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Impact of Lockdown on Atmospheric Particulate Matter (PM2.5 and PM10) Levels: A Case Study of New Delhi

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Abstract
The corona virus (COVID-19) pandemic has affected the entire human race. India as well as the entire world has been bearing the brunt of this pandemic for the last few months. In order to control the spread of coronavirus infection, a complete lockdown was declared on March 25, 2020 across the country. Our environment showed a positive recovery indirectly amidst many of the difficulties caused by the lockdown. The top Indian cities, which have a track record of the worst air quality worldwide, also showed an unexpected gain in their air quality amid lockdown. The government-imposed lockdown had a secondary effect in many areas of the country where significant reduction in air pollution levels was recorded. In the present paper, scientific analysis of the level of selected pollutants (PM2.5 and PM10) in the residential areas of Ashok Vihar in New Delhi during the last one year has been done. In addition, the levels of other important pollutants (PM2.5 and PM10, NO_2, NH_3, CO, and CO_2) in the air during the lockdown and post lockdown have also been studied. Based on the quantitative analysis of this study, the following conclusions have been made (1) Human-related activities are associated with the air quality. (2) Reduction in air pollution was associated with travel restrictions during this pandemic - on average, the Air Quality Index was found to be 35.33 percent lower before lockdown and during lockdown and selected air pollutants (PM2.5 and PM10) recorded a decrease of 40.7 percent and 41.60 percent before lockdown and during lockdown respectively. (3) The findings emphasize the importance of the role of green production and consumption. This temporary decline in air pollution as a result of the lockdown will be difficult to maintain after the process of unlock, where people will return to work and economic activities will resume. Stringent measures like lockdown can be a contingency option in the future to control air pollution and save mankind from several unseen health related ailments.
Key words: COVID-19, Lockdown, PM2.5, PM10, Pollution, National air quality index

Introduction

Pollution means the addition of undesirable elements in Earth's environment that hinders the quality of human health, quality of life or ecosystem. Major forms of pollution include water pollution, air pollution, noise pollution and Soil pollution. The Delhi or National Capital Territory is jointly administered by the Centre and the State Governments. About 11.03 crore people live in it [1]. New Delhi is the second largest metropolis in the world. The city is the largest contributor of urban population in India. New Delhi's population is growing at an annual rate of 3.76%. Uncontrolled urban development, increasing industrialization and impact of unprecedented population in New Delhi have given serious form to environmental pollution. Pollution from vehicles is an important contribution in Delhi's air pollution. The most obvious result of this is the deterioration of air quality. Air pollution is an important and responsible factor for 40% of ischemic heart disease, 40% stroke, 11% chronic resistant pulmonary disease, 6% lung

cancer and 3% of acute respiratory infections in children. A study conducted on Delhi's air pollution and mortality found that mortality and morbidity increased with increased air pollution [2]. PM2.5 and PM10 standard in air pollution is usually used to measure air quality. The PM10 standard includes 10 am or less diameter (0.0004 inch or seventh part of a human hair width) [3]. PM2.5 refers to atmospheric particles that have a diameter less than 2.5 micrometers. This is about 3 percent of our hair diameter. PM2.5 class particles are so small that they can only be seen with the help of electron microscope. These small particles are likely to be responsible for adverse health effects due to their ability to reach the lower areas of respiratory tracts [4]. Along with the whole world, the Coronavirus (Covid-19) omnipresent epidemic has influenced the lives of population across the country for the last three months. In an attempt to slow down the spread of Coronavirus infection, a complete lockdown was done with banning all commercial and industrial activities across the country. A nationwide lockdown was set up on 25 March 2020 across India to prevent the transition of Coronavirus. Globally such a step was seen as the first and largest quarantine in human history. The most important of the scientific reasons behind stopping human mobility, production and consumption activities was to prevent the virus from being transmitted from infected individuals to healthy individuals. The quality of our environment and life has been greatly improved amidst the many difficulties caused by the lockdown. This step of the government had a secondary effect in many areas of the country where a significant decrease in air pollution levels was recorded. This research paper is based on the observations recorded before lockdown, after lockdown, during lockdown and for the last one year in Ashok Vihar, New Delhi.

Materials and Methods

For this study, the data was collected on various air pollutants of selected area (Ashok Vihar) of Delhi. The data was downloaded of 05 important pollutants (PM2.5 and PM10, NO_2, NH_3, Co, and CO_2) through the online system of the Central Pollution Control Board. The data of PM2.5 and PM10 concentrations for one year has been used in this research paper. All the data collected was analyzed by the simple tail method using Excel-2010. It has also been consulted from various scientific publications, scientific reports, experts' opinions and interviews of experts, local and national newspapers through local and national newspapers in this research letter. In the research paper presented, the air quality of Ashok Vihar has been studied, a region selected from the capital of India, New Delhi, (25-06-2019 to 27-06-2020). The levels of the PM2.5 and PM10 involved in air pollution were analyzed for the selected area, before and after the lockdown. After studying the effects of (unlock -1), We have analyzed the levels of PM2.5 and PM10 based on the National Air Quality Index, NAQI in which air quality patterns are easily displayed by different colours (Table 1 &2).

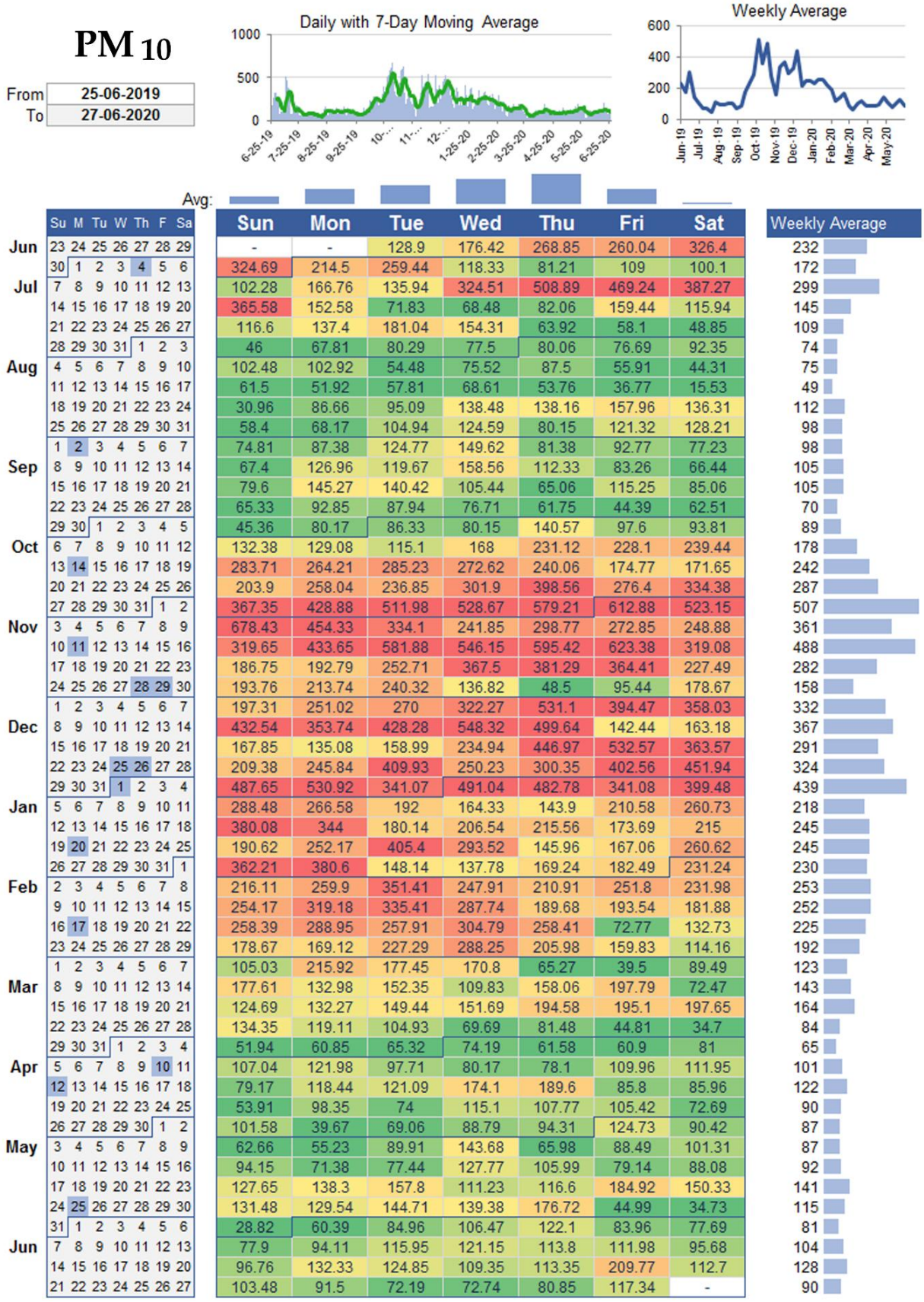
Observations and Results

Research results are presented by Table -01 and Table -02. It is clear from the observation of Table -01 that due to the lockdown, the weekly average of PM2.5 concentrations has decreased due to which the improvement of air quality improvement is reflected. In the concentration of PM2.5, a decrease of 40.44% was recorded in the first week of the lockdown, which continued to decrease. After the lockdown, the first week of the Unlock -01 saw a jump of 14.58% in PM2.5 concentrations in the first week of Unlock -01 itself. The observation of the data presented proves that the lockdown contributes to the improvement of air quality (Table -01). From Table -02, it is also clearly showed that in the first week of the lockdown, a tremendous decrease of 48.78% in PM10 concentrations was observed. This decrease in PM10 concentrations was recorded continuously for the last week of the lockdown, but this decline was stopped with the unlock and an increase in PM10 concentrations was recorded. The results obtained have demonstrated that the concentrations of selected pollutants PM2.5 and PM10 during lockdown decreased significantly. In the concentrations of

major air pollutants like PM2.5, PM10, NO_2, NH_3, CO, and CO_2 at Ashok Vihar Monitoring Station, before lockdown in concentrations and during lockdown (01 March 2020 to 21 March 2020 and 25 March 2020 to 31 May 2020 35.39, 31.55, 54.23, 0.47, 92.0 and 10.34% were seen on the basis of daily average. And the quantity of CO_2 (25 March 2019 to 31 May 2019 and 25 March 2020 to 31 May 2020) 47.37, 56.16, 67.34, 18.05, 56.92 and 38.3% has been reduced. If done, the quality of air can be improved. At the same time, the implementation of temporary options like lockdown can greatly improve air quality and in future it behaves as an alternative remedy to reduce air pollution in future can be brought in [5]. The study of tables also showcased that the concentrations of the pollutants can also fluctuate with intercourse inequality. For example, the monsoon months in the Indian subcontinent (June to September) and PM10 concentrations are much lower than other months of the year [6]. According to the National Air Index-2014 in the tables, the effect of the number of pollutants present in the ambient air is depicted by different colours, including 0 to 30 good (green), medium from 31 to 60, 61 to 90, 61 to 90 Unhealthy (orange) for a sensitive group, 91 to 120, unhealthy (brown), 121 to 250 is very unhealthy (blue) and more than 250 are considered dangerous (red).

	Su	M	Tu	W	Th	F	Sa	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Weekly Average
Jun	23	24	25	26	27	28	29	-	-	50.94	69.85	69.35	57.62	56.04	61
	30	1	2	3	4	5	6	58.54	51.02	64.15	31.67	29.65	47.54	28.15	44
Jul	7	8	9	10	11	12	13	38.53	43.78	36.23	70.15	76.52	69.56	56.73	56
	14	15	16	17	18	19	20	52.96	32.77	24.6	28.25	28.08	60	43.44	39
	21	22	23	24	25	26	27	50.92	67.69	91.08	56	19.98	23.98	25.69	48
	28	29	30	31	1	2	3	15.44	22.81	28.48	26.31	26.67	25.85	45.83	27
Aug	4	5	6	7	8	9	10	50.5	50.25	27.65	32.35	28.81	8.19	11.87	30
	11	12	13	14	15	16	17	17.67	14.12	16.77	30.93	21	13.71	5.73	17
	18	19	20	21	22	23	24	12.98	37.25	37.6	38.28	41.41	47.81	53.02	38
	25	26	27	28	29	30	31	27.75	25.69	39.35	42.02	25.96	49.83	56.06	38
	1	2	3	4	5	6	7	30.21	39.8	58.28	70.88	27.17	36	29.23	42
Sep	8	9	10	11	12	13	14	25.81	51.48	54.4	74.9	49.46	30.2	24.85	44
	15	16	17	18	19	20	21	39.12	58.08	57.15	32.46	18.15	43.73	35.71	41
	22	23	24	25	26	27	28	24.73	39.77	31.85	29.79	21.58	12.15	24.72	26
	29	30	1	2	3	4	5	13.82	30.04	28.93	32.96	63.97	44.75	38.19	36
Oct	6	7	8	9	10	11	12	59.1	51.08	47.31	73.52	115.83	110.23	115.46	82
	13	14	15	16	17	18	19	151.23	126.62	143.96	149.06	122.56	78.12	83.93	122
	20	21	22	23	24	25	26	109.65	133.12	102.9	140.6	227.9	144.06	188.27	150
	27	28	29	30	31	1	2	258.78	304.26	348.69	328.58	385.65	418.88	393.12	348
Nov	3	4	5	6	7	8	9	605.26	378.91	223.98	114.48	203.65	165.81	160.12	265
	10	11	12	13	14	15	16	223.62	303.45	473.67	418.11	421.33	473.16	189.67	358
	17	18	19	20	21	22	23	109.67	120.56	153.94	229.83	252.23	226.1	128.12	174
	24	25	26	27	28	29	30	118.31	125.85	123.73	70.23	31.32	58.83	122.35	93
	1	2	3	4	5	6	7	142.65	164.98	163.98	200.5	366.23	275.02	256.01	224
Dec	8	9	10	11	12	13	14	302.8	234.05	291.68	387.67	353.44	117.99	108.61	257
	15	16	17	18	19	20	21	116.29	98.29	117.75	170.9	328.22	396	273.44	214
	22	23	24	25	26	27	28	162.9	188.17	278.92	165.69	210.06	272.62	287.98	224
	29	30	31	1	2	3	4	329.06	380.79	280.23	385.33	376.29	235.42	282.73	324
Jan	5	6	7	8	9	10	11	195.35	169.35	141.65	144.8	102.27	142.19	166.65	152
	12	13	14	15	16	17	18	240.25	242.27	133.85	134.44	165.62	128.12	144.73	170
	19	20	21	22	23	24	25	139.5	175.19	276.53	206.83	81.35	96.23	160.19	162
	26	27	28	29	30	31	1	249.27	263.44	117.38	91.96	105.56	114.44	139.92	155
Feb	2	3	4	5	6	7	8	146.27	159.17	214.92	154.55	135.68	155.68	164.76	162
	9	10	11	12	13	14	15	171.3	202.96	200.23	175.02	100.75	83.77	87.94	146
	16	17	18	19	20	21	22	160.88	165.73	133.67	154.96	109.38	48.29	72.5	121
	23	24	25	26	27	28	29	104.38	83.23	142.5	163.98	118.46	88.79	62.39	109
	1	2	3	4	5	6	7	56.52	109.1	80.92	82.71	39.23	23.27	None	65
Mar	8	9	10	11	12	13	14	None	109.13	95.81	65.47	73.64	68.79	55.2	78
	15	16	17	18	19	20	21	82.73	74.08	85.27	77.71	113.73	96.09	96.39	89
	22	23	24	25	26	27	28	86.46	67.21	65.37	41.14	58.33	27.98	25.07	53
	29	30	31	1	2	3	4	31.17	38.34	37.2	45.29	32.9	34.62	51.88	39
Apr	5	6	7	8	9	10	11	67.94	70.79	31.69	30.12	38.6	64.77	60.73	52
	12	13	14	15	16	17	18	38.71	63.48	57.23	59.91	80.9	24.67	28.1	50
	19	20	21	22	23	24	25	31.91	64.02	42.61	70.67	59.75	66.4	24.85	51
	26	27	28	29	30	1	2	42.48	24.75	39.93	52.21	51.48	62.08	32.69	44
May	3	4	5	6	7	8	9	32.65	33.1	55.19	64.83	36.3	47.42	54.4	46
	10	11	12	13	14	15	16	41.96	42.25	46.96	72.6	65.7	49.49	57.19	54
	17	18	19	20	21	22	23	87.65	97.78	108.89	59.25	44.02	120.97	63.43	83
	24	25	26	27	28	29	30	51.31	57.95	44.39	37.28	31.77	23.34	23.89	39
	31	1	2	3	4	5	6	30	49.37	40.05	58.77	77.05	43.96	34.31	48
Jun	7	8	9	10	11	12	13	36.79	52	58.57	53.54	62.52	69.18	54.88	55
	14	15	16	17	18	19	20	65.07	53.46	35.58	32.21	37.42	49.52	29.83	43
	21	22	23	24	25	26	27	43.04	53.65	25.49	26.46	32.75	73.18	-	42

Table -01: - Average PM2.5 concentrations daily (24 hours) during the period from June 2019 to June 2020 at Ashok Vihar, New Delhi.



	Su	M	Tu	W	Th	F	Sa	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Weekly Average
Jun	23	24	25	26	27	28	29	-	-	128.9	176.42	268.85	260.04	326.4	232
	30	1	2	3	4	5	6	324.69	214.5	259.44	118.33	81.21	109	100.1	172
Jul	7	8	9	10	11	12	13	102.28	166.76	135.94	324.51	508.89	469.24	387.27	299
	14	15	16	17	18	19	20	365.58	152.58	71.83	68.48	82.06	159.44	115.94	145
	21	22	23	24	25	26	27	116.6	137.4	181.04	154.31	63.92	58.1	48.85	109
	28	29	30	31	1	2	3	46	67.81	80.29	77.5	80.06	76.69	92.35	74
Aug	4	5	6	7	8	9	10	102.48	102.92	54.48	75.52	87.5	55.91	44.31	75
	11	12	13	14	15	16	17	61.5	51.92	57.81	68.61	53.76	36.77	15.53	49
	18	19	20	21	22	23	24	30.96	86.66	95.09	138.48	138.16	157.96	136.31	112
	25	26	27	28	29	30	31	58.4	68.17	104.94	124.59	80.15	121.32	128.21	98
	1	2	3	4	5	6	7	74.81	87.38	124.77	149.62	81.38	92.77	77.23	98
Sep	8	9	10	11	12	13	14	67.4	126.96	119.67	158.56	112.33	83.26	66.44	105
	15	16	17	18	19	20	21	79.6	145.27	140.42	105.44	65.06	115.25	85.06	105
	22	23	24	25	26	27	28	65.33	92.85	87.94	76.71	61.75	44.39	62.51	70
	29	30	1	2	3	4	5	45.36	80.17	86.33	80.15	140.57	97.6	93.81	89
Oct	6	7	8	9	10	11	12	132.38	129.08	115.1	168	231.12	228.1	239.44	178
	13	14	15	16	17	18	19	283.71	264.21	285.23	272.62	240.06	174.77	171.65	242
	20	21	22	23	24	25	26	203.9	258.04	236.85	301.9	398.56	276.4	334.38	287
	27	28	29	30	31	1	2	367.35	428.88	511.98	528.67	579.21	612.88	523.15	507
Nov	3	4	5	6	7	8	9	678.43	454.33	334.1	241.85	298.77	272.85	248.88	361
	10	11	12	13	14	15	16	319.65	433.65	581.88	546.15	595.42	623.38	319.08	488
	17	18	19	20	21	22	23	186.75	192.79	252.71	367.5	381.29	364.41	227.49	282
	24	25	26	27	28	29	30	193.76	213.74	240.32	136.82	48.5	95.44	178.67	158
	1	2	3	4	5	6	7	197.31	251.02	270	322.27	531.1	394.47	358.03	332
Dec	8	9	10	11	12	13	14	432.54	353.74	428.28	548.32	499.64	142.44	163.18	367
	15	16	17	18	19	20	21	167.85	135.08	158.99	234.94	446.97	532.57	363.57	291
	22	23	24	25	26	27	28	209.38	245.84	409.93	250.23	300.35	402.56	451.94	324
	29	30	31	1	2	3	4	487.65	530.92	341.07	491.04	482.78	341.08	399.48	439
Jan	5	6	7	8	9	10	11	288.48	266.58	192	164.33	143.9	210.58	260.73	218
	12	13	14	15	16	17	18	380.08	344	180.14	206.54	215.56	173.69	215	245
	19	20	21	22	23	24	25	190.62	252.17	405.4	293.52	145.96	167.06	260.62	245
	26	27	28	29	30	31	1	362.21	380.6	148.14	137.78	169.24	182.49	231.24	230
Feb	2	3	4	5	6	7	8	216.11	259.9	351.41	247.91	210.91	251.8	231.98	253
	9	10	11	12	13	14	15	254.17	319.18	335.41	287.74	189.68	193.54	181.88	252
	16	17	18	19	20	21	22	258.39	288.95	257.91	304.79	258.41	72.77	132.73	225
	23	24	25	26	27	28	29	178.67	169.12	227.29	288.25	205.98	159.83	114.16	192
	1	2	3	4	5	6	7	105.03	215.92	177.45	170.8	65.27	39.5	89.49	123
Mar	8	9	10	11	12	13	14	177.61	132.98	152.35	109.83	158.06	197.79	72.47	143
	15	16	17	18	19	20	21	124.69	132.27	149.44	151.69	194.58	195.1	197.65	164
	22	23	24	25	26	27	28	134.35	119.11	104.93	69.69	81.48	44.81	34.7	84
	29	30	31	1	2	3	4	51.94	60.85	65.32	74.19	61.58	60.9	81	65
Apr	5	6	7	8	9	10	11	107.04	121.98	97.71	80.17	78.1	109.96	111.95	101
	12	13	14	15	16	17	18	79.17	118.44	121.09	174.1	189.6	85.8	85.96	122
	19	20	21	22	23	24	25	53.91	98.35	74	115.1	107.77	105.42	72.69	90
	26	27	28	29	30	1	2	101.58	39.67	69.06	88.79	94.31	124.73	90.42	87
May	3	4	5	6	7	8	9	62.66	55.23	89.91	143.68	65.98	88.49	101.31	87
	10	11	12	13	14	15	16	94.15	71.38	77.44	127.77	105.99	79.14	88.08	92
	17	18	19	20	21	22	23	127.65	138.3	157.8	111.23	116.6	184.92	150.33	141
	24	25	26	27	28	29	30	131.48	129.54	144.71	139.38	176.72	44.99	34.73	115
	31	1	2	3	4	5	6	28.82	60.39	84.96	106.47	122.1	83.96	77.69	81
Jun	7	8	9	10	11	12	13	77.9	94.11	115.95	121.15	113.8	111.98	95.68	104
	14	15	16	17	18	19	20	96.76	132.33	124.85	109.35	113.35	209.77	112.7	128
	21	22	23	24	25	26	27	103.48	91.5	72.19	72.74	80.85	117.34	-	90

Table -02: - Average PM10 concentrations daily (24 hours) during the period from June 2019 to June 2020 at Ashok Vihar, New Delhi.

Conclusions

The air pollution is responsible for health problems in the whole world including India [7]. Many studies have made it clear that air pollution has more impact in low income and moderate-income (developing) countries than in high-income (developed) countries [8]. The India is one of the most affected countries of the world by the air pollution; it is the matter of high concern. The major components of air pollution are the environmental substances in our environment, domestic air pollution and ozone pollution in the lowest layer of the atmosphere [9]. Coal used for power generation in India, emissions from industries, construction activities, smoke of brick kilns, transportation, dust of roads etc. are prominent. The level of ambient particles (PM2.5) in India is the highest in the world. Here is the important fact that in addition to benefiting human health, air pollution control in India will be reflected on many aspects of the ecosystem, including the health of animals and plants. As a preventive measure against the Covid-19 omnipotent epidemic, the Central Government ordered a nationwide lockdown on 25 March 2020. Lockdown in the country has been raised several times with gradual discounts in restrictions. Data obtained from the satellite has shown significant decline in particulate matter or aerosol levels after the Covid-19 lockdown in most parts of the country [10]. As a result of lockdown, experts in India have underlined many environmental factors that have emerged as a surprising improvement in low industrial and human activities, air quality, noise pollution, water quality and biodiversity [11]. New Delhi is known for its extreme air pollution level internationally. The current article evaluated the impact of the lockdown to prevent the rapid spread of the Covid-19 omnipotent epidemic in India on the air quality of the national capital city of Delhi, the National Air Quality Index (NAQI) and the concentrations of the leading pollutants. Local factors also affect air quality in India [12]. In India, there is an increase in pollutants in winter season from November to February. During this time local pollutants increase and pollution levels increase during this period. Therefore, to consider the lockdown as an alternative policy measure, it is also necessary to check the seasonal changes of pollutant concentrations with regional meteorological conditions. We have also seen that the significant reduction in the National Air Quality Index has been seen throughout Delhi during the lockdown period. There was a significant improvement in air quality after the start of the lockdown. In the lockdown, the concentration of PM2.5 and PM10 came under the permissible limit in a few days.

Currently unlocked - 3 (from 01 August, 2020 to 31 August, 2020) and unlocked - 4 (updated from September 2020) air pollutants were increased 105.53% on daily average basis. An increase of 103% in the amount of PM 2.5 was also recorded. During the said period, ammonia has been reduced by 9.3% based on daily average as pollutants (this decrease in ammonia can also be due to local atmospheric factors and monsoon activity). Therefore, it is clear that this type of growth in the amount of air pollutants during the unlock makes measures taken during the lockdown more rational.

Clean Air Scheme for India: New direction for clean environment

Air pollution is a serious issue in Indian cities. According to the World Health Organization's report of the year 2018, 14 of the 15 most polluted cities in the world are from India. Many parts of India have high levels of air pollution, so many cities are trying to overcome air pollution crisis. These tasks include strengthening air quality monitoring networks, adopting electric vehicles to reduce pollution from the transport sector, strengthen regulatory compliance and control industrial emissions, etc. Although work is being done on many schemes to reduce air pollution in the country and expected progress has also been recorded in many schemes. The implementation of clean air schemes for the cities of India can only work when there is adequate coordination between clear goals and accountability and concerned government agencies. Due to lack of coordination in the works of various agencies

and lack of accountability of any one, many schemes are not able to land on the ground.

Steps taken by Delhi government to prevent air pollution

Delhi, the capital of India, has become the first state to implement environmental compensation fee. Under this scheme, all new vehicles will have to pay a minimum amount for environmental compensation fee. In addition, the Delhi government has allowed the largest network of e-rickshaws on a large scale. During such weather, in which air pollution is at its peak, arrangements have been made to impose heavy fine for construction works. Delhi is the first state to impose a complete ban on coal. Continuous efforts are being made to widespread the widespread increase of greenery cover here.

There is a lack of centralized database on air quality in relation to air pollution in India, due to which it is difficult to availability and analyzes data for long -term studies. Recent efforts such as the access and availability of long -term datasets from the National Air Quality Monitoring Program Stations are a welcome step, which undoubtedly facilitates working on the subject. In the last two decades, significant improvements have been made in India regarding air quality monitoring, and efforts are underway to further strengthen the national monitoring program with focusing on the establishment of constant environmental air quality monitoring stations in major cities.

Innovative solution for the direction of golden future and sustainable development

The serious problem of air pollution and its associated health threats are now well established through many scientific articles [13]. The National Clean Air Program was launched by the Ministry of Environment Forest and Climate Change to resolve air pollution among the largest global environmental challenges in the country. The target is to reduce the concentrations of PM2.5 and PM10 by 20-30 per cent by 2024 with the aim to curb air pollution and support the clean air program [14]. A clean air project has been started in four Indian cities under this program. The Energy and Resources Institute, Teri in India, along with Swiss Agency for Development and Cooperation, joined the first clean air program in India to improve air quality to improve air quality has announced. The project has been launched in Lucknow and Kanpur in Uttar Pradesh and Pune and Nashik in Maharashtra. Covid-19 lockdown has achieved 95% of the target set by India's clean air program in four major cities [15]. A drastic decline in pollution levels during lockdown gives a lesson in India's air pollution. Management which needs to be included in achieving clean air goals in the country. Air pollution is the biggest threat to the environment and affects everyone. Air pollution is caused by the presence of toxins in the atmosphere, which is mainly generated by human activities. This is the biggest threat to the environment and affects all animals, crops, cities, forests, aquatic ecosystems along with humans. Sometimes it can also occur due to natural phenomena such as volcanic eruptions, dust storm and wildfire, which also reduces air quality. Air pollution is mainly generated from many areas including electricity, transport, industry, residential, construction and agriculture. Many innovative measures have been suggested to deal with the problem of air pollution in India [16]. Some of these measures (1) To develop Moss plant walls (2) The construction of oxygen chamber, in which people can come and breathe in pollution -free air (3) Use of electric cars (4) Vertical Forest City (5) Large Sprinkler etc. are included. Policy and plans are constantly made by the government about these measures. Corona infection has revealed many aspects to us, one of the aspects of those aspects is that the air of India as well as India has become clean due to lockdown.

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