GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

LOK SABHA
UNSTARRED QUESTION No. 128
TO BE ANSWERED ON 21.06.2019

Increase in Level of Particulate Matter

128. SHRI DEEPAK BAIJ

Will the Minister of ENVIRONMENT, FOREST AND CLIMATE CHANGE be pleased to state:

(a) Whether the Particulate Matter (PM) 2.5 level is increasing very fast in various cities of the country including Delhi and if so, the details thereof;
(b) Whether the results of the steps taken to reduce the high level of air pollution are satisfactory and if so, the details thereof;
(c) Whether several people have died because of air pollution, if so, the details of such deaths reported during the last five years; and
(d) The extent to which the air pollution is more than the stipulated norms in the metropolitan cities of the country along with its harmful effect on human health?

ANSWER
MINISTER FOR ENVIRONMENT, FOREST AND CLIMATE CHANGE
(SHRI PRAKASH JAVADEKAR)

(a) The ambient air quality data for metropolitan cities / million plus urban agglomerations during 2016- 2018 is given in **Annexure-I**. With respect to $PM_{2.5}$, trends are available for 17 cities and out of which, 08 cities showed an increasing trend, 04 cities showed a decreasing concentration, 05 cities showed a fluctuating trend.

(b) The measures taken by the Government to control pollution and improve the air quality inter alia, include setting up of monitoring network for assessment of ambient air quality; launching of National Air Quality index; notification of Graded Response Action Plan for different levels of air pollution in Delhi and NCR; leapfrogging from BS-IV to BS-VI fuel standards since 1st April, 2018 in NCT of Delhi and from by 1st April, 2020 in the rest of the country; introduction of cleaner / alternate fuels like gaseous fuel (CNG, LPG etc.), ethanol blending; etc. The Central Government has also notified a Comprehensive Action Plan (CAP) identifying timelines and implementing agency for actions identified for prevention, control and mitigation of air pollution in Delhi and NCR. The Central Government has launched National Clean Air Programme (NCAP) as a long-term, time bound national level strategy to tackle the increasing air pollution problem across the country in comprehensive manner.

Ambient air quality data of Delhi monitored under Continuous Ambient Air Quality Monitoring Stations (CAAQMS (real time)) during 2016-2018 is enclosed at **Annexure-II**. Analysis of data revealed that, there is 14.8% reduction in PM2.5 levels and 16.5% reduction in PM10 levels in 2018 over 2016.

(c) Though air pollution is one of the triggering factors for respiratory ailments and associated diseases, there are no conclusive data available in the country to establish direct correlation of death/ disease exclusively due to air pollution.

(d) The ambient air quality data for metropolitan cities / million plus urban agglomerations during 2016- 2018 is given in **Annexure-I**. Analysis of data revealed that SO_2 levels were within the National Ambient Air Quality Standard (NAAQS) in all 50 cities during 2016-18. With respect to NO_2, 17 cities showed an increasing trend, 16 cities showed a decreasing concentration, 16 cities showed a fluctuating trend and 1 city revealed steady concentration. With respect to PM_{10}, 14 cities showed an increasing trend, 14 cities showed a decreasing concentration, 22 cities showed a fluctuating trend. Details of harmful effect of air pollution on human health are given at **Annexure-III.**

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Annexure-I

Air quality status of million plus/ urban agglomerations cities for 2016, 2017 and 2018 under NAMP (Manual)

(Annual average in µg/m^3)

Sl.No	State	Sl.No	City	2016				2017				2018			
				SO_2	NO_2	PM_{10}	$PM_{2.5}$	SO_2	NO_2	PM_{10}	$PM_{2.5}$	SO_2	NO_2	PM_{10}	$PM_{2.5}$
1.	Andhra Pradesh	1.	Vijaywada	6	44	102	-	6	29	99	-	5	21	77	29
		2.	Vishakhapatnam	8	18	77	-	9	17	73	-	10	20	77	49
2.	Bihar	3.	Patna	4	32	212	-	5	39	156	-	5	51	207	
3.	Chandigarh	4.	Chandigarh	2	21	105	123	2	16	109	64	2	17	102	50
4.	Chattisgarh	5.	Durg-Bhillainagar	9	23	108	-	8	21	97	-	8	19	84	-
		6.	Raipur	12	31	148		10	27	103		14	20	65	
5.	Delhi	7.	Delhi	7	66	278	118	7	68	241	106	6	73	223	121
6.	Gujarat	8.	Ahmedabad	14	27	108	34	14	29	120	38	16	29	236	73
		9.	Rajkot	13	21	92	32	16	22	106	37	19	23	203	64
		10.	Surat	13	22	92	31	16	26	106	36	22	29	176	57
		11.	Vadodara	14	23	92	30	16	23	108	36	20	25	188	60
7.	Haryana	12.	Faridabad	-	-	-	-	-	-	-	-	-	-	-	-
8.	Jammu & Kashmir	13.	Srinagar	-	-	-	-	-	-	-	-	-	-	153	-

9.	Jharkhand	14.	Dhanbad	15	37	226	-	15	37	238	-	14	37	264	-
		15.	Jamshedpur	36	45	136	-	36	45	131	-	37	46	128	-
		16.	Ranchi	20	37	196	-	19	37	142	-	18	36	122	-
10.	Karnataka	17.	Bangalore	3	31	103	51	2	31	92	46	2	30	90	47
11.	Kerala	18.	Kochi	2	20	48	-	2	19	51	-	3	16	57	-
		19.	Kollam	4	8	46	-	3	6	43	-	3	5	47	-
		20.	Kozhikode	2	18	51	-	2	18	47	-	2	10	54	6
		21.	Malapuram	2	17	37	-	2	21	32	-	2	26	31	-
		22.	Thiruvananthapuram	10	25	53	-	10	26	49	-	9	24	49	-
		23.	Thissur	2	5	54	-	2	5	56	-	3	9	41	-
12.	Madhya Pradesh	24.	Bhopal	3	15	89	27	4	15	93	41	7	14	135	59
		25.	Gwalior	10	14	96	52	10	17	110	47	13	21	134	62
		26.	Indore	11	20	95	54	11	21	80	43	10	19	88	41
		27.	Jabalpur	10	23	71	32	10	21	74	23	7	17	119	43
13.	Maharashtra	28.	Aurangabad	14	39	92	-	10	33	83	-	13	35	70	-
		29.	Mumbai	6	30	119	-	3	18	151	40	2	21	166	46
		30.	Nagpur	16	26	118	-	9	27	102	-	10	28	103	44
		31.	Nashik	13	27	85	-	12	22	81	-	12	21	85	-
		32.	Pune	28	78	107	-	21	65	102	-	37	75	106	-
		33.	Thane	18	60	122	-	18	47	125	-	17	44	108	-
		34.	Vasai-virar	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
14.	Punjab	35.	Amritsar	12	29	194	-	11	27	168	-	13	34	177	-

		36.	Ludhiana	11	25	139	-	10	28	162	-	9	32	162	-
15.	Rajasthan	37.	Jaipur	8	33	199	-	8	30	177	-	8	32	165	-
		38.	Jodhpur	6	23	168	-	6	21	180	-	7	24	223	-
		39.	Kota	7	30	109	-	8	28	130	-	7	28	152	-
16.	Tamilnadu	40.	Chennai	10	18	65	25	9	17	62	32	9	16	78	34
		41.	Coimbatore	6	24	59	35	5	26	49	34	6	23	54	32
		42.	Madurai	15	24	76	38	14	23	67	30	12	20	84	34
		43.	Trichy	12	20	95	27	12	20	86		17	23	110	53
17.	Telangana	44.	Hyderabad	5	27	101	49	6	28	108	54	5	30	105	55
18.	Uttar Pradesh	45.	Agra	5	22	198	-	4	19	185	124	4	22	209	106
		46.	Allahabad	4	37	196	-	4	40	140	-	4	45	231	-
		47.	Ghaziabad	15	28	235	-	22	34	280	-	21	43	245	103
		48.	Kanpur	7	39	217	-	7	45	224	-	7	47	218	-
		49.	Lucknow	8	27	214	-	8	26	246	102	7	30	217	108
		50.	Meerut	7	55	157	-	7	52	153	-	7	58	177	-
		51.	Varanasi	11	32	256	-	10	38	244	-	9	34	189	-
19.	West Bengal	52.	Asansol	13	42	211	88	12	37	163	67	13	35	146	58
		53.	Kolkata	4	49	113	70	6	41	120	71	6	44	148	86

NB. NA- no monitoring station in the city, '-' data not available, National Ambient Air Quality Standard (NAAQS) for Residential, Industrial, Rural and others Areas (Annual average) for SO_2 = 50 µg/m^3, NO_2 = 40 µg/m^3, PM_{10} = 60 µg/m^3 & $PM_{2.5}$ = 40 µg/m^3 and SO_2 = 20 µg/m^3, NO_2 = 30 µg/m^3, PM_{10} = 60 µg/m^{3}and $PM_{2.5}$ = 40 µg/m^3 for Ecologically sensitive area. The data furnished in the table for year 2018 is as available on date.

Annexure – II

Annual Average Values of CAAQMS Stations in Delhi		
Year	**PM2.5 in µg/m^3**	**PM10 in µg/m^3**
2016	135	291
2017	124	266
2018	115	243
Percentage Reduction in 2018 compare to 2016	**14.8**	**16.5**
Percentage Reduction in 2018 compare to 2017	**7.3**	**8.6**
Percentage Reduction in 2017 compare to 2016	**8.1**	**8.6**

Annexure-III

Pollutant	Effects	
	Human / flora / fauna	**Environment & Property**
Sulphur dioxide (SO_2)	• respiratory illness • visibility impairment • aggravate existing heart and lung diseases	• acid rain • aesthetic damage
Oxides of Nitrogen (NOx)	• irritates the nose and throat • increase susceptibility to respiratory infections	• Precursor of ozone formed in the troposphere • Form atmospheric fine particulate matter burden as a result of oxidation to form nitrate aerosol
Particulate Matter (PM_{10})	• cardio-pulmonary problems • asthma, bronchitis, and pneumonia in older people	Visibility reduction
Particulate Matter ($PM_{2.5}$)	• oxidative stress • respiratory symptoms such as irritation of the airways, coughing, or difficulty breathing • decreased lung function • aggravated asthma • chronic bronchitis • irregular heartbeat cardio-pulmonary disorder • premature death in people with heart or lung disease	• aesthetic damage • visibility reduction