BEFORE THE NATIONAL GREEN TRIBUNAL PRINCIPAL BENCH NEW DELHI

OA NO. 667/2018 (MAHENDRA SINGH VERSUS STATE OF HARYANA AND ORS.) WITH OA NO. 679/2018 (TEJPAL VERSUS STATE OF HARYANA AND ORS.), IN OA NO. 599/2019 (BISHAMBER SINGH VERSUS STATE OF HARYANA AND ORS.)

The next date of hearing is fixed on dated 07.08.2024.

AS PER HON'BLE NGT ORDER DATED 29.04.2024

Date: - 02.08.2024 District: - Mahendragarh (Haryana)

Report regarding estimation of the Carrying Capacity of the Ambient Air Environment of District Mahendragarh in compliance with Hon'ble National Green Tribunal, Principal Bench, New Delhi vide order dated 29.04.2024.

Hon'ble NGT passed the following directions in order dated 29.04.2024: -

"4. Learned Counsel for HSPCB has submitted that the carrying capacity report in respect of Charkhi Dadri is available and that has been placed on record and in respect of District Mahendragarh, the same will be completed and placed on record. Therefore, it is directed that the same be placed on record at least one week before the next date of hearing by email at judicial-ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF".

In compliance of Hon'ble NGT above order dated 29.04.2024, a study based on the background concentration data of air quality collected from manual monitoring stations (MAAQS) has been conducted in the month of July, 2024 and continuous monitoring stations installed (CAAQMS) for the period 01.01.2024 to 31.07.2024.

Accordingly, the following approach was followed for estimating the carrying capacity of ambient air environment in the District Mahendragarh: -

Based on the geographical location of stone crushing units/clusters in Mahendragarh district, the Board has identified majorly ten clusters for ambient air quality assessment and selected one location for manual monitoring in each cluster. It is to mention here that the source monitoring of stone crushing operation and ambient air quality monitoring at one location in each cluster were carried out by Regional Office, HSPCB, Mahendragarh and analysis report issued by HSPCB Laboratory, Gurugram. The locations of the manual monitoring stations are selected as per windrose diagram data considering the wind speed and wind directions. A copy of the windrose pattern is enclosed as **Annexure-1**.

The results of parameters i.e. particulate matter (PM10) as per manual air quality monitoring stations installed in District Mahendragarh are tabulated below: -

Sr. No.	**Cluster Name (Nearby)**	**Location Coordinates (Lat. Long.)**	**Parameter (d) PM10 (ug/m3)**	**Notified standards**
1	Village Kultajpur	28.050533, 76.042583	70	100
2	Village Lutufpur	28.046244, 76.059081	72	100
3	Village Bakhrija-Begopur	27.909294. 76.046117	66	100
4	Village Zerpur	28.322266, 76.085589	68	100
5	Village Garhi	28.426940, 76.111398	75	100
6	Village Gangutana	27.877754, 76.057323	78	100
7	Village Bayal-Panchnota	27.863005, 75.984712	76	100
8	Village Dholera	27.935156, 76.064774	81	100
9	Village Khatoli Ahir	27.965187, 76.083171	68	100
10	Village Jainpur	27.904036, 76.091706	74	100
		Average	**72.80**	**100**

The concentration of PM10, in ambient air assessed via continuous ambient air quality monitoring station installed at Mini Secretariat, Narnaul, District Mahendragarh (28.059756, 76.113412) and the results for the period from January, 2024 to July, 2024 are attached as **Annexure-2** and the same is reproduced in the table as under.

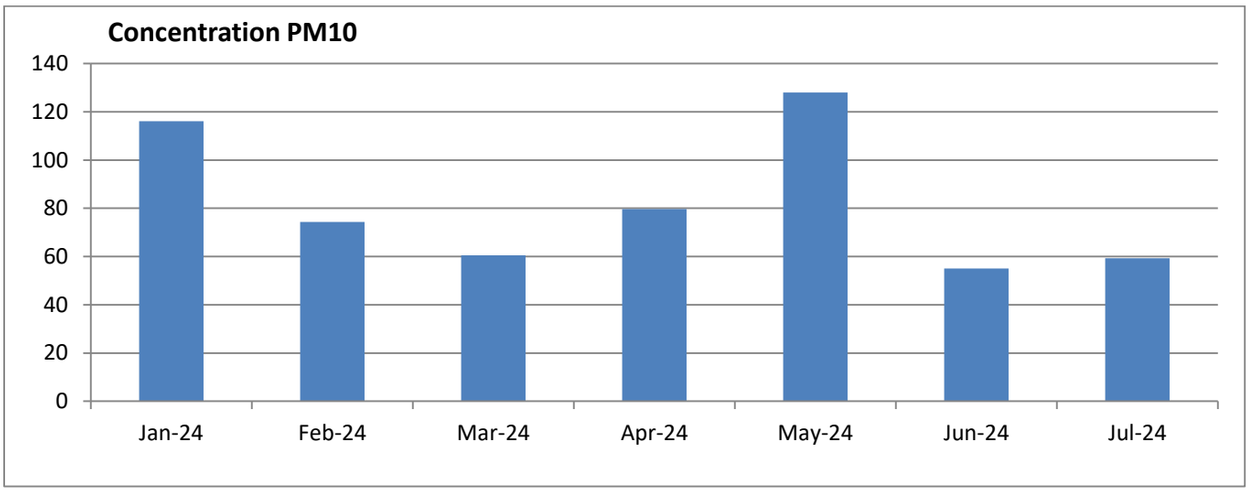


Table depicting PM_{10} concentration from January, 2024 to July, 2024.

The following formulae/equations were used to arrive at the conclusion with regard to available supportive carrying capacity: -

Estimation of total existing PM10 load: Total area in **Km2 : a; 1859 Km2** Average Atmospheric Mixing Height/Depth during a particular period in **Km: b= 0.4483 Km.** Total Volume of Air in the district during a particular period in **Km^3** : a x b = c, C= 1859 x 0.4483 = 833.3897 Km^3 Average PM10 Concentration of Ambient Air in the area for a particular period in **Kg/Km3 : d** Therefore, Total estimated load of particulate matter (PM10) in ambient air of the area during a particular period (**x**): c x d= **x Kg** X (90 percentiles) = 78.30 x 833.3897= 65254.41 kg. X (average PM10 manual) = 72.80 x 833.3897= 60670.77 kg. X (average PM10 CAAQMS) = 82.11 x 833.3897= 68429.63 kg.
Estimation of Assimilative Carrying Capacity w.r.t. PM10: Total Volume of Air in the area during a particular period in **Km3 : c** NAAQS Standard for Particulate Matter (PM10) : **100 µg/m3** i. e. **100 Kg/Km3** Therefore, Assimilative Capacity w.r.t PM10 in ambient air of the area in a particular period (y) : c x 100= **y Kg** Y= 833.3897x100= 83338.97 kg **Estimation of Supportive carrying Capacity w.r.t. PM10:** Supportive Carrying Capacity (**z**) = Assimilative Carrying Capacity (**y**) - Total Estimated Load (**x**)

The average of PM_{10} concentration are used to calculate the total load of PM_{10} load in the district, as a product of predominant PM_{10}, particulate matter concentration and volume of the ambient air upto mixing height, in the district Mahendragarh. In order to estimate the carrying capacity PM10 is considered to be a critical parameter being the prime contributor in Air Quality Index and greatly emitted by those various stone crushing units.

It is also recommended statistically to consider the most prevailing value by determining the 90 percentile when such data of Ambient Air Quality which are spatial in nature with regard to time and space and therefore used for assessment of carrying capacity of Air Environment. The Board has felt the need of estimating the carrying capacity considering the average value of PM10 monitored through manual stations & continuous monitoring system already installed.

- The 90 percentile value of PM_{10} of 10 clusters is found to be 78.30 µg/m3.
- While the average PM10 concentration is 72.8 µg/m3.
- Considering the CAAQMS Data the Average PM10 Concentration is 82.11 µg/m3.
- Thus, pollution load with regard to PM10 concentration of manual monitoring stations taking into account most prevailing 90 percentile concentrations is 65254.41 Kg while with average PM10 concentration is estimated to be 60670.77 Kg.
- Thus, pollution load with regard to PM10 concentration of continuous monitoring stations taking into account average PM10 concentration is estimated to be 68196.28 Kg.
- The above estimates are based on the average mixing height is between 0.4483 Km to 0.6362 Km, the meteorological variable i.e. mixing height is considered from the previous study is taken as 0.4483 Km is used for analysis.
- Total area of the Mahendragarh district is taken as 1859 Km2. (Reference: District Statistical-abstracts, Mahendragarh). Copy of the same is enclosed as **Annexure-3**.
- The national ambient air quality standard (NAAQS) for PM_{10} i.e. 100 µg/m3 and when multiplied by the volume of air in the district Mahendragarh, it provided the average assimilative capacity of the district for the study period.
- The existing pollution load (PM10) estimated for determining the supportive carrying capacity is the sum total of the PM10 emissions from all known and unknown activities/sources having pollution potential.

Supportive carrying capacity of the district Mahendragarh was computed by taking the difference of assimilative carrying capacity of the area & total estimated load of PM_{10} in the district.

Therefore, on the basis the above, the following is the estimation of the carrying capacity: -

Basis	**Pollution Load (kg of PM_{10}) (x)**	**Assimilative Capacity (kg of PM10) (y)**	**Supportive Capacity (kg of PM10) (z)**
90 percentile of PM_{10} concentration manual clusters	65254.41	83338.97	18084.56

Average of PM_{10} concentration manual clusters	60670.77	83338.97	22668.2
Average of PM10 concentration continuous monitoring system (Period January, 2024 to July, 2024)	68429.63	83338.97	14909.34

Therefore, the resultant supportive carrying capacity is dependent on various factors and may not be attributed to a single source. As a result, the criteria governing the setting up of stone crushing units is based on sitting norms and the emission standards as per notification dated 11.05.2016 and amended thereafter.

It may be concluded from the above table, as such there is positive supportive carrying capacity available in the ambient air environment with reference to PM10 for the district Mahendragarh.

Assistant Environment Engineer
HSPCB, Mahendragarh Region

Regional Officer
HSPCB, Mahendragarh Region

Dated: - 02.08.2024

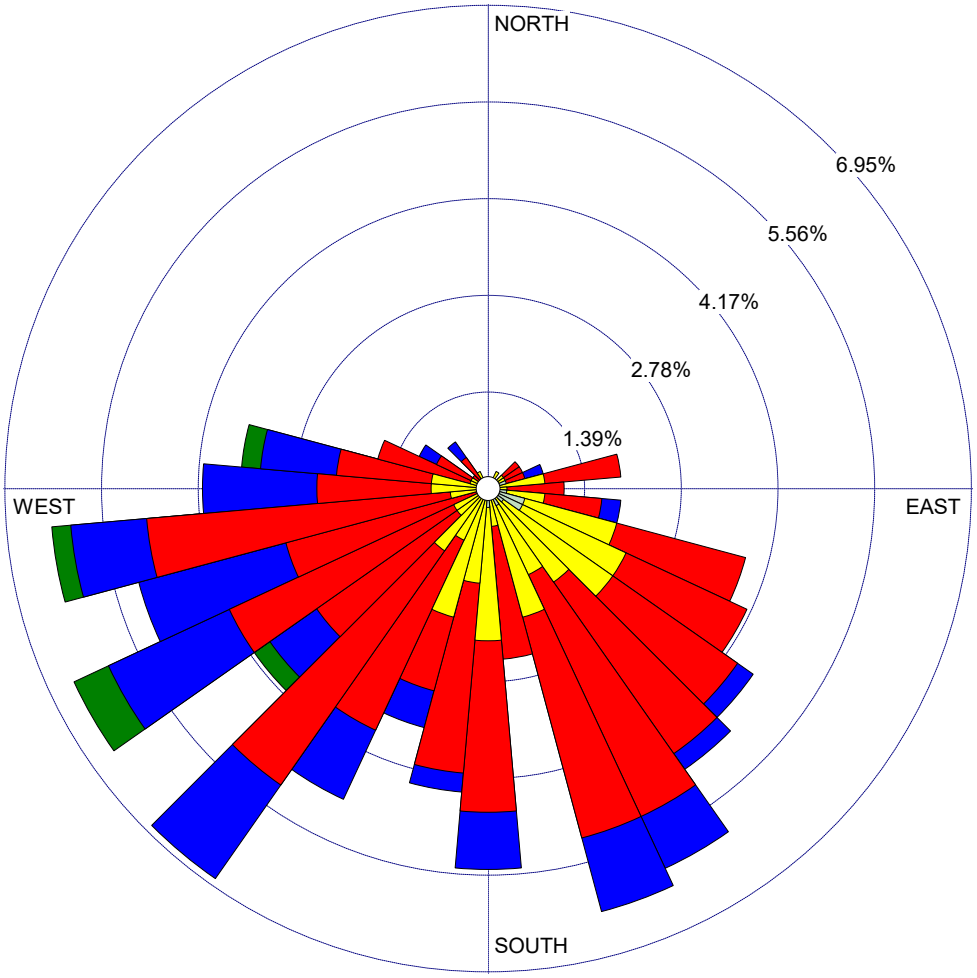
Annexure-1

WIND ROSE PLOT:

Windrose Mahendergarh Yearly

DISPLAY:

Wind Speed
Direction (blowing from)



WIND SPEED
(m/s)

- >= 11.10
- 8.80 - 11.10
- 5.70 - 8.80
- 3.60 - 5.70
- 2.10 - 3.60
- 0.50 - 2.10

Calms: 0.00%

COMMENTS:	DATA PERIOD: **Start Date: 5/1/2023 - 01:00** **End Date: 4/30/2024 - 23:59**	COMPANY NAME:	
		MODELER:	
	CALM WINDS: **0.00%**	TOTAL COUNT: **360 hrs.**	
	AVG. WIND SPEED: **4.50 m/s**	DATE: **6/21/2024**	PROJECT NO.:

WRPLOT View - Lakes Environmental Software

Annexure-2

Haryana State Pollution Control Board	
Continuous Ambient Air Quality Monitoring Report	
Monitoring Agency :	ENVEA INDIA PVT LTD
Month& Year :	Jan-24
Name of City :	NARNAUL, HARYANA
Name of Station :	CAAQMS
	MAIN POLLUTANTS
Parameters/Units	PM_{10}
Months	$\mu g/m^3$
01-01-24	157.10
02-01-24	146.53
03-01-24	165.20
04-01-24	159.20
05-01-24	119.21
06-01-24	84.52
07-01-24	81.88
08-01-24	121.10
09-01-24	85.32
10-01-24	112.08
11-01-24	111.30
12-01-24	115.36
13-01-24	158.89
14-01-24	136.28
15-01-24	107.68
16-01-24	133.60
17-01-24	125.95
18-01-24	96.98
19-01-24	82.04
20-01-24	100.41
21-01-24	92.51
22-01-24	74.82
23-01-24	106.28
24-01-24	80.10
25-01-24	88.92
26-01-24	130.60
27-01-24	104.30
28-01-24	127.24
29-01-24	120.98
30-01-24	105.27
31-01-24	165.17
Average	116.03

7998

Haryana State Pollution Control Board	
Continuous Ambient Air Quality Monitoring Report	
Monitoring Agency :	ENVEA INDIA PVT LTD
Month& Year :	Feb-24
Name of City :	NARNAUL, HARYANA
Name of Station :	CAAQMS
	MAIN POLLUTANTS
Parameters/Units	PM_{10}
Months	$\mu g/m^3$
01-02-24	101.60
02-02-24	74.16
03-02-24	70.98
04-02-24	73.40
05-02-24	61.57
06-02-24	54.53
07-02-24	71.58
08-02-24	39.37
09-02-24	53.47
10-02-24	87.98
11-02-24	92.50
12-02-24	109.75
13-02-24	147.91
14-02-24	129.03
15-02-24	107.30
16-02-24	104.68
17-02-24	71.58
18-02-24	73.68
19-02-24	45.10
20-02-24	55.82
21-02-24	65.43
22-02-24	52.22
23-02-24	86.59
24-02-24	67.33
25-02-24	63.63
26-02-24	52.15
27-02-24	41.09
28-02-24	51.01
29-02-24	50.60
Average	74.35

7999

Haryana State Pollution Control Board	
Continuous Ambient Air Quality Monitoring Report	
Monitoring Agency :	ENVEA INDIA PVT LTD
Month& Year :	Mar-24
Name of City :	NARNAUL, HARYANA
Name of Station :	CAAQMS
	MAIN POLLUTANTS
Parameters/Units	PM_{10}
Months	$\mu g/m^3$
01-03-24	50.61
02-03-24	53.90
03-03-24	72.55
04-03-24	41.62
05-03-24	50.11
06-03-24	57.93
07-03-24	58.61
08-03-24	60.65
09-03-24	49.36
10-03-24	78.56
11-03-24	81.43
12-03-24	53.07
13-03-24	123.30
14-03-24	78.97
15-03-24	61.57
16-03-24	78.16
17-03-24	73.03
18-03-24	95.37
19-03-24	56.69
20-03-24	55.47
21-03-24	78.53
22-03-24	67.36
23-03-24	66.13
24-03-24	61.90
25-03-24	48.71
26-03-24	45.36
27-03-24	53.20
28-03-24	37.53
29-03-24	54.25
30-03-24	46.49
31-03-24	48.31
Average	62.54

8000

Haryana State Pollution Control Board	
Continuous Ambient Air Quality Monitoring Report	
Monitoring Agency :	ENVEA INDIA PVT LTD
Month& Year :	Apr-24
Name of City :	NARNAUL, HARYANA
Name of Station :	CAAQMS
	MAIN POLLUTANTS
Parameters/Units	PM_{10}
Months	$\mu g/m^3$
01-04-24	87.53
02-04-24	52.47
03-04-24	65.03
04-04-24	65.03
05-04-24	56.28
06-04-24	50.35
07-04-24	58.06
08-04-24	66.10
09-04-24	56.49
10-04-24	79.35
11-04-24	61.84
12-04-24	65.70
13-04-24	79.00
14-04-24	70.69
15-04-24	49.36
16-04-24	46.83
17-04-24	55.00
18-04-24	78.43
19-04-24	128.49
20-04-24	80.96
21-04-24	75.30
22-04-24	63.69
23-04-24	110.02
24-04-24	93.01
25-04-24	102.59
26-04-24	102.13
27-04-24	121.00
28-04-24	130.20
29-04-24	105.36
30-04-24	132.39
Average	79.62

8001

Haryana State Pollution Control Board	
Continuous Ambient Air Quality Monitoring Report	
Monitoring Agency :	ENVEA INDIA PVT LTD
Month& Year :	May-24
Name of City :	NARNAUL, HARYANA
Name of Station :	CAAQMS

	MAIN POLLUTANTS
Parameters/Units	PM_{10}
Months	$\mu g/m^3$
01-05-24	156.78
02-05-24	98.80
03-05-24	120.39
04-05-24	121.65
05-05-24	110.22
06-05-24	143.68
07-05-24	139.82
08-05-24	129.85
09-05-24	141.30
10-05-24	99.99
11-05-24	142.65
12-05-24	123.38
13-05-24	126.07
14-05-24	141.95
15-05-24	133.52
16-05-24	141.18
17-05-24	166.08
18-05-24	133.30
19-05-24	161.61
20-05-24	132.34
21-05-24	120.83
22-05-24	105.86
23-05-24	93.45
24-05-24	88.25
25-05-24	121.56
26-05-24	131.20
27-05-24	170.86
28-05-24	160.03
29-05-24	199.45
30-05-24	67.04
31-05-24	43.93
Average	127.97

8002

Haryana State Pollution Control Board	
Continuous Ambient Air Quality Monitoring Report	
Monitoring Agency :	**ENVEA INDIA PVT LTD**
Month& Year :	**Jun-24**
Name of City :	**NARNAUL, HARYANA**
Name of Station :	**CAAQMS**

	MAIN POLLUTANTS
Parameters/Units	**PM_{10}**
Months	**$\mu g/m^3$**
01-06-24	**36.00**
02-06-24	**35.90**
03-06-24	**50.75**
04-06-24	**58.35**
05-06-24	**48.31**
06-06-24	**105.34**
07-06-24	**176.02**
08-06-24	**106.93**
09-06-24	**45.66**
10-06-24	**49.67**
11-06-24	**53.90**
12-06-24	**47.87**
13-06-24	**44.59**
14-06-24	**41.10**
15-06-24	**34.28**
16-06-24	**37.17**
17-06-24	**40.27**
18-06-24	**51.45**
19-06-24	**37.06**
20-06-24	**43.50**
21-06-24	**41.78**
22-06-24	**45.97**
23-06-24	**47.33**
24-06-24	**43.28**
25-06-24	**45.53**
26-06-24	**61.49**
27-06-24	**57.45**
28-06-24	**85.97**
29-06-24	**44.31**
30-06-24	**34.52**
Average	**55.06**

8003

Haryana State Pollution Control Board	
Continuous Ambient Air Quality Monitoring Report	
Monitoring Agency :	ENVEA INDIA PVT LTD
Month& Year :	Jul-24
Name of City :	NARNAUL, HARYANA
Name of Station :	CAAQMS
	MAIN POLLUTANTS
Parameters/Units	PM_{10}
Months	$\mu g/m^3$
01-07-24	*
02-07-24	*
03-07-24	*
04-07-24	35.86
05-07-24	55.06
06-07-24	25.37
07-07-24	77.91
08-07-24	23.30
09-07-24	39.24
10-07-24	34.08
11-07-24	27.64
12-07-24	42.86
13-07-24	37.10
14-07-24	67.06
15-07-24	82.20
16-07-24	82.20
17-07-24	133.27
18-07-24	37.44
19-07-24	68.99
20-07-24	61.52
21-07-24	50.27
22-07-24	61.80
23-07-24	48.72
24-07-24	25.19
25-07-24	100.95
26-07-24	100.93
27-07-24	100.35
28-07-24	100.35
29-07-24	66.59
30-07-24	52.62
31-07-24	20.40
Average	59.26

8004

Annexure-3

हरियाणा सरकार

सांख्यिकीय सारांश

जिला महेन्द्रगढ़ (2013–2014)

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जिला सांख्यिकीय कार्यालय

महेन्द्रगढ़,द्वारा प्रकाषित

क्षैत्रफल तथा जनसंख्या

जिले में जनसंख्या तथा साक्षरता (खण्डवार)

सारणी नं0 3.6

वर्ष / खण्ड	क्षेत्रफल (वर्गकि0मी0)	जनसंख्या			साक्षर तथा पढ़े–लिखे व्यक्ति			कुल जनसंख्या पर साक्षरता तथा शिक्षित व्यक्तियों की प्रतिशत्तता	1000 पुरूषों पर साक्षर पुरूषों की संख्या	1000 पुरूषों पर साक्षर स्त्रियों की संख्या
		पुरूष	स्त्रियाँ	जोड़	पुरूष	स्त्रियाँ	जोड़			
1	2	3(क)	3(ख)	3(ग)	4(क)	4(ख)	4(ग)	5	6	7
2001	1859	423578	388943	812521	299145	179151	478296	69.89	––	918
खण्ड										
1. नारनौल	––	60844	56277	117121	42704	24520	67224	68.16	––	––
2. अटेली	––	69361	64687	134048	50260	31449	81709	72..20	––	––
3. नांगल चौधरी	––	69358	64211	133569	45903	23425	69328	62.45	––	––
4. महेन्द्रगढ़	––	93717	85733	179450	64760	38512	103272	68.51	––	––
5. कनीना	––	72063	66634	138697	51713	31840	83553	71.30	––	––

नोट :– कुल जनसंख्या में 0–6 आयु वर्ग के बच्चे शामिल नहीं हैं।