Press Release

Deepawali Monitoring Report: 2017

Monitoring of Ambient Air & Noise Monitoring conducted

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Deepawali Monitoring

This year, the CPCB has attempted to coordinate monitoring of ambient noise levels at more than 200 locations and ambient air quality at about 170 locations across the country. The compiled data shall be published as CPCB does every year. In Delhi, Ambient Noise was monitored at 16 locations and Ambient Air Quality at 18 locations. The monitoring was carried out in two phases, Pre-Deepawali on October 12, 2017 and Deepawali on October 19, 2017.

Observations:

1. The Sound Level

(A) Manual: 06.00 p.m. to 12.00 Night

The Pre-Deepawali monitoring data for past four years are given in the table 1a. In general, there was increase in ambient sound level except at Janakpuri (Residential Area) and the highest sound level observed at Okhla (Commercial area) as compared to 2016.

Table 1a: Ambient Noise Level data on during **Pre-Deepawali Days (2013-2017)**

S.No.	Monitoring Stations	Pre-Deepawali Day				
		29.10.13	15.10.14	05.11.15	24.10.16	12.10.17
1	Lajpat Nagar (R)	NM	NM	61	55	62↑
2	Mayur Vihar Phase-II (R)	69	60	60	59	62↑
3	Pitam Pura (R)	53	61	55	43	55↑
4	Kamla Nagar (R)	59	63	61	60	61↑
5	Janakpuri (R)	63	-	58	59	59=
6	Okhla (I)	NM	NM	66	74	76↑

Note : All values are in Leq dB(A) NM= not monitored at the location,

The Deepawali monitoring data for past four years are given in the table 1b. In general, there was no increase in ambient sound level at any location as compared to 2016. The highest sound level observed at Okhla (Commercial area).

Table 1b: Ambient Noise Level data on during **Deepawali Days (2013-2017**)						
S.No.	Monitoring Stations	Deepawali Day				
		03.11.13	23.10.14	11.11.15	30.10.16	19.10.17
1	Lajpat Nagar (R)	NM	NM	76	76	74↓
2	Mayur Vihar Phase-II (R)	83	83	79	80	75↓
3	Pitam Pura (R)	73	71	74	ID	69
4	Kamla Nagar (R)	81	80	86	74	69↓
5	Janakpuri (R)	-	78	79	75	67↓
6	Okhla (I)	NM	NM	86	86	83↓
Note : All values are in Leq dB(A), NM= not monitored at the location, ID = indicates Insufficient data						

(B) Automatic: Time: 06.00 a.m. to 06.00 a.m.

The sound level monitoring was carried out for pre-Deepawali days for four years starting from 2014. The data is tabulated at table: 2a. The data shows increasing trend as compared to 2016. At ITO station, there was increase in both day and night time values.

Table 2(a): Online Ambient Noise Level data during **Pre-Deepawali (2014-2017)**											
S. No.	Monitoring Stations	Pre-Deepawali Day								Standards	
		15.10.2014		05.11.2015		24.10.2016		12.10.2017			
		Day Time	Night Time	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time
1	Anand Vihar (C)	-	-	68	63	66	62	68↑	64↑	65	55
2	Punjabi Bagh (R)	-	-	60	55	59	49	60↑	59↑	55	45
3	CPCB HQ (C)	66	53	67	57	66	57	66=	56↓	65	55
4	Civil Lines (C)	-	-	62	60	61	59	61=	57↓	65	55
5	DCE, Bawana (S)	53	46	77	80	54	50	55↑	50=	50	40
6	Dilshad Garden(S)	50	45	53	48	54	49	53↓	53↑	50	40
7	ITO (C)	73	69	74	68	71	66	73↑	68↑	65	55
8	Mandir Marg (S)	-	-	60	46	60	45	55↓	46↑	50	40
9	NSIT, Dwarka (S)	55	55	56	52	57	53	57=	54↑	50	40
10	R.K. Puram (S)	-	-	63	52	61	51	60↓	52↑	50	40
Note : All values are in Leq dB(A)											

The sound level monitoring was carried out for Deepawali days for last four years starting from 2014. The data is tabulated at table: 2b. The data shows declining trend at all locations, as compared to 2016 except at ITO. The sound level data on Deepawali day monitored during last four years reveals that in 2017 the sound level recorded is the lowest at all stations, even in humid atmospheric conditions.

Table 2(b): Online Ambient Noise Level data during **Deepawali Days (2014-2017)**											
S.No.	Monitoring Stations	Deepawali Day								Standards	
		23.10.2014		11.11.2015		30.10.2016		19.10.2017			
		Day Time	Night Time	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time
1	Anand Vihar (C)	-	-	69	70	68	68	68=	68=	65	55
2	Punjabi Bagh (R)	-	-	66	71	60	58	56↓	54↓	55	45
3	CPCB HQ (C)	69	69	67	68	64	61	64=	59↓	65	55
4	Civil Lines (C)	-	-	64	66	61	62	59↓	60↓	65	55
5	DCE, Bawana (S)	60	63	66	71	56	55	53↓	52↓	50	40
6	Dilshad Garden (S)	65	67	65	67	57	55	53↓	53↓	50	40
7	ITO (C)	79	75	73	70	70	67	71↑	68↑	65	55
8	Mandir Marg (S)	-	-	60	60	54	51	51↓	48↓	50	40
9	NSIT, Dwarka (S)	63	63	63	62	58	57	57↓	57=	50	40
10	R.K. Puram (S)	-	-	67	65	61	57	59↓	53↓	50	40
Note : All values are in Leq dB(A)											

2. Ambient Air Quality

(A)Manual: 06.00 a.m. to 06.00 a.m.

The manual monitoring is being carried out as a routine exercise since 2013. The station-wise data is depicted in following tables.

Table 3(a): Ambient Air Quality Status during Pre-Deepawali & Deepawali Day, **ITO**										
Parameter	Pre-Deepawali day					Deepawali day				
	2013	2014	2015	2016	2017	2013	2014	2015	2016	2017
SO_2	05	05	14	09	07 ↓	11	08	22	16	11 ↓
NO_2	137	85	78	83	87 ↑	52	82	57	77	74 ↓
PM_{10}	412	129	166	203	208 ↑	1097	442	531	878	438 ↓
$PM_{2.5}$	NA	-	NM	104	-	-	323	NM	797	-

Table 3(b): Ambient Air Quality Status during Pre-Deepawali & Deepawali Day, **Pitampura**										
Parameter	Pre-Deepawali day					Deepawali day				
	2013	2014	2015	2016	2017	2013	2014	2015	2016	2017
SO_2	04	04	21	10	13 ↑	18	10	19	16	28 ↑
NO_2	78	45	72	58	73 ↑	31	67	27	43	61 ↑
PM_{10}	380	115	161	368	226 ↓	952	756	460	1297	690 ↓
$PM_{2.5}$	NA	-	117	102	147 ↑	-	678	435	1238	677 ↓

Table 3(c): Ambient Air Quality Status during Pre-Deepawali & Deepawali Day, **Janakpuri**										
	Pre-Deepawali day					Deepawali day				
Parameter	2013	2014	2015	2016	2017	2013	2014	2015	2016	2017
SO_2	04	04	12	16	06 ↓	56	32	18	45	43 ↓
NO_2	51	42	45	71	62 ↓	35	53	25	65	73 ↑
PM_{10}	250	152	119	213	193 ↓	978	648	554	902	706 ↓
$PM_{2.5}$	NA	NA	84	96	109 ↑	-	510	459	842	638 ↓

Table 3(d): Ambient Air Quality Status during Pre-Deepawali & Deepawali Day, **Parivesh Bhawan**										
	Pre-Deepawali day					Deepawali day				
Parameter	2013	2014	2015	2016	2017	2013	2014	2015	2016	2017
SO_2	NM	NM	12	16	06 ↓	NM	NM	36	110	70 ↓
NO_2	NM	NM	45	71	62 ↓	NM	NM	41	141	47 ↓
PM_{10}	NM	NM	119	213	193 ↓	NM	NM	593	1183	628 ↓
$PM_{2.5}$	NM	NM	84	96	109 ↑	NM	NM	474	958	496 ↓

(B) Real Time: 06.00 a.m. to 06.00 a.m.

The data of past 3 years from IHBAS(Dilshad Garden), DMS(Shadipur) and NSIT(Dwarka) were compiled and tabulated in the following tables. The increase or decrease in data for 2017 as compared to 2016 is indicated.

Table 4(a): Air Pollutants Profile (Online) at **IHBAS**, Dilshad Garden during Deepawali Day						
Pollutants	Pre-Deepawali Day			Deepawali Day		
	05.11.15	24.10.16	12.10.17	11.11.15	30.10.16	19.10.17
$PM_{2.5}$	78	119	147↑	192	602	183↓
SO_2	5	5	12↑	9	40	24↓
NO_2	63	85	66↓	64	94	54↓
CO	222	1119	1413↑	736	983	1423↑
Ammonia	37	18	57↓	33	27	65↑
Note : All values are in $\mu g/m^3$						

Table 4(b): Air Pollutants Profile (Online) at **DMS**, Shadipur during Deepawali festival						
Pollutants	Pre-Deepawali Day			Deepawali Day		
	05.11.15	24.10.16	12.10.17	11.11.15	30.10.16	19.10.17
$PM_{2.5}$	108	62	123↑	121	474	421↓
SO_2	3	16	12↓	25	94	42↓
NO_2	60	63	25↓	49	102	58↓
CO	333	1148	1383↑	993	1596	1789↑
Ozone	5	24	5↓	39	32	38↑
Note : All values are in $\mu g/m^3$						

Table 4(c): Air Pollutants Profile (Online) at **NSIT**, Dwarka during Deepawali Day						
Pollutants	Pre-Deepawali Day		Deepawali Day			
	05.11.15	24.10.16	12.10.17	11.11.15	30.10.16	19.10.17
$PM_{2.5}$	191	118	79↓	99	457	373↓
SO_2	9	21	8↓	30	11	23↑
NO_2	27	33	43↑	33	35	41↑
CO	980	660	844↑	698	908	1291↑
Ozone	14	40	7↓	16	62	35↓
Benzene	1	1	-	1	2	8↑
Note : All values are in $\mu g/m^3$						

AQI status of Delhi

(1st Jan 2016 -19th Oct 2017)

Months	Good (0–50)		Satisfactory (51–100)		Moderate (101–200)		Poor (201–300)		Very Poor (301–400)		Severe (>401)	
	2016	2017	2016	2017	2016	2017	2016	2017	2016	2017	2016	2017
JAN	*	*	*	*	*	2	2	9	23	20	6	*
FEB	*	*	*	*	*	2	13	22	15	4	1	*
MAR	*	*	*	*	7	13	16	18	4	*	*	*
APR	*	*	*	*	0	13	25	12	5	5	*	*
MAY	*	*	*	*	7	7	19	17	5	7	*	*
JUN	*	*	*	1	15	19	12	10	2	*	*	*
JUL	*	2	6	17	15	12	4	*	*	*	*	*
AUG	*	*	17	18	13	13	*	*	*	*	*	*
SEP	*	*	1	9	24	18	5	3	*	*	*	*
OCT	*	*	*	*	4	5	14	10	*	3	*	*
Sum	0	2	24	45	85	104	110	101	54	39	7	0

AQI DATA OF DEEPAWALI PERIOD, DELHI STATIONS

Date → / Name of Stations ↓	09.11.2015	10.11.2015	11.11.2015	12.11.2017	13.11.2015
DMS	283	311	214	355	342
NSIT	219	259	185	286	297
IHBAS	-	-	259	327	364
Mandir Marg	339	408	362	386	436
Anand Vihar	455	494	460	410	498
R.K. Puram	358	415	406	398	438
Punjabi Bagh	392	443	403	411	466
Average	341	388	327	368	406
Note: Based on Static AQI Values					

Date → / Name of Stations ↓	28.10.2016	29.10.2016	30.10.2016	31.10.2016	01.11.2016
DMS	409	484	471	384	266
NSIT	345	367	393	413	358
IHBAS	385	428	427	383	399
Mandir Marg	335	392	397	415	428
Anand Vihar	475	474	455	468	493
R.K. Puram	419	410	401	468	434
Punjabi Bagh	411	446	441	445	451
Average	397	429	426	425	404
Note: Based on Static AQI Values					

Date → / Name of Stations ↓	15.10.2017	16.10.2017	17.10.2017	18.10.2017	19.10.2017
DMS	352	361	305	335	362
NSIT	313	348	302	343	318
IHBAS	291	304	236	261	246
Mandir Marg	276	288	239	293	318
Anand Vihar	369	400	419	401	397
R.K. Puram	340	352	319	350	366
Punjabi Bagh	296	340	288	335	356
ITO	293	308	329	-	324
DTU	-	-	319	347	359
Siri Fort	289	314	331	331	331
Lodhi Road	249	272	239	277	302
CRRI	332	333	295	327	347
Pusa	241	253	226	257	255
Burari Crossing	241	253	226	222	298
Aya Nagar	190	198	212	229	285
North Campus	327	337	328	333	328
IGI Airport	273	247	-	301	356
Average	292	307	288	309	326
Note: Based on Static AQI Values					

Observation: From year 2015—2017; the range of AQI values are in between 326-426 during Deepawali Days.

Good (0–50)	Satisfactory (51–100)	Moderate (101–200)	Poor (201–300)	Very Poor (301–400)	Severe (>401)

Comparison of AQI Values October 2016 & 2017 of Delhi

MONTHS	Oct-2016	Oct-2017
Dates	AQI Index Values	AQI Index Values
1	246	196
2	182	169
3	199	159
4	293	219
5	126	212
6	216	182
7	252	195
8	252	247
9	234	277
10	192	254
11	283	279
12	223	268
13	214	285
14	225	No Data
15	276	289
16	262	290
17	251	306
18	285	302
19	246	319
AVERAGE	230	235
Note: Based on daily AQI Bulletin		

Good (0–50)	Satisfactory (51–100)	Moderate (101–200)	Poor (201–300)	Very Poor (301–400)	Severe (>401)

Overall Observation

The minimum mixing height on 18th and 19th (Deepawali day) October were 150 m and 85 m respectively. The maximum values observed during the same days were recorded as 1579 m and 1388 m thus average mixing heights recorded on pre-Deepawali and Deepawali days are 547 m and 481 m respectively. The mean wind speed on Deepawali day in this year was ranging in between 0.57 to 0.71 m/s on near to ground level, while at 30 m height (Parivesh Bhawan) the average wind speed was recorded as 1.6 m/sec. The same was 1.3 m/sec last year at Parivesh Bhawan. The Relative Humidity recorded on Deepawali day is 47.1 % (Average) and ranged between 31.3 to 66.7 %. On previous day (18.10.2017) the Relative Humidity was recorded as 47.2 % and ranged between 26.7 to 66.5 %.

The Deepawali monitoring data and meteorological profile shows that inspite of non-favorable meteorological conditions, the air quality on the Deepawali this year has shown an improvement over last year, 2016. The air quality was not so good during previous two days of Deepawali, due to intrusion of humid air from the SE coupled with prevailing calm wind conditions. Although, the sky was clear all the days, however, the mixing height was found to be lower as anticipated, mostly due to increase in the density of air, and lower vertical temperature profile restricting the dispersion and thus the level of pollutants has increased significantly in all places irrespective of parameters attributed to unfavorable meteorological conditions during the entire period. Lower mixing height attributes to lesser vertical distribution of pollutants. Lower temperature coupled with lesser wind speed attributes to stagnation of pollutants.

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