International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 06 Issue: 04 | Apr 2019 www.irjet.net p-ISSN: 2395-0072

Assessment of Noise Pollution near Ness Wadia College

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Abstract - *Noise pollution means an unwanted sound that, leads to physical and mental problems. Noise pollution depends on the loudness and frequency of sound. Noise intensity measured in dB, sound more intense than 30 dB is called noise. In daily life we hear different intensities of sound, considering the effects on human health, scientists have said that the maximum sound limit rangesfrom75-85dB.*

There are two types of sources, human and natural sources. The natural environment is filled with various sound such as lightening, sound produced by animals, etc. The human sources filled with various sounds from vehicles, industries, commercial and constructional activities, etc. Noise pollution may cause various health effects more hazardous in senior citizens like High and Low B.P, hyper tension and hyper stresses, nausea, lack of proper sleep, health effects rising due to these existing problems. Irritability in age groups further affecting personal relations and peace among neighbours. Is also affects the pets in some way which are equally hazardous.

In our project we will be measuring the noise level near Ness Wadia college at a particular time and observe the type and number of vehicles moving in that area and finding time gaps where noise is minimum and try to divide traffic among different untraveled paths or some roads which can be used by the vehicles but are not, because the road vendors and careless car parkers have taken up space or because the regular route is faster. This will somehow minimize the noise produced.

This was done by using an app in the phone which was calibrated using a sound level meter to check the accuracy. The reading were taken for 2 weeks daily in morning and evening from 8am to 9am and 8pm to 9pm at respective hours. The data included maximum noise level and minimum noise level at a particular time during that hour, the number of buses, trucks, cars, two wheelers constituting the noise at the site and which vehicle amounts more to the noise produced. Also a data sheet was prepared to check the noise levels of different class of vehicles at different speeds. Using all this data it was clear that a reduction in noise level was necessary, for which two methods were proposed, use of white, pink and brown noise and another was use of wireless horns in cars to jam them at sensitive areas like colleges and hospitals. White noise and pink noise can either be recreated by sound system or actual sound sources like fountains, etc. All these alternatives can be used along with some speed limits in the sensitive areas so lower the noise levels. This will help in lowering the temporary and permanent hazards of noise pollution.

The outcome expected is to reduce noise to a bearable safe level by usage of these ideas.

Key Words: *Noise Pollution, Effect of Noise, Noise Exposure, Remedies, Noise Sources, Vegetation cover, reflective, Absorptive materials.*

1. INTRODUCTION

Noise Pollution- also known as environmental noise or sound pollution, is the propagation of noise with harmful impact on the activity and health of humans and animals. Frequency of traffic jams gives rise to a lot of noise produced, be it near schools, near hospitals or near residences, it causes a lot of nuisance and in convenience to the people occupying the building nearby. Besides traffic density, cultural events or festivals also contribute to noise and at times these festivals are the reason behind traffic congestion. Construction activity is a common thing in urban developing cities where every resident is irritated by noise from nearby construction site. Airports are also a major source of noise in cities.

In accordance to Noise pollution, a city is divided in four areas:

1. Industrial area
2. Commercial area
3. Residential area
4. Silence zone

In our project we are focusing on the Educational sector/area (commercial area) of the city where cause of noise is traffic. The educational institute targeted is Ness Wadia College, located in Bund Garden area. Conducting various surveys to get the intensity of noise produced and some graphs to demonstrate it. If the intensity of noise is above 65-55 dB, methods to be suggested accordingly.

1.1 PROBLEM STATEMENT

Noise health effects are the physical and psychological health consequences of regular exposure, to consistent elevated sound levels.

Elevated workplace or environmental noise can cause hearing impairment, hypertension, ischemic heart disease, annoyance, and sleep disturbance. Changes in the immune system and birth defects have been also attributed to noise exposure. Although presbycusis occur naturally with age, in many countries the cumulative impact of noise is sufficient to impair the hearing of a large fraction of the population over the course of a lifetime. Noise exposure has been known to induce tinnitus, hypertension, vasoconstriction, and other cardiovascular adverse effects. Chronic noise exposure has been associated with sleep disturbances and increased incidence of diabetes. Adverse cardiovascular effects occur from chronic exposure to noise due to the sympathetic nervous system's inability to habituate. The sympathetic nervous system maintains lighter stages of sleep when the body is exposed to noise, which does not allow blood pressure to follow the normal rise and fall cycle of an undisturbed circadian rhythm. Stress from time spent around elevated noise levels has been linked with increased workplace accident rates and aggression and other anti-social behaviors. The most significant sources are vehicles, aircraft, prolonged exposure to loud music, and industrial noise.

There are an attributed 10 000 annual deaths as a result of noise in the European Economic Area. The name can soon be replaced by any Indian Metropolitan city if precautions aren't taken.

1.2 SCOPE OF THE PROJECT WORK

To come up with different procedures and ideologies which might help in decrease of adverse effects of noise, while keeping various things in mind which helps in carrying out the whole process without any complication and errors. Also being ready with options of something goes wrong. The main focus will always be to control traffic because it is the deciding factor of noise pollution these days, being able to curb it will define the success of our project.

2. OBJECTIVES

To propose possible methods

1) To reduce levels near sensitive areas like schools, college, hospitals, etc.
2) To reduce and possibly eradicate diseases existing due to noise, one less thing to worry about our health.
3) Testing of wireless horns and jammers, its feasibility in day to day use.
4) Usage of White, Pink & Brown noise.

3. RESEARCH METHODOLOGY

- Conducting a survey of the number of students in the college.
- Measuring sound level at every week of the day from 6am to 12am at every 1 hour interval for a month to get a good set of data to support our method.
- Using the readings to plot a graph against time. Noise against time interval of 1 hour till the college ends. A graph for the full extent of day of the readings taken, a graph for weekly average, depicting the days of week and max and min average noise level reached.
- Finding out gaps of noise (where noise produced is less than the usual reading) and maximum noise level.
- A road plan to have vacancies to divert traffic.
- Observing frequency of traffic jams in the area and finding which type of vehicle occupies the most volume. A graph for this too, depicting number of jams occurring over the whole day (6:00-00:00)
- Testing wireless horns and to find out if they can be bought to practical day to day use. Then providing jammers near the proposed site to prevent noise due to honking (testing).
- Usage of acoustic plaster to make a model to test the feasibility (if we're able find a live site for conducting this experiment)
- Testing double layer porous asphalt for the same.

4. LIMITATION OF STUDY

The methods adopted in this project will vary for other areas as the town planning also varies from place to place. At some points we can get more options to reduce noise in our methodology based on the town planning, sometimes less.Type of zone will also play a role in the feasibility of our methods, and the variations in types of vehicles.

5. EXPECTED OUTCOME

To be able to come up with a proper method which helps the students of the college to prevent the long term effects of noise.Show that wireless horns should be brought in daily use, a compulsion while manufacturing of vehicles.

6. CONCLUSIONS

With all the work done and dusted we can say that white noise and pink noise method can reduce the effects of noise pollution on human in the day to day life. The concept of Wireless horn needs to be applied on a larger scale to be able to bring about a reduction in the noise levels incurred.

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