

## Status of Noise Pollution - A Case Study of Gulshan-E-Iqbal Town, Karachi

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### ABSTRACT

**Purpose:** The main aim of this study is to investigate the noise level due to road traffic with reference to Gulshan-e-Iqbal town; Karachi. **Introduction:** Noise is a disturbance to the human environment that is escalating at such high rate that it will become a major threat to the quality of human lives. **Literature review:** Literature review revealed that in the past thirty years in all areas of the world of Pakistan and especially in the urban areas, pollution has been increasing rapidly. This increase is due to socio-economic status of urban population along with inadequacies of public transport has encouraged personalized means of transport in the mega city of Karachi. The craze for owning vehicles in the mega cities has led to considerable noise pollution especially in big cities of the country. **Methods:** To measure the intensity of pollution of Karachi two intersections the Gulshan-e-Iqbal crossing and NIPA crossing of Gulshan-e-Iqbal town were focal point of our study as these two intersection point of Rashid Minhas are road main links to other part of the city. For noise intensity dB meter at EPA distance, standard (for noise level) 75 m were used. **Conclusion:** Noise intensity was measured between 3.0 pm to 5.0 pm by dB meters at EPA distance standard (for noise level) 75 m. Noise pollution up to 105 decibels has been registered in the Area of investigation as compare to the permissible limits of noise 70 decibels required to protect health and welfare.

JEL. Classification: D63; I18; O13; Q51; Q52; Q53;

Keywords: Noise pollution; Gulshan e Iqbal; Karachi, Environment

### 1. INTRODUCTION

Noise pollution is extreme, hurtful human, animal or machine-created environmental noise that disrupts the activity or balance of human or animal life. The word noise comes from the Latin word *nauseas*, meaning seasickness. The source of most outdoor noise worldwide is mainly construction and transportation systems, including motor vehicle noise, aircraft noise and rail noise (Senate 1992; Hogan and Latshaw 1973). Mehdi, Seong and Arsalan (2011) studied the spatial and temporal patterns of noise exposure due to road traffic in

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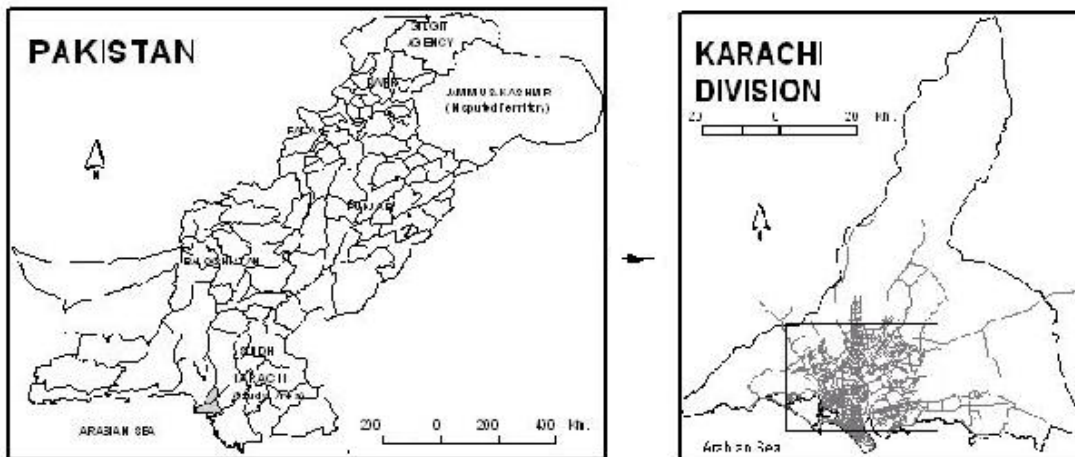
Karachi City, Pakistan, and found that levels of noise were generally higher during mornings and evenings for the reason that of the commuting pattern of Karachi inhabitants. Results of this study found the average value of noise levels to be over 66 dB, which possibly will cause serious annoyance according to the World Health Organization (WHO) outdoor noise guidelines. Maximum peak noise was over 101 dB, which is close to 110 dB, the level that can cause possible hearing impairment according to the WHO guidelines. It shows that noise pollution is not an environmental problem set aside for developed countries, but occurs in developing countries as well. For this cause, steps are required to reduce noise levels caused by road traffic. The major factors, which contributed towards all forms of pollution in Karachi, are mainly population, industries, seaport, road, rail and air transport, neighborhood and recreational noise. As noise Pollution is unwanted sound that introduce into our daily activities. No one on earth can escape the sounds of noise, an unwanted disturbing sound that causes a nuisance in the eye of the beholder. Same problem exist in developing and developed countries, which are supported from Duerden (1970), Julii, Jones, Batman and Lovett (1985), Khoshoo (1991) Rajvanshy and Goel (1987).

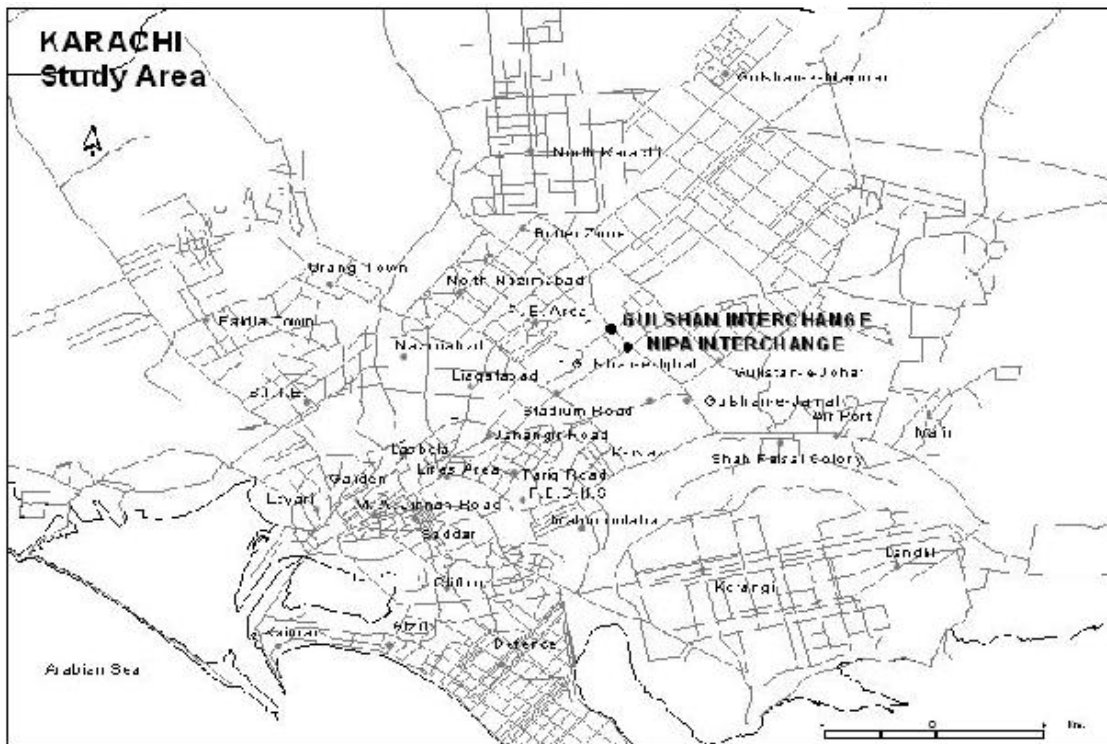
These conditions forced us to undertake this study and for that, Gulshan-e-Iqbal is selected for the same considering its prime location, area and population. Attempt was made to set standards for some of the most major sources of noise, which often are unable to monitor. The following areas required to be investigated in some detail, transportation, natural-effects, sleeps, hearing damage and physiological effects.

## 2. EXPERIMENTAL

### 2.1 Study Area

Gulshan-e-Iqbal town is largest town of Karachi. It is located in the center of the city covering an area of 26 sq. km with 13 union council. The population of the town is approximately 1.5 million as per last census (see Fig.1). Two intersection i.e. Gulshan-e-Iqbal crossing and NIPA crossing of Gulshan-e-Iqbal town were focal point of our study as these two are intersection point of Rashid Minhas road main links to other part of the city. Noise intensity was measured between 3.0 pm to 5.0 pm by dB meters at EPA distance standard (for noise level) 75 m. Following observation were recorded shown in Table 1 - 4. To study the whole area at particular intersection we have established the various points (shown Fig 2-3) based on the importance of traffic flow endangering the domestic population.





**Fig: 1 LOCATION MAP OF STUDY AREA**

Table 1: Traffic mode volume or density (Nipa Intersection)

Points	Car%	M/Cycle%	Rickshaw%	Mini Bus%	Bus%	Truck%
A	41.9	34.9	11.6	7.9	1.5	2.2
B	42.6	43.3	6.7	4.7	1.2	1.6
C	49.0	30.8	11.9	4.9	1.2	2.0
D	48.0	34.6	9.8	4.0	1.6	2.0
E	47.3	29.5	10.2	9.5	1.4	1.9
F	31.6	33.5	12.6	18.9	2.7	0.6
H	49.9	37.0	6.9	2.5	0.5	2.9
I	47.5	37.8	6.5	9.5	0.6	3.7

Table 2: Noise Level (Nipa Intersection)

Point	Maximum Noise level	Minimum Noise level	Average Noise level
A	100.2	65.8	77.8
B	100.1	78.4	82.9
C	99.8	78	83.9
D	98.8	75.7	83.0
E	99.7	72.4	82.8
F	105	68.8	82.4
G	99.7	79.5	83.1
H	102.6	70.1	82.0
I	99	72.1	82.8

Table 3: Traffic mode volume or density (Gulshan Intersection)

Points	Car%	M/Cycle%	Rickshaw%	Minibus%	Bus%	Truck%
A	44.3	29.0	21.5	2.04	0.60	2.20
B	46.7	33.6	6.7	7.3	1.4	4.1
C	35.8	43.0	7.7	7.6	1.1	4.6
D	44.3	32.6	17.2	2.8	1.0	1.9

Table 4: Noise Level (Gulshan Intersection)

Point	Maximum Noise level	Minimum Noise level	Average Noise level
A	86.2	75.3	83.9
B	100.4	72	82.4
C	100.2	74	83.3
D	100.4	76	86.6

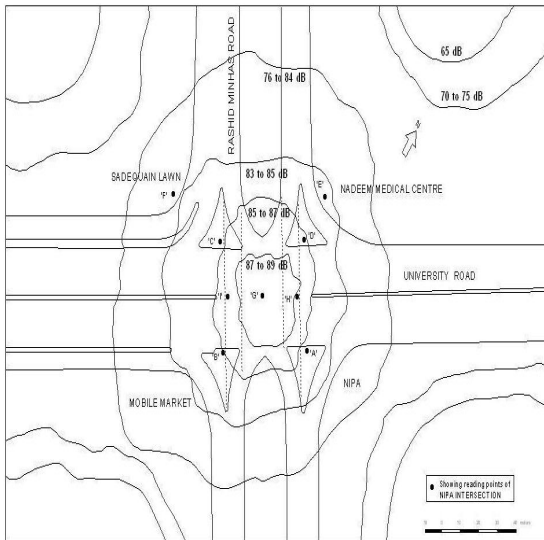


Fig 2- Map of NIPA Intersection

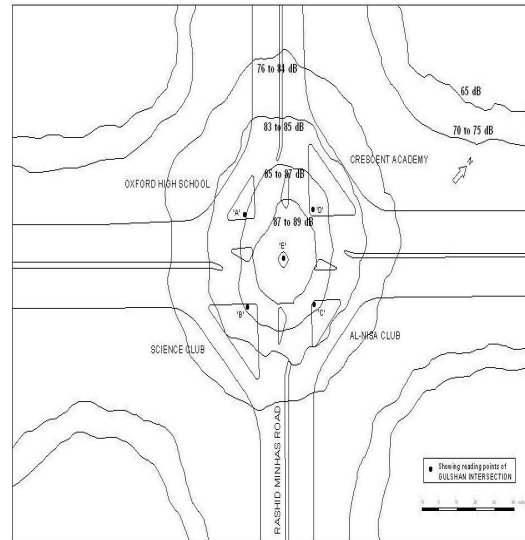


Fig 3- Map of Gulshan Intersection

### 3. DISCUSSION

The noise level monitored at NIPA interaction is low as compared to Gulshan-e-Iqbal intersection due to following two reasons:

The flow of the traffic is quite smooth and fast as compared to Gulshan-e-Iqbal intersection due to two bridges nearby, which facilitates the flow. However at Gulshan-e-Iqbal intersection the traffic light controls the flow of traffic as a result there is always crowded of vehicles at one point or another, which contributes lot of noise of pollution all time. Motor cycles and Mini buses are main contributor towards high rates of noise.

Noise intensity is measured in decibel units. Subjected to 45 Decibels of noise, the average person cannot sleep. At 120 decibels, the ear registers pain but hearing damage begins at a much lower level about 85 decibels. The duration of the exposure is also important. Apart from hearing loss, such noise can cause lack of sleep, irritability heartburn, indigestion, ulcers, high blood pressure and possibly heart disease.

### 4. CONCLUSION

The result of the study emphasizes:

- There is an urgent need for an alternative public transport system on selected roads with a better management of transport system.
- The Government should strictly enforce traffic rules.
- The Government should equip vehicles with approach horns and silencers.

- Environment protection agency should determine the limit of noise to protect public health and welfare to set noise emission standard for major source of noise in the environment.
- The City Government of Karachi should discourage the commercial activity at one part of the city.

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