	CATEGORY OF AREA / ZONE	LIMITS IN DB (A)	
		DAY	NIGHT
1	Industrial Area	75	70
2	Commercial Area	65	55
3	Residential Area	55	45
4	Silence Zone	50	40

5. Materials and Methods

All the measurements were carried out at 2 hours interval from 9AM -6 PM for 4 days at each measurement points (15 measurement points).In the measurement area, there were schools, colleges, hospitals (silence zones). There was not any factory which may cause noise.

Noise measurements were carried out in the entrance and inside of selected places such as hospitals, schools and colleges. The type of vehicles varied from motorcycle to lorries, however dominant type of vehicles were cars, buses, trucks and motorcycles.

In the preparation of noise maps, GIS technology is used because of its supplied advantages, as most of the researches have been carried out by this technique (Banerjee *et al.*, 2009; Guzel Yilmaz, 2006)

Table 1 Noise level measurement of silence zones in Chromepet

Location Names	Outside (dB)	Inside (dB)
Government hospital of thoracic medicine	76.41	60.91
Government hospital- Chromepet	73.46	59.98
Agash Heart Centre	68.08	57.18
Dr. Kumar's Multispecialty Hospital	72.1	64.63
Chennai Krishna Multispecialty Hospital	68.61	58.12
Parvathy Hospital	77.48	61.43
Sree Balaji Medical College And Hospital	71.55	58.21
Government Boys Higher Secondary School	68.76	64.21
Hilton Matriculation School	69.86	59.2
Tagore College Of Arts And Science	73.06	58.9
SDNB Vaishnava College	73.23	57.27
Rrase Nursing Home	71.07	57.23
Holy angels school	72.88	60.98
Anna University – MIT Campus	72.7	60

6. Conclusion

The study shows that the area is exposed to noise levels ranging mostly from the moderate to extremely high levels in comparison to the noise pollution rules, 2000. The study shows that the area is exposed to noise levels ranging mostly from the moderate to extremely high levels in comparison to the noise pollution rules, 2000.

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