

Report on Ambient Air Quality & Noise on Deepawali 2020



TELANGANA STATE POLLUTION CONTROL BOARD

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Deepawali Monitoring

Telangana State Pollution Control Board is regularly monitoring the Ambient Air Quality (AAQ) with respect to the particulate matter, gases and noise levels in the city and at various places in the state of Telangana. The special purpose (Deepawali) AAQ monitoring in compliance to the CPCB directions is being carried out from 7th November, 2020 to till date and will be continued up to 21st November, 2020. The Noise level monitoring is carried out through 10 real time noise monitoring stations. The noise data of the 9th November, 2020 is taken as pre-Deepawali data and that of the 14th November as Deepawali data. The meteorological parameters which govern the dispersion of the pollutants are also measured.

Results and Discussion:

Noise Monitoring

Exposure to elevated levels of noise may lead to adverse effects in humans and other living organisms. It is important to monitor noise levels at different places and the noise data thus generated may be used to take appropriate noise control measures. Under noise rules 2000, Separate ambient standards are fixed for industrial, commercial, residential and sensitive zones and tabulated below.

Area and number of stations	Standards in dB Leq	
	Day	Night
Industrial	75	70
Commercial	65	55
Residential	55	45
Sensitive	50	40
Day time average : 06.00Hrs to 22.00Hrs		
Night time average : 22.00Hrs to 06.00Hrs		

NOISE LEVEL

REAL TIME NOISE MONITORING DATA

(A) Online Ambient Noise Level data during Pre-Deepawali (2016-2020)

The Noise level data obtained from Real time noise monitoring from 10 stations spanning different locales of Hyderabad during special purpose monitoring (Pre-Deepawali and Deepawali) are shown in Table-1 and Table-2 respectively.

Table-1: RTNMS data on Pre- Deepawali Day (All values are in Leq dB (A))

S.No	Monitoring Stations	24.10.2016		12.10.2017		01.11.208		21.10.2019		09.11.2020	
		Day Time	Night Time	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time
1	Jubille Hills (Residential)	60	52	63	57	59	54	61	55	57	55
2	Tarnaka (Residential)	61	50	61	50	59	54	71	70	-	-
3	Abids (Commercial)	67	65	70	66	74	69	73	68	73	69
4	JNTU (Commercial)	70	64	70	66	70	67	70	67	69	66
5	Paradise (Commercial)	73	73	62	45	-	-	-	-	-	-
6	R.C.Puram (Commercial)	69	64	69	65	70	68	-	65	-	-
7	Sanathnagar (Commercial)	71	64	72	66	71	65	69	64	69	64
8	Jeedimetla (Industrial)	66	58	73	71	75	74	71	67	61	57
9	Zoopark (Sensitive)	54	48	54	51	55	50	55	56	58	55
10	Gachibowli (Residential)	61	47	55	50	58	52	57	55	67	-

(B) Online Ambient Noise Level data during Deepawali (2016-2020)

Table-2: Deepawali Day (All values are in Leq dB (A))

S. No	Monitoring Stations	Table-2: Deepawali Day (All values are in Leq dB (A))											
		30.10.2016		19.10.2017		07.11.2018		27.10.2019		14.11.2020			
		Day Time	Night Time	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time		
1	Jubille Hills (Residential)	66	57	63	73	61	66	63	66	59.9	65.1		
2	Tarnaka (Residential)	65	52	69	66	60	50	70	68	-	69.2		
3	Abids (Commercial)	73	68	74	75	73	70	-	-	71.7	72.2		
4	JNTU (Commercial)	69	65	71	69	70	67	69	70	67.9	67.9		
5	Paradise (Commercial)	73	73	67	70	-	-	-	-	-	-		
6	R.C.Puram (Commercial)	72	65	70	67	-	-	-	-	-	-		
7	Sanathnagar (Commercial)	71	65	72	70	71	66	70	75	68.3	64.7		
8	Jeedimetla (Industrial)	64	58	73	79	-	-	58	67	57.7	55.7		
9	Zoopark (Sensitive)	55	52	57	56	57	60	56	55	42.5	41.6		
10	Gachibowli (Residential)	59	49	59	54	57	56	55	57	58.2	54.4		

Note: '-' Data not available

- Compared to 2019, most of the stations recorded lower noise levels in the night time on Deepawali day.
- Compared to normal day, day time noise levels in most of the stations on Deepawali day were lower where as night time noise levels increased marginally.

Ambient Air Quality

(A) Data of manual monitoring: 6.00 a.m to 6.00 a.m

Monitoring was carried out at three stations through manual instruments in Hyderabad at Paradise, Charminar and Jubilee Hills. The data obtained from analysis of samples received from the aforementioned stations are given in Table-3,4 and 5 respectively.

Table-3: Ambient Air Quality Status during Pre- Deepawali & Deepawali Day, Paradise station.

Year and Dates	Pre- Deepawali day				Deepawali day					
	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
Parameter	Oct-24	Oct-10	Pre-Diwali	Pre-Diwali	Pre-Diwali	Oct-30	Oct-19	Nov-07	Oct-27	Nov-14
SO ₂	4.7	4.5	4.6	7.1	6.4	8.0	6.3	5.7	7.9	9.7
NO _x	29	32	34.2	55.2	45.7	26.9	37.6	56.2	47.3	56.8
PM ₁₀	99	80	90.9	112	92	134	133	152	204	110
PM _{2.5}	-	-	-	36	26	-	-	-	45	33

Note: All values are in $\mu\text{g}/\text{m}^3$

Table-4: Ambient Air Quality Status during Pre- Deepawali & Deepawali Day, Charminar

Year and Dates	Pre- Deepawali day				Deepawali day					
	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
Parameter	Oct-24	Oct-10	Pre-Diwali	Pre-Diwali	Pre-Diwali	Oct-30	Oct-19	Nov-07	Oct-27	Nov-14
SO ₂	4.8	4.6	4.6	4.9	4.9	9.6	5.9	7.4	9.0	9.5
NO _x	31.2	36.6	29.2	31.2	38.1	32.7	40.5	40.6	17.7	42.2
PM ₁₀	109	75	84	120	131	182	191	94	108	113
PM _{2.5}	-	-	54	18	29	-	-	56	38	38

Note: All values are in $\mu\text{g}/\text{m}^3$

Table-5: Ambient Air Quality Status during Pre- Deepawali & Deepawali Day, Jubilee Hills

Year and Dates	Pre- Deepawali day				Deepawali day					
	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
Parameter	Oct-24	Oct-10	Pre-Diwali	Pre-Diwali	Pre-Diwali	Oct-30	Oct-19	Nov-07	Oct-27	Nov-14
SO ₂	4.6	4.3	4.6	5.5	5.0	8.8	6.4	5.4	10.6	10.9
NO _x	29.6	24.3	29.2	50.2	38.3	25.2	31.1	47.2	38.7	48.9
PM ₁₀	94	84	82	104	91	146	207	135	261	108
PM _{2.5}	-	-	59	12	19	-	-	113	42	56

Pre Diwali from 31.10.2018 to 06.11.2018; Pre Diwali from 20.10.2019 to 26.10.2019
; Pre Diwali from 05.11.2020 to 13.11.2020

(B) Data of Real Time monitoring: 6.00 a.m. to 6.00 a.m.

The air quality on Pre-deepawali and Deepawali days for 2016-2020 of CAAQMS installed at HCU, Pashamylaram, ZOO park, Sanathnagar, ICRISAT and Bollaram are presented in tables 6a to 6f respectively.

Table- 6a. Location: HCU

Year & Dates	Pre- Deepawali day					Deepawali day				
	2016 Oct.24	2017 Oct.10	2018 Nov.1	2019 Oct.21	2020 Nov.09	2016 Oct.30	2017 Oct.19	2018 Nov.07	2019 Oct.27	2020 Nov.14
SO ₂	21.0	3.8	5.4	2.2	17.6	7.4	6.9	7.4	1.8	3.7
NO ₂	69.6	28.5	45.9	28.0	44.0	34.3	34.7	46.2	24.7	40.7
PM ₁₀	142	44	88	49	184	115	192	131	109	103
PM _{2.5}	68	18	37	17	94	84	97	75	81	59
CO	1140	1300	490	570	560	910	940	480	480	500

Note:All values are in µg/m³

Table- 6b. Pashamylaram

Year & Dates	Pre- Deepawali day					Deepawali day				
	2016 Oct.24	2017 Oct.10	2018 Nov.1	2019 Oct.21	2020 Nov.09	2016 Oct.30	2017 Oct.19	2018 Nov.07	2019 Oct.27	2020 Nov.14
SO ₂	29.1	4.1	17.1	10.0	11.2	16.5	13.5	8.7	3.5	2.4
NO ₂	61.5	22.6	78.9	-	67.8	29.8	42.1	63.0	-	62.3
PM ₁₀	187	33	162	54	241	120	124	102	30	112
PM _{2.5}	81	20	89	18	123	79	61	61	20	56
CO	670	380	740	560	860	610	560	490	410	700

Note:All values are in µg/m³

Table- 6c. Zoo Park

Year & Dates	Pre- Deepawali day					Deepawali day				
	2016 Oct.24	2017 Oct.10	2018 Nov.1	2019 Oct.21	2020 Nov.09	2016 Oct.30	2017 Oct.19	2018 Nov.07	2019 Oct.27	2020 Nov.14
SO ₂	6.1	4.5	2.5	2.1	3.6	6.8	3.0	2.5	2.0	4.3
NO ₂	37.6	25.0	52.5	16.6	83.7	38.0	32.8	58.9	62.9	71.0
PM ₁₀	174	71	97	83	214	166	160	113	88	136
PM _{2.5}	91	37	58	43	125	119	106	77	64	68
CO	870	620	800	600	230	690	510	740	370	220

Note: All values are in $\mu\text{g}/\text{m}^3$

Table- 6d. Sanathnagar

Year & Dates	Pre- Deepawali day					Deepawali day				
	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
Parameter	Oct.24	Oct.10	Nov.1	Oct.21	Nov.09	Oct.30	Oct.19	Nov.07	Oct.27	Nov.14
SO ₂	23.4	5.8	10.0	3.4	38.6	6.1	3.0	18.2	10.5	11.2
NO ₂	61.1	46.6	31.4	28.2	61.3	21.8	57.8	44.6	41.2	37.1
PM _{2.5}	76	40	30	36	104	56	146	121	199	110
CO	970	1270	470	660	650	570	570	510	780	550

Note: All values are in $\mu\text{g}/\text{m}^3$

Table- 6e. ICRISAT

Year & Dates	Pre- Deepawali day					Deepawali day				
	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
Parameter	Oct.24	Oct.10	Nov.1	Oct.21	Nov.09	Oct.30	Oct.19	Nov.07	Oct.27	Nov.14
SO ₂	15.4	5.4	12.4	1.5	21.9	27.1	10.1	13.5	1.4	9.3
NO ₂	31.0	5.1	23.8	19.2	35.1	25.3	13.2	19.9	32.3	25.9
PM ₁₀	175	16	124	51	240	151	134	183	41	175
PM _{2.5}	71	9	49	27	131	93	72	115	60	119
CO	540	360	500	560	660	550	570	440	300	800

Note: All values are in $\mu\text{g}/\text{m}^3$

Table- 6f. Bollaram

Year & Dates	Pre- Deepawali day					Deepawali day				
	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
Parameter	Oct.24	Oct.10	Nov.1	Oct.21	Nov.09	Oct.30	Oct.19	Nov.07	Oct.27	Nov.14
SO ₂	5.8	15.8	4.5	25.1	21.9	23.8	85.8	5.2	10.5	9.9
NO ₂	-	38.9	20.2	23.8	35.1	16.4	31.3	17.1	32.4	26.7
PM ₁₀	276	100	78	174	240	97	238	127	151	156
PM _{2.5}	133	39	39	94	131	71	145	101	120	109
CO	550	1050	450	410	660	450	540	500	500	390

Note: All values are in $\mu\text{g}/\text{m}^3$

Comparison of Meteorology

Comparative meteorology on pre-deepawali day and deepawali day observed during last five years (2016 -2020) is presented in Table-7.

Table-7: Meteorological data

Year	2016		2017		2018		2019		2020	
	Pre-Diwali	Diwali	Pre-Diwali	Diwali	Pre-Diwali	Diwali	Pre-Diwali	Diwali	Pre-Diwali	Diwali
Parameter	24.10. 2016	30.10. 2016	10.10. 2017	19.10. 2017	01.11. 2018	07.11. 2018	21.10. .2019	27.10. 2019	09.11. 2020	14.11. 2020
Wind speed(m/s)	1.4	2.6	1.0	1.1	1.0	1.3	1.5	1.1	1.0	1.5
Temperature (°C)	26.5	27.4	26.5	24.8	27.0	28.3	25.7	26.1	24.2	25.5
Relative Humidity (%)	53.0	66.0	72.0	63.7	63.0	58.9	73.0	73.2	54.0	65.5

Overall Observation

Noise pollution

On Deepawali day in most of stations there is a decrease in the noise levels in the day time and this may be attributed to decreased activity in the day owing to Sunday and holiday. While the noise values in the night on Deepawali day show marginal increase in the noise levels when compared to normal day. Comparison of data pertaining to 2019 and 2020 on Deepawali day indicate there is marginal decrease of the noise levels. This may be attributed to prevailing pandemic situation resulting in reduction of bursting crackers.

Ambient Air Quality

Particulate matter (PM₁₀ & PM_{2.5}):

The concentrations have increased marginally with respect to PM_{2.5} and PM₁₀ when compared to normal day (7 day average before deepawali). The wind speed is higher than last year providing for better dispersion.

Gases (SO₂, NO_x and CO):

The concentrations increased moderately on Deepawali day when compared to normal day and meeting the standards.
