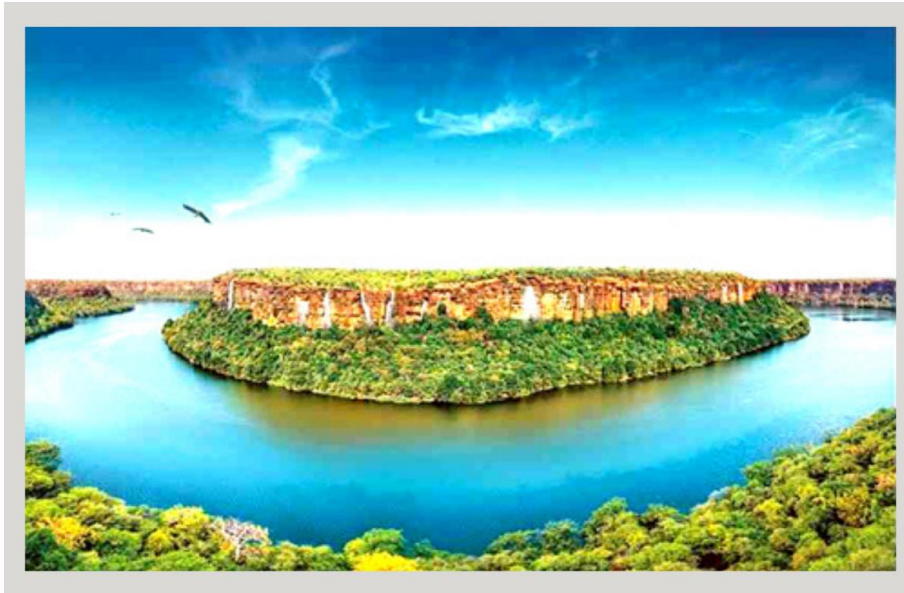




**Status of Ambient Noise level in Kota City
(January to June 2022)**

*STATUS Of AMBIENT NOISE
LEVEL IN KOTA CITY
(January to June 2022)*



*RAJASTHAN STATE POLLUTION
CONTROL BOARD*



Status of Ambient Noise level in Kota City (January to June 2022)

Introduction

Background

The word "noise" descends from the Latin word "nausea," meaning seasickness or discomfort. Mechanical energy released by any source in a medium creates vibrations of molecules. The molecules start vibrating in the oscillatory mode and the energy travels through the medium in form of vibrations. If the oscillation in the medium are in the range of 20 Hz to 20,000 Hz (the audio frequency range), it is audible by human ears and categorises as sound.

Under section 2(a) of Air (Prevention and Control of Pollution) Act, 1981 noise is defined as air pollutant.

“Air pollutant” means any solid, liquid or gaseous substance [(including noise)] present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment.”

Study Area

The Regional Laboratory, Rajasthan State Pollution Control Board, Kota monitored noise level day and night time in Kota city. The city of Kota (previously spelt as Kotah) is located in south-eastern Rajasthan along eastern bank of the Chambal River, a very region widely known as “Hadoti”. Kota district lies between 24⁰ 25’ and 25⁰ 51’ North Latitude and 75⁰ 37’ and 77⁰ 26’ East Longitude. Kota district has an area of 5098 sq. km. The population of Kota is 5, 37,371.

Site selection for monitoring is depended on land use pattern as prescribed in the standard. In order to maintain uniformity in monitoring, Residential, Commercial, Industrial and Silence zones were selected in respect of Noise Standards prescribed under the provisions of Noise Pollution (Regulation & Control) Rules, 2000. The monitoring network consisted of a total of 5 noise monitoring locations in Kota City.

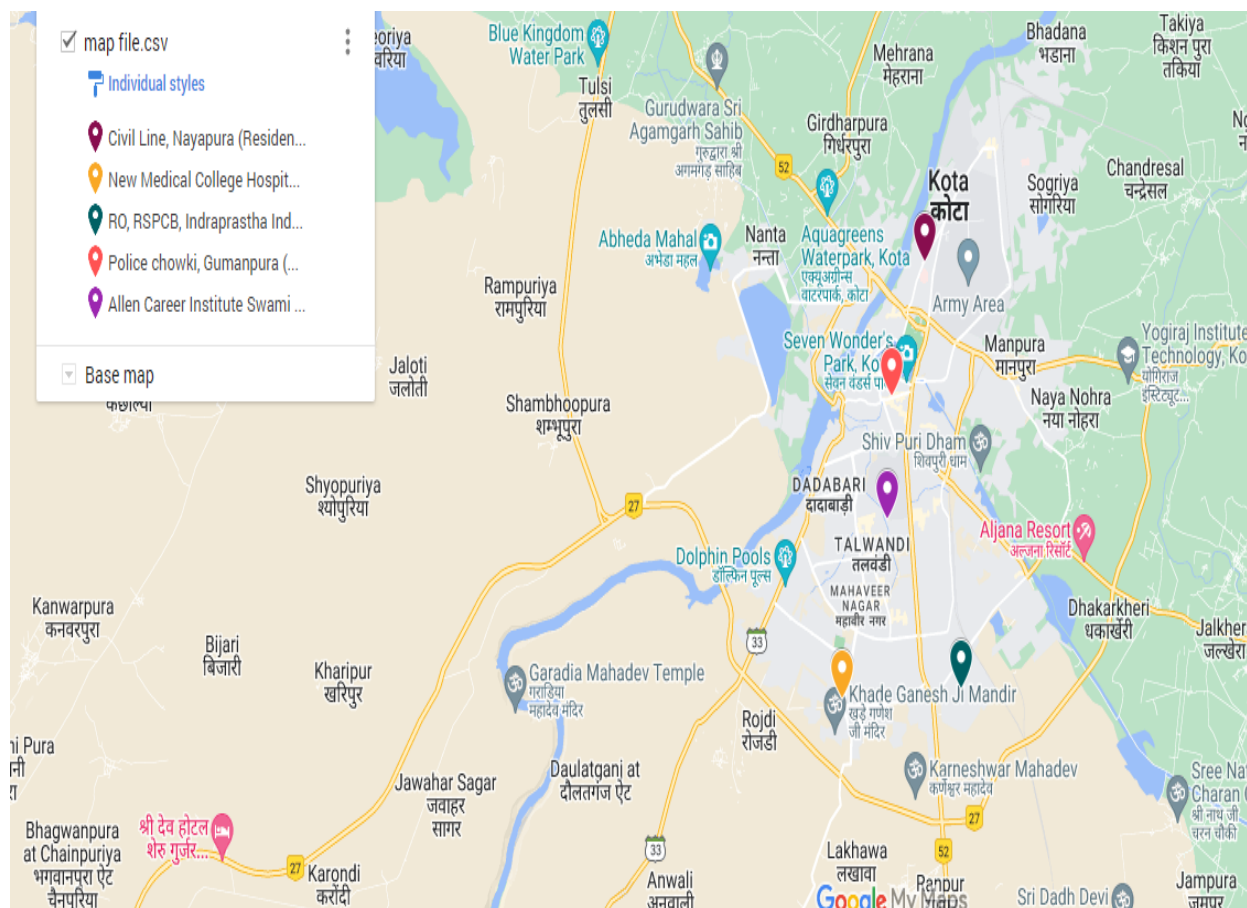


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Table 1: Noise level monitoring location of Kota city

Sr. No.	Name of monitoring location	Category of area / Zone	Latitude (N)	Longitude (E)
1	Civil Line, Nayapura, Kota	Residential	25°12' 10"	75°51' 20"
2	New Medical College Hospital, Rama Krishna Puram, Kota	Silence	25°07' 16"	75°49' 48"
3	Police chowki, Gumanpura, Kota	Commercial	25°10' 34"	75°50' 47"
4	Regional Office, RSPCB, Indraprastha Industrial Area, Kota	Industrial	25°07' 17"	75°52' 05"
5	Allen Career Institute (Satyarth, Swami Dayanand Saraswati Road, Jawahar Nagar, Kota	Commercial	25°09' 12"	75°50' 26"

Fig: Map showing noise level monitoring location of Kota city





Status of Ambient Noise level in Kota City (January to June 2022)

Methodology

The Noise level monitoring was conducted day time (6:00 AM to 10:00 PM) and night time (10:00 PM to 6:00 AM) for half hour interval at each location with sampling frequency of one second.

Noise levels have been recorded by means of a Precision Noise Level Meter of Make 'Cirrus Research, Model No. G303369 and G078091. A widely used scale to measure sound pressure levels is the weighting scale, "A-weighting." It correlates with the subjective response of auditory system, and is expressed as decibels in A-Scale (dBA).

Observation: Table 2: Result of Noise level monitoring from January 2022 to June 2022.

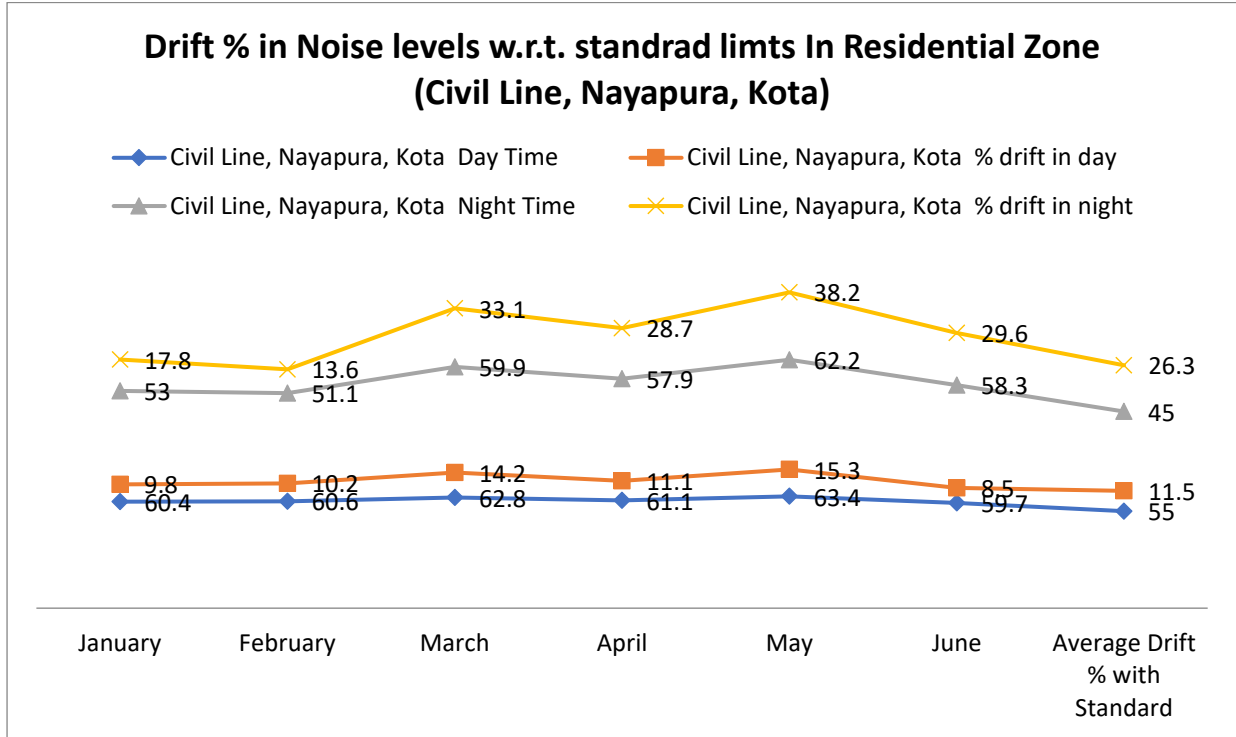
Zone Site	Residential Zone Civil Line, Nayapura, Kota		Silence Zone New Medical College Hospital, Rama Krishna Puram, Kota		Industrial Zone RO, RSPCB, Indraprastha Industrial Area Kota		Commercial Zones			
	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time	Police chowki, Gumanpura, Kota		Allen Career Institute (Swami Dayanand Sarswati road), Kota	
Monitoring period	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time
January	60.4	53	59.7	51.7	63.2	60.9	66.5	62.9	70.4	61.5
February	60.6	51.1	61.8	57.6	63.2	60.9	73.5	65.5	68.1	62.2
March	62.8	59.9	64.1	57.7	62.9	60.9	69.2	63.1	69.9	63.4
April	61.1	57.9	63.4	54.8	64.3	58.8	64.4	59.4	68.8	62.4
May	63.4	62.2	60.2	56	59.1	57.9	67.5	63.8	67.6	65.2
June	59.7	58.3	60.4	58.7	63.9	61	65.5	61.8	70.8	65.3
Standard & Average drift	55	45	50	40	75	70	65	55	65	55

All values are in Leq. dB(A)

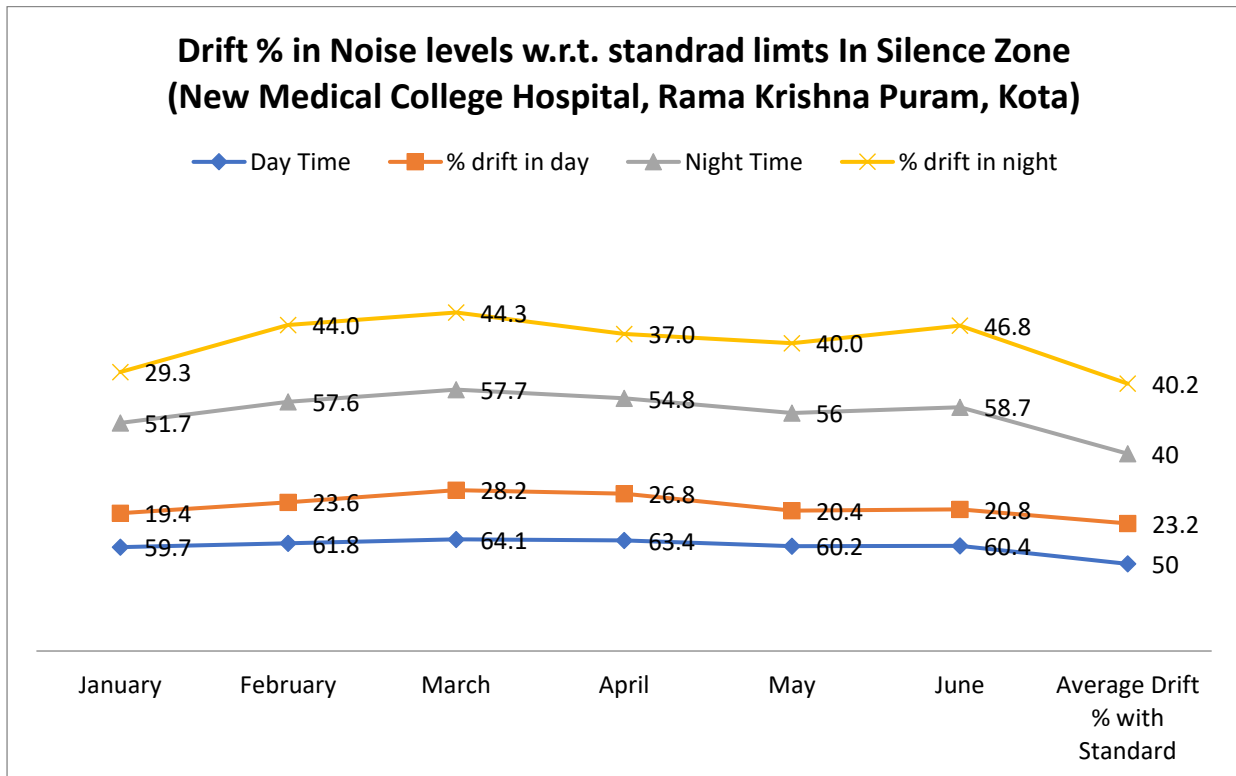


Status of Ambient Noise level in Kota City (January to June 2022)

Graph No. 1 - Noise level monitoring Civil Line, Kota (Residential Zone).



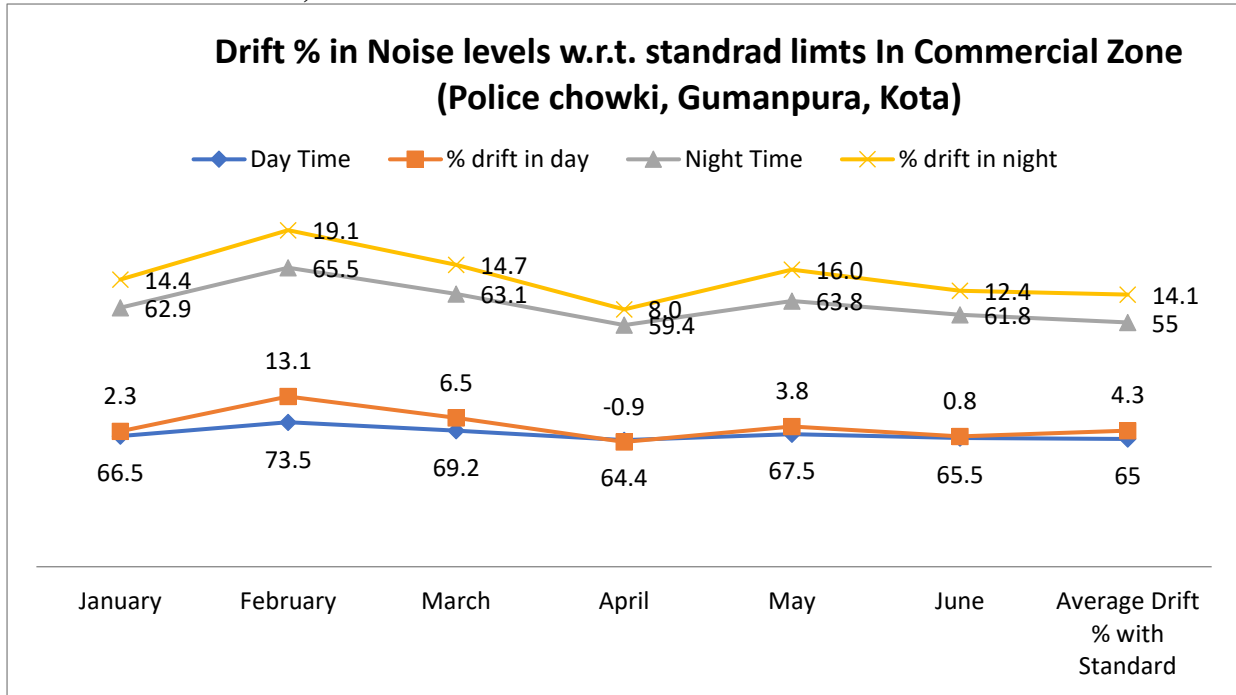
Graph No. 2 - Noise level monitoring New Medical College, Kota (Silence Zone).



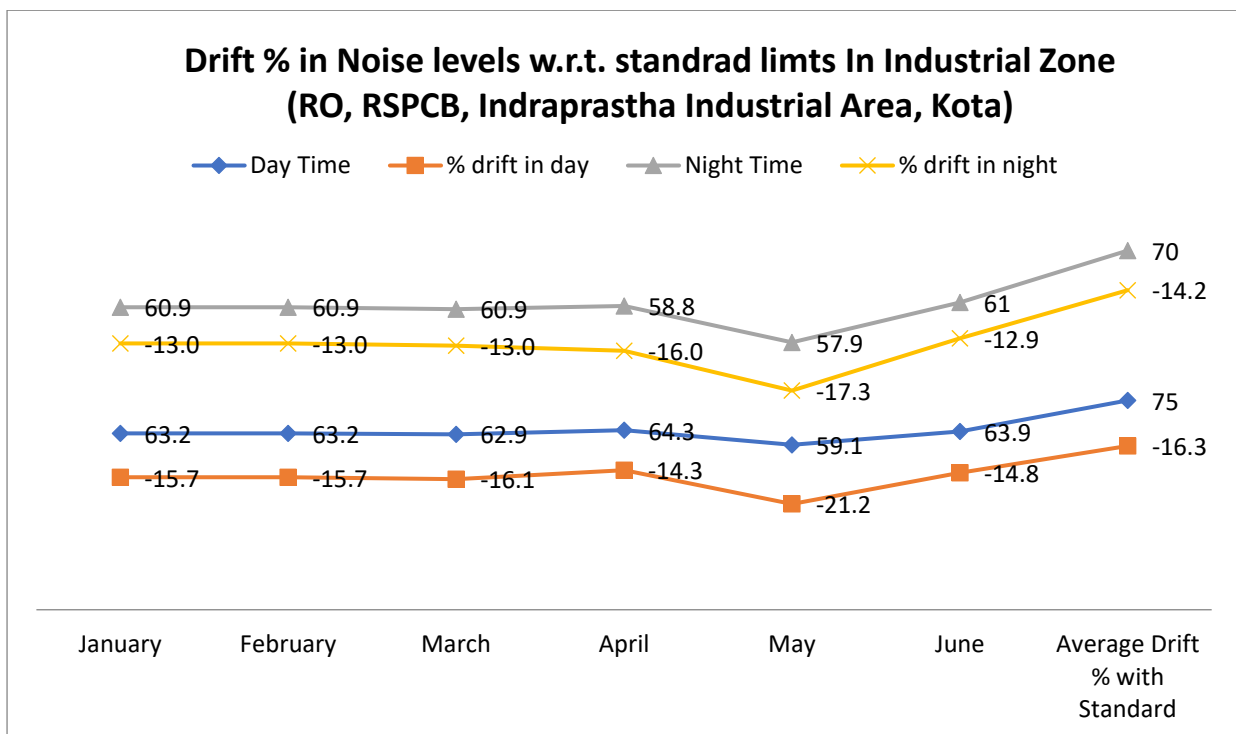


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Graph No. 3 - Noise level monitoring Police Choki, Gumanpura, Kota (Commercial Zone).



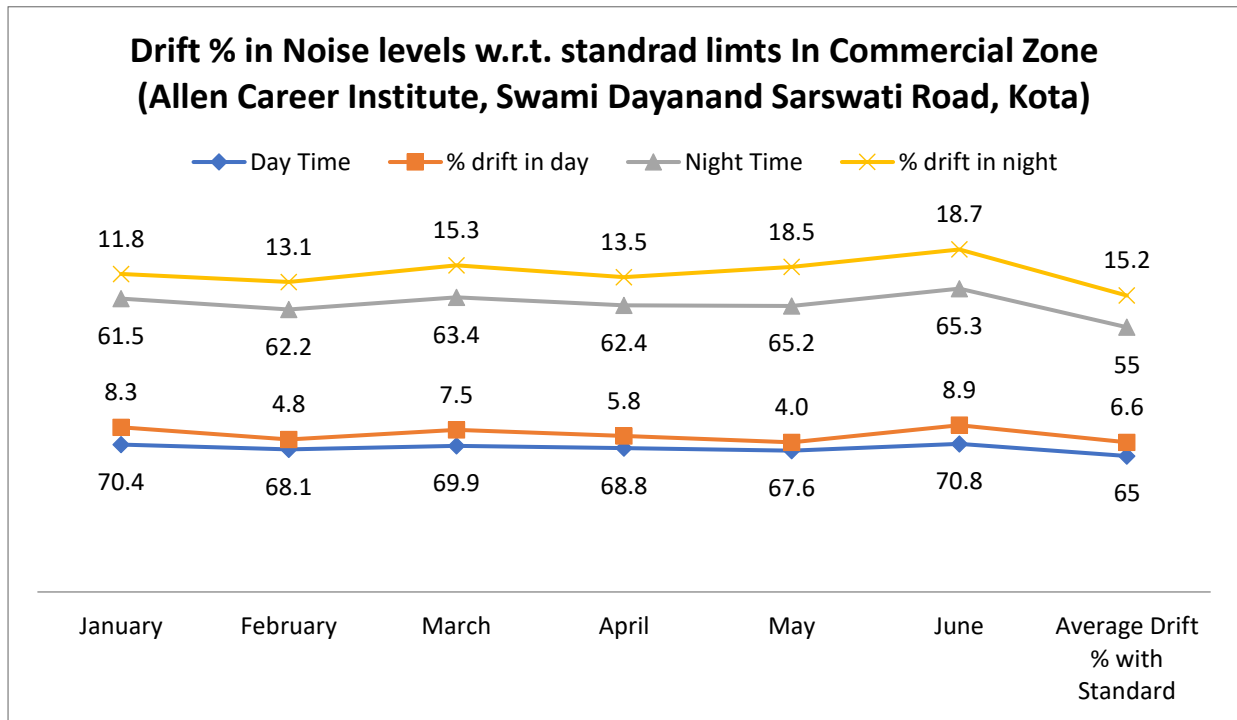
Graph No. 4 - Noise level monitoring RO, RSPCB, Indraprastha Industrial Area, Kota (Industrial Zone).





Status of Ambient Noise level in Kota City (January to June 2022)

Graph No. 5 - Noise level monitoring at Allen Career Institute (Swami Dayanand Sarswati Road), Kota (Commercial Zone).



Results and Discussion

Residential Zone

The monthly based recorded data of six month from January 2022 to June 2022 revealed that sound levels were ranged from 59.7 to 63.4 dB (A) during day time and 51.1 to 62.2 dB (A) during night time in residential zone (Graph no. 1). Overall, noise levels were found exceeding from 8.5% (June) to 15.3% (May) w.r.t. day time standard i.e., 65 dB and from 13.6% (February) to 38.2% (May) w.r.t. night time standard i.e., 55 dB. Six monthly average exceedance found 11.5% and 26.3% in day and night time respectively.

Silence Zone

In silence zone sound level found ranging from 59.7 to 64.1 dB (A) during day time and 51.7 to 58.7 dB(A) during night time (Graph no. 2). Overall, noise levels were found exceeding from 19.4% (January) to 28.2% (March) w.r.t. day time standard i.e. 50 dB and from 29.3% (January) to 46.8% (June) w.r.t. night time standard i.e. 40 dB. Six-monthly average exceedance found 23.2% and 40.2% in day and night time respectively.



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Industrial Zone

In Industrial zone sound levels were found ranging from 59.1 to 64.3 dB (A) during day time and 57.9 to 61 dB (A) during night time (Graph no. 4). Overall, noise levels were found well below the prescribed standards for day and night for all months in industrial zone i.e. Six-monthly average of -16.3% for day time and -14.2% for night time.

Commercial Zones

In the kota city there are two commercial zones selected for sound levels monitoring i.e. in Police chowki, Gumanpura and Allen Career Institute (Swami Dayanand Saraswati road). In the Police chowki area sound levels were observed ranging from 64.4 to 73.5 dB (A) during day time and from 59.4 to 65.5 dB (A) during night time (Graph no. 3). Similarly, in Allen Career Institute area sound levels were found ranging from 67.6 to 70.8 dB (A) in day time and from 61.5 to 65.3 dB (A) in night time (Graph no. 5). Overall, in Police chowki area noise levels were found exceeding (except in April sound level found decrease with -0.9%) from 2.3% (January) to 13.1% (February) w.r.t. day time standard i.e. 65 dB and from 8.0% (April) to 19.1% (February) w.r.t. night time standard i.e. 55 dB. Six-monthly average exceedance found 4.3% and 14.1% in day and night time in Police chowki area respectively. Similarly, in Allen Career Institute area, noise levels were found exceeding from 4.0% (May) to 8.9% (June) w.r.t. day time standard i.e. 65 dB and from 11.8% (January) to 18.7% (June) w.r.t. night time standard i.e. 55 dB. Six-monthly average exceedance found 6.6% and 15.2% in day and night time in Allen Career Institute area respectively.

Conclusion: The obtained data from different location/zones reveals that sound levels are exceeding in all zones from the prescribed standards of day and night times (except in industrial zone). Sound levels in night time are found higher than day time in all zones. New medical college (Silence zone) has highest percentage values of sound level in day and night time among all zone followed by Civil line area (Residential zone), Allen Career Institute and Police chowki (Commercial zones). The Observed values indicates that sound level % in industrial zone is well below the standard limits of day and night times.



**Status of Ambient Noise level in Kota City
(January to June 2022)**



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