

## **NOISE POLLUTION ANALYSIS IN SELECTED STUDY JUNCTION POINT OF BENGALURU CITY: A CASE STUDY**

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### **ABSTRACT**

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The noise pollution is one disturbing the environment at present days, many noise creating activities are responsible for causing the pollution in atmosphere today, in that vehicular activity is one of the major things to disturb the atmospheric condition and change the status of surrounding area. In this study traffic junctions were selected for conducting the analysis to find the level of noise pollution. The bengaluru city is fastest growing city due to silicon activities, the population of vehicles are also increasing and causing the pollution problem, in study area the noise pollution is crossing the limits in the selected areas.

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### **INTRODUCTION**

The environmental pollution is big problem to society. Today the increase of human population in city areas may increase the population of vehicles also to create the noise pollution. The bengaluru city is the capital of karnataka state, which is located at height of 900 meters above the sea level and the city is called now silicon city due to many more IT companies are actively functioning in different parts of the city. The city population is crossed the one crore and the vehicle population has crossed the more than 85 lakhs. The bengaluru city is hub for getting employment to the outsiders and also is fastest growing city in Asia. The mean annual rainfall is about 900 mm in june to september and october to november, with opposite wind regimes corresponding to southwest and northeast monsoons respectively. The average monthly relative humidity ranges from 85% between Jan to Oct to 44% in dries in March. The high wind speed averages 17 km/h throughout the westerly winds in the month of July and a lowest of 8 to 9 km/h during the months of April and October (air quality trends-2006, cpcb). The type of vehicles are different plying in the bengaluru city, most of the vehicles are two wheelers and auto rickshaws. Many of the vehicles are old enough. It has observe that two wheelers are more in number than light and other category of vehicles plying in the cities. It is alarming to note that 32 percent of all vehicles are plying in metropolitan cities alone. The urban

expansion, industrialization, lack of services, energy and transport demands are leading to a various cycle of air pollution. The bengaluru city is facing the problem of various pollutions in atmosphere due to increase in the vehicles, industrial activities and various constructional activities. This problem would be more severe in coming years considering the development rate of city. Hence serious studies are required to analyses and assess the pollution in city in order to better it.

### **CASE PRESENTATION**

The study was carried out during Feb 2019 to April 2019 with selected traffic junction points and instruments like electronic noise level measuring device for assessment of noise pollution (Atmaca, et al., 2005). The noise level analyzer is a portabal instrument used to collect noise levels, which works on laser scattering principles. Using laser scattering principle Fig. 1 shows that noise levels measuring with electronic devise. In bengaluru city most of the main traffic junctions are busy with heavy vehicles, especially in peak hours is more in volume and pollution levels were also shows crossing the permissible limits, keeping in that the important selected junction was identified for study, the selected junctions was gorguntepalya junction (Belojevic, et al., 2008). Gorguntepalya is a main junction point to connect tumkur and also continuation to the major district headquarters of karnataka state, the national high way connects to this, also this junction connects the hebbal circle

which close to IT Park of manyatha park area which has got so many IT industries and small scale industries is located. Also many educational institutes are located in surrounding area of this junction (Ouis, 2001). Due to this effect, the population of both human and vehicles were showing is high. Gorguntepaly junction is connecting with major outer ring road of linking between hebbal and mysore road area and also it connects the yeshwanthpur road, so that the junction is most of the time is busy with the vehicular population.



Fig. 1 Noise level measuring electronic device.

**RESULTS AND DISCUSSION**

The study were carried out at selected junction points of gorguntepalya, those points were shows the pollution rate of noise level was crossing the permissible limits, it was due to high volume movement of vehicles and other activities like generator sets nearby shops due to power failure (Subramaniam, et al., 2019). It will be more in the morning and then gradually decreases towards afternoon and then increase towards the evening. Table 1 show that the average values of noise levels in week days and weekend days respectively. As observed that traffic is only the major cause to pollution level variation. When the traffic is more it make noise due to traffic jams on the road to raise, with this the pollution rate will become high (Oguntunde, et al., 2019). Fig. 2 shows that average percentage of vehicles plying at gorguntepalya junction, here in peak hours the movement of vehicles were high volume due to more number of employ working nearby industrial area of penya which is located nearby gorguntepalya, and also due to the main national highway is passing through this junction. Fig. 2 shows the traffic analysis and data obtained from traffic survey, which was carried out at the selected study area. Fig. 3 shows that variation of noise levels in weekdays. It can be seen that the values vary in same trend in both cases but pollution levels quit high in the weekdays as compare to weekend. Table 1 show that the average values of noise levels in the junction of gorguntepalya. The values are obtained from different days, the values are shown here for week days and also for weekend days, most of the values are varying and showing the

high level than permissible value, it is due to the high density of traffic volume, improper function of Engine and most of the vehicles are old, and these are plying in the city (Voorhees, et al., 2017). Fig. 4 shows that variation of noise levels in gorguntepalya from morning 7 am to 6 pm on weekend days. During peak hours of morning the noise level is very high due to moment of vehicles from the city areas to outside their work places. During evening hours the vehicle moments are also high, those vehicles were returning back from their work.

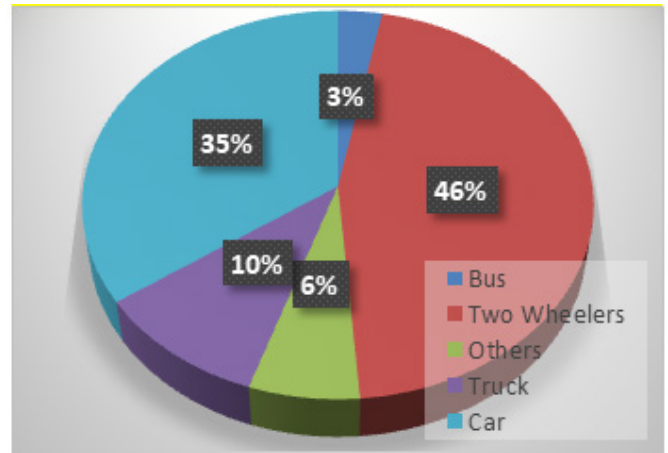


Fig. 2 Average percentage of vehicles in week days near gorguntepalya junction.



Fig. 3 Variation of noise levels in weekday.



Fig. 4 Variation of noise levels in Weekend days.

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**Table 1.** Average values of noise levels in gorguntepalya junction in week days and weekend days.

S No	Time in hours	Noise levels week days	Noise levels weekend days
1	07-08 am	61.46	54.00
2	08-09 am	83.67	61.20
3	09-10 am	83.33	64.30
4	10-11 am	87.71	66.00
5	11-12 pm	92.35	69.80
6	12-00 pm	80.25	65.00
7	01-02 pm	75.23	71.20
8	02-03 pm	72.24	69.40
9	03-04 pm	86.42	73.50
10	04-05 pm	84.97	74.00
11	05-06 pm	80.23	78.00

**CONCLUSION**

Most of the vehicles were play a major role to pollute the noise in the surrounding area. The trucks or four wheelers were predominate in this study area and also other vehicles also affect the pollution problem. The classification of vehicles like auto-rickshaws, heavy vehicles was also May cause pollution level more in that study junction points. The values of pollutants show more than the permissible values during peak hours and other period of time.

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