BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH NEW DELHI

Original Application No. 1069 OF 2024

In the matter of:

News Item titled "CSE report finds dangerous increase in ozone pollution across urban India" appearing in Down to Earth dated 06.08.2024

Index

Srinivas Vishven

Filed by Adv. Srinivas Vishven
(On behalf of Central Pollution Control Board)

Dated: 20.01.2025
Place: Delhi

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 1069/2024

In the matter of:

NEWS ITEM TITLED "CSE REPORT FINDS DANGEROUS INCREASE IN OZONE POLLUTION ACROSS URBAN INDIA" APPEARING IN DOWN TO EARTH DATED 06.08.2024

REPLY ON BEHALF OF RESPONDENT NO. 1, CENTRAL POLLUTION CONTROL BOARD (CPCB)

1. That Hon'ble NGT vide Order dated 20.08.2024 impleaded Central Pollution Control Board (hereinafter referred as CPCB) as Respondent no. 1. Thereby, the reply is made in succeeding paragraphs.

2. That, CPCB is a statutory Board constituted under Section 3 of The Water (Prevention and Control of Pollution) Act, 1974. It performs the functions under The Water (Prevention and Control of Pollution) Act, 1974, The Air (Prevention and Control of Pollution) Act, 1981, and The Environment (Protection) Act, 1986.

3. At the outset, it is humbly submitted that ozone is a secondary pollutant formed in the atmosphere by complex chemical reaction between oxides of nitrogen, and volatile organic compounds (hereinafter referred to as VOCs) emitted from anthropogenic and biogenic sources in the presence of sunlight. Besides, Carbon monoxide (CO) and methane (CH4) emitted by residential and agricultural sources also play a role in ozone formation.

4. That the major sources of ozone precursors (NOx &VOCs) are burning of coal, gasoline and oil in motor vehicles, Industrial activities, waste burning, gasoline combustion and marketing, wood combustion, and from the evaporation of liquid fuels and solvents etc. Some biogenic sources (green areas, crops) are also responsible for VOC emission leading to the formation of ground level Ozone.

5. Further, the presence and accumulation of ozone in ambient air is also impacted by presence of other compounds that consume ozone, meteorological conditions such as wind speed, wind direction, temperature and solar radiation.

6. That ozone levels were analyzed in 10 regions cited in the news report namely, i) Delhi-National Capital Region (57 stations) ii) Mumbai Metropolitan Region (45 stations) iii) Kolkata Metropolitan Area (10 stations) iv) Greater Hyderabad (14 stations) v) Bengaluru Metropolitan Area (11 stations) vi) Chennai Metropolitan Area (7 stations) vii) Pune Metropolitan Region (12 stations) viii) Greater Ahmedabad (10 stations) ix) Greater Lucknow (6 stations) and x) Greater Jaipur (6 stations).

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7. That ozone levels of 178 monitoring locations/stations falling under these 10 regions are analyzed with respect to exceedances as per hourly (180 $\mu g/m^3$) and 8-hourly (100 $\mu g/m^3$) National Ambient Quality Standards (NAAQS-2009) of ozone.

8. That details of monitoring stations installed in each of these 10 regions is annexed at **Annexure-I**.

9. That the region-wise data of Ozone exceedance with respect to NAAQS is submitted in following sections:

i. Yearly analysis of exceedance of ozone for the year 2023.

ii. Analysis of exceedance of ozone during summer (April-July) for the year 2023 & 2024.

iii. Analysis of exceedance of ozone during night time (10:00 pm to 06:00 am) for the year 2023.

9.1 Yearly analysis of exceedance of Ozone for the year 2023

Analysis of the exceedance of ozone levels in the year 2023 is depicted in **Tables 1 & 2.**

Table 1: (8-hourly % Exceedance of ozone as per National Ambient Air Quality Standards): Year 2023

Region	Total Number of monitoring stations	No. of monitoring stations with Zero Exceedance of Ozone	No. of monitoring Stations with more than 5% Exceedance of Ozone
Bengaluru Metropolitan Area	11	05	00
Chennai Metropolitan Area	07	01	00
Delhi-National Capital Region	57	07	15
Greater Ahmedabad	10	07	00
Greater Hyderabad	14	05	00
Greater Jaipur	06	00	05
Greater Lucknow	06	00	00
Kolkata Metropolitan Area	10	01	00
Mumbai Metropolitan Region	45	04	10
Pune Metropolitan Region	12	05	02

[5% exceedance means, out of total monitoring counts (1-hourly or 8-hourly as the case may be) 5% monitored counts exceeded the NAAQS .]

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Table 2: (1-hourly % Exceedance of ozone as per National Ambient Air Quality Standards): Year 2023			
Regions	Total Number of monitoring Stations	No of monitoring Stations with Zero Exceedance of Ozone	No of monitoring Stations with more than 5% Exceedance of Ozone
Bengaluru Metropolitan Area	11	08	00
Chennai Metropolitan Area	07	02	00
Delhi-National Capital Region	57	08	01
Greater Ahmedabad	10	07	00
Greater Hyderabad	14	07	00
Greater Jaipur	06	01	00
Greater Lucknow	06	02	00
Kolkata Metropolitan Area	10	06	00
Mumbai Metropolitan Region	45	07	01
Pune Metropolitan Region	12	06	00

9.2 Analysis of exceedance of ozone level in summer (April-July)

Exceedance of ozone levels as per NAAQS during summer (April-July) 2023 & 2024 is depicted in **Table 3 & 4.**

Table: 3 (1 Hourly % Exceedance of ozone as per National Ambient Air Quality Standards): In Summer 2023 (April to July)			
Region	Total Number of monitoring Stations	No. of monitoring Stations with Zero Exceedance of Ozone	No. of monitoring Stations with More Than 5% Exceedance of Ozone
Bengaluru Metropolitan Area	11	11	00
Chennai Metropolitan Area	7	05	00
Delhi-National Capital Region	56	19	03
Greater Ahmedabad	8	07	00
Greater Hyderabad	14	11	00
Greater Jaipur	6	04	00
Greater Lucknow	6	05	00
Kolkata Metropolitan Area	10	09	00
Mumbai Metropolitan Region	40	20	00
Pune Metropolitan Region	10	08	00

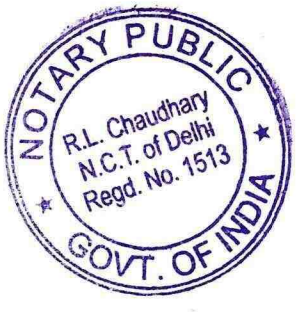

Table: 4 (1 Hourly % Exceedance of ozone as per National Ambient Air Quality Standards): In Summer 2024 (April to July)			
Region	Total Number of monitoring stations	No. of monitoring Stations with Zero Exceedance of Ozone	No. of monitoring Stations with More Than 5% Exceedance of Ozone
Bengaluru Metropolitan Area	11	09	00
Chennai Metropolitan Area	7	03	01
Delhi-National Capital Region	57	08	08
Greater Ahmedabad	9	02	00
Greater Hyderabad	14	10	00
Greater Jaipur	6	03	00
Greater Lucknow	6	06	00
Kolkata Metropolitan Area	11	07	00
Mumbai Metropolitan Region	44	26	00
Pune Metropolitan Region	14	07	00

9.3 Analysis of exceedance of ozone level during night time (10:00 pm to 06:00 am) in 2023

Exceedance of ozone levels as per NAAQS during night time in 2023 is depicted in **Table 5**

Table: 5 (1 Hourly % Exceedance of ozone as per National Ambient Air Quality Standards): During night 2023			
Region	Total Number of monitoring Stations	No. of monitoring Stations with Zero Exceedance of Ozone	No. of monitoring Stations with More Than 5% Exceedance of Ozone
Bengaluru Metropolitan Area	11	11	00
Chennai Metropolitan Area	07	03	00
Delhi-National Capital Region	57	21	01
Greater Ahmedabad	10	08	00
Greater Hyderabad	14	11	00
Greater Jaipur	06	05	00
Greater Lucknow	06	04	00
Kolkata Metropolitan Area	10	09	00
Mumbai Metropolitan Region	45	34	01
Pune Metropolitan Region	12	10	00

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10. Summary of Observations

- That the data of ozone at 178 monitoring stations during the year 2023 reveals that 1-hourly exceedance (>5%) of ozone is reported only at 01 stations each in Delhi-NCR & Mumbai Metropolitan Region (MMR) and 8-hourly exceedance (>5%) of ozone is observed at 32 monitoring stations at Delhi-NCR (15), Mumbai Metropolitan Region (MMR)(10), Jaipur (5) and Pune (2).
- That during summer of year 2024 out of total 178 monitoring stations, greater than 5% of 1-hourly exceedance of Ozone was observed in 8 no. of stations in Delhi NCR and 1 station of Chennai.
- That the night time (10:00 pm to 06:00 am) ozone concentration during the year 2023 shows that greater than 5% exceedance of the 1-hourly standard was reported at only one location each in Delhi-NCR & MMR.
- That Delhi-NCR and Mumbai Metropolitan Regions reported higher exceedances of ozone concentration compared to other regions.

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11. That it has been recognized globally that control of ozone is only possible through control of its precursors. Control of local sources of its precursors alone may not yield significant benefits in terms of ozone reduction, as both ozone and its precursors can be transported over hundreds of kilometres downwind from their point of origin.

Considering the same, the government has undertaken several initiatives at the national level, to control the precursors of ozone, i.e. NOx and VOC, and methane and CO to some extent. The copy of the steps taken is annexed herewith as **Annexure-II**.

12. That, answering respondent herein craves leave of the Hon'ble Tribunal to file additional reply, in future, if required.

13. That, in view of the submissions made above, the answering respondent herein shall abide by all the orders / directions passed by the Hon'ble Tribunal in the instant matter.

(Aditya Sharma)
Scientist 'E
Central Pollution Control Board

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NEWS ITEM TITLED "CSE REPORT FINDS DANGEROUS INCREASE IN OZONE POLLUTION ACROSS URBAN INDIA" APPEARING IN DOWN TO EARTH DATED 06.08.2024

AFFIDAVIT

I, **Aditya Sharma**, working as Scientist 'E' in Central Pollution Control Board, Parivesh Bhawan, East Arjun Nagar, Delhi, the Respondent No. 1, in the above matter, do hereby solemnly affirm, declare on oath and state as under :-

1. That I, the deponent herein is the authorized representative to represent the Respondent CPCB in the present case, and as such, I am well conversant with the facts and circumstances of the present case on the basis of the information derived from the official records, and hence, I am competent to verify, sign and swear this affidavit on behalf of the Respondent CPCB.

2. That the accompanying reply may be read part and parcel of the present affidavit.

3. That the accompanying reply has been drafted and filed under my instructions and authority the contents thereof are true and correct on the basis of the records maintained during ordinary course of business of CPCB and available records and documents and the contents of the same are read over and explained to me and are not repeated herein for the sake of brevity.

DEPONENT

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आदित्य शर्मा / Aditya Sharma
वैज्ञानिक "ई" /Scientist "E"
केन्द्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार
M/o Envt. Forest & Climate Change, Govt. of India
परिवेश भवन, पूर्वी अर्जुन नगर
Parivesh Bhawan, East Arjun Nagar
दिल्ली / Delhi-110032

VERIFICATION

Verified at Delhi on this day of 20 JAN 2025 2025 that the contents of the above reply are correct and true on the basis of the record of the cases as mentioned in the day to day affairs of the CPCB. Nothing has been concealed therefrom or mis-stated.

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N.C.T. of Delhi
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DEPONENT

आदित्य शर्मा / Aditya Sharma
वैज्ञानिक "ई" /Scientist "E"
केन्द्रीय प्रदूषण नियंत्रण बोर्ड
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Parivesh Bhawan, East Arjun Nagar
दिल्ली / Delhi-110032

ATTESTED
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GOVT. OF INDIA
20 JAN 2025

ANNEXURE-I

Sr. No.	Bengaluru	14 stations
1.	site_1553	Bapuji Nagar, Bengaluru – KSPCB
2.	site_1554	Hebbal, Bengaluru – KSPCB
3.	site_1555	Hombegowda Nagar, Bengaluru – KSPCB
4.	site_1556	Jayanagar 5th Block, Bengaluru – KSPCB
5.	site_1558	Silk Board, Bengaluru – KSPCB
6.	site_162	BTM Layout, Bengaluru – CPCB
7.	site_163	Peenya, Bengaluru – CPCB
8.	site_164	BWSSB Kadabesanahalli, Bengaluru – CPCB
9.	site_165	City Railway Station, Bengaluru – KSPCB
10.	site_166	Sanegurava Halli, Bengaluru – KSPCB
11.	site_5678	RVCE-Mailasandra, Bengaluru – KSPCB
12.	site_5681	Kasturi Nagar, Bengaluru – KSPCB
13.	site_5686	Shivapura_Peenya, Bengaluru – KSPCB
14.	site_5729	Jigani, Bengaluru – KSPCB

Sr. No.	Chennai	9 Stations
1.	site_288	Velachery Res. Area, Chennai – CPCB
2.	site_293	Alandur Bus Depot, Chennai – CPCB
3.	site_306	Manali, Chennai – CPCB
4.	site_5092	Manali Village, Chennai – TNPCB
5.	site_5361	Arumbakkam, Chennai – TNPCB
6.	site_5363	Perungudi, Chennai – TNPCB
7.	site_5364	Royapuram, Chennai – TNPCB
8.	site_5365	Kodungaiyur, Chennai – TNPCB
9.	site_5618	Gandhi Nagar_Ennore, Chennai – TNPCB

Sr. No.	Delhi-National Capital Region	58 Stations
1.	site_103	CRRI Mathura Road, Delhi – IMD
2.	site_104	Burari Crossing, Delhi – IMD
3.	site_105	North Campus, DU, Delhi – IMD
4.	site_106	IGI Airport (T3), Delhi – IMD
5.	site_107	Pusa, Delhi – IMD
6.	site_108	Aya Nagar, Delhi – IMD
7.	site_109	Lodhi Road, Delhi – IMD
8.	site_113	Shadipur, Delhi - CPCB
9.	site_114	IHBAS, Dilshad Garden, Delhi - CPCB
10.	site_115	NSIT Dwarka, Delhi - CPCB
11.	site_117	ITO, Delhi - CPCB
12.	site_118	DTU, Delhi - CPCB
13.	site_119	Sirifort, Delhi - CPCB
14.	site_122	Mandir Marg, Delhi - DPCC
15.	site_124	R K Puram, Delhi - DPCC
16.	site_125	Punjabi Bagh, Delhi - DPCC
17.	site_1420	Ashok Vihar, Delhi - DPCC
18.	site_1421	Dr. Karni Singh Shooting Range, Delhi - DPCC
19.	site_1422	Dwarka-Sector 8, Delhi - DPCC
20.	site_1423	Jahangirpuri, Delhi - DPCC
21.	site_1424	Jawaharlal Nehru Stadium, Delhi - DPCC
22.	site_1425	Major Dhyan Chand National Stadium, Delhi - DPCC
23.	site_1426	Narela, Delhi - DPCC
24.	site_1427	Najafgarh, Delhi - DPCC
25.	site_1428	Okhla Phase-2, Delhi - DPCC
26.	site_1429	Nehru Nagar, Delhi - DPCC
27.	site_1430	Rohini, Delhi - DPCC

28.	site_1431	Patparganj, Delhi - DPCC
29.	site_1432	Sonia Vihar, Delhi - DPCC
30.	site_1434	Wazirpur, Delhi - DPCC
31.	site_1435	Vivek Vihar, Delhi - DPCC
32.	site_1560	Bawana, Delhi - DPCC
33.	site_1561	Mundka, Delhi - DPCC
34.	site_1562	Sri Aurobindo Marg, Delhi - DPCC
35.	site_1563	Pusa, Delhi - DPCC
36.	site_301	Anand Vihar, Delhi - DPCC
37.	site_5024	Alipur, Delhi - DPCC
38.	site_5393	Chandni Chowk, Delhi - IITM
39.	site_5395	Lodhi Road, Delhi - IITM
40.	site_5852	New Moti Bagh, Delhi - MHUA
41.	site_146	Vikas Sadan, Gurugram - HSPCB
42.	site_5025	NISE Gwal Pahari, Gurugram - IMD
43.	site_5344	Teri Gram, Gurugram - HSPCB
44.	site_5345	Sector-51, Gurugram - HSPCB
45.	site_263	Sector- 16A, Faridabad - HSPCB
46.	site_5340	New Industrial Town, Faridabad - HSPCB
47.	site_5341	Sector 30, Faridabad - HSPCB
48.	site_5342	Sector 11, Faridabad - HSPCB
49.	site_1541	Knowledge Park - III, Greater Noida - UPPCB
50.	site_5121	Knowledge Park - V, Greater Noida - UPPCB
51.	site_111	Sector - 62, Noida - IMD
52.	site_153	Sector - 125, Noida - UPPCB
53.	site_5122	Sector-116, Noida - UPPCB
54.	site_5123	Sector-1, Noida - UPPCB
55.	site_144	Vasundhara, Ghaziabad - UPPCB
56.	site_5081	Sanjay Nagar, Ghaziabad - UPPCB

57.	site_5082	Indirapuram, Ghaziabad - UPPCB
58.	site_5083	Loni, Ghaziabad - UPPCB

Sr. No.	Ahmedabad	10 Stations
1.	site_308	Maninagar, Ahmedabad - GPCB
2.	site_5449	Sardar Vallabhbhai Patel Stadium, Ahmedabad - IITM
3.	site_5450	Gyaspur, Ahmedabad - IITM
4.	site_5451	Rakhial, Ahmedabad - IITM
5.	site_5452	Raikhad, Ahmedabad - IITM
6.	site_5453	Chandkheda, Ahmedabad - IITM
7.	site_5454	SAC ISRO Bopal, Ahmedabad - IITM
8.	site_5455	SAC ISRO Satellite, Ahmedabad - IITM
9.	site_5456	SVPI Airport Hansol, Ahmedabad - IITM
10.	site_5067	Phase-4 GIDC, Vatva - GPCB

Sr. No.	Hyderabad	14 stations
1.	site_199	Bollaram Industrial Area, Hyderabad - TSPCB
2.	site_251	ICRISAT Patancheru, Hyderabad - TSPCB
3.	site_262	Central University, Hyderabad - TSPCB
4.	site_275	IDA Pashamylaram, Hyderabad - TSPCB
5.	site_294	Sanathnagar, Hyderabad - TSPCB
6.	site_298	Zoo Park, Hyderabad - TSPCB
7.	site_5595	New Malakpet, Hyderabad - TSPCB
8.	site_5596	ECIL Kapra, Hyderabad - TSPCB
9.	site_5597	IITH Kandi, Hyderabad - TSPCB
10.	site_5598	Somajiguda, Hyderabad - TSPCB
11.	site_5599	Kompally Municipal Office, Hyderabad - TSPCB
12.	site_5600	Nacharam_TSIIC IALA, Hyderabad - TSPCB
13.	site_5602	Ramachandrapuram, Hyderabad - TSPCB
14.	site_5604	Kokapet, Hyderabad - TSPCB

Sr. No	Jaipur	6 stations
1.	site_134	Police Commissioner ate, Jaipur - RSPCB
2.	site_1393	Adarsh Nagar, Jaipur - RSPCB
3.	site_1396	Shastri Nagar, Jaipur - RSPCB
4.	site_5725	Mansarovar Sector-12, Jaipur - RSPCB
5.	site_5727	Sector-2 Murlipura, Jaipur - RSPCB
6.	site_5728	RIICO Sitapura, Jaipur - RSPCB

Sr. No.	Lucknow	7 Stations
1.	site_1405	Nishant Ganj, Lucknow - UPPCB
2.	site_272	Kendriya Vidyalaya, Lucknow - CPCB
3.	site_277	Lalbagh, Lucknow - CPCB
4.	site_297	Talkatora District Industries Center, Lucknow - CPCB
5.	site_5128	Gomti Nagar, Lucknow - UPPCB
6.	site_5460	B R Ambedkar University, Lucknow - UPPCB
7.	site_5462	Kukrail Picnic Spot-1, Lucknow - UPPCB

Sr. No	Kolkata Metropolitan Area	10 Stations
1.	site_296	Rabindra Bharati University, Kolkata - WBPCB
2.	site_309	Victoria, Kolkata - WBPCB
3.	site_5110	Fort William, Kolkata - WBPCB
4.	site_5111	Jadavpur, Kolkata - WBPCB
5.	site_5126	Rabindra Sarobar, Kolkata - WBPCB
6.	site_5129	Bidhannagar, Kolkata - WBPCB
7.	site_5238	Ballygunge, Kolkata - WBPCB
8.	site_1416	Padmapukur, Howrah - WBPCB
9.	site_274	Ghusuri, Howrah - WBPCB
10.	site_5101	Belur Math, Howrah - WBPCB

Sr. No.	Mumbai Metropolitan Region	47 Stations
1.	site_168	Bandra, Mumbai - MPCB
2.	site_5102	Vasai West, Mumbai - MPCB
3.	site_5104	Kurla, Mumbai - MPCB
4.	site_5106	Vile Parle West, Mumbai - MPCB
5.	site_5107	Chhatrapati Shivaji Intl. Airport (T2), Mumbai - MPCB
6.	site_5112	Powai, Mumbai - MPCB
7.	site_5113	Borivali East, Mumbai - MPCB
8.	site_5115	Worli, Mumbai - MPCB
9.	site_5119	Sion, Mumbai - MPCB
10.	site_5120	Colaba, Mumbai - MPCB
11.	site_5392	Bandra Kurla Complex, Mumbai - IITM
12.	site_5394	Mazgaon, Mumbai - IITM
13.	site_5396	Deonar, Mumbai - IITM
14.	site_5397	Khindipada-Bhandup West, Mumbai - IITM
15.	site_5398	Navy Nagar-Colaba, Mumbai - IITM
16.	site_5399	Chakala-Andheri East, Mumbai - IITM
17.	site_5400	Borivali East, Mumbai - IITM
18.	site_5402	Malad West, Mumbai - IITM
19.	site_5403	Siddharth Nagar-Worli, Mumbai - IITM
20.	site_5412	Kandivali East, Mumbai - MPCB
21.	site_5413	Mulund West, Mumbai - MPCB
22.	site_5807	Mindspace-Malad West, Mumbai - MPCB
23.	site_5810	Bandra Kurla Complex, Mumbai - MPCB
24.	site_5811	Chembur, Mumbai - MPCB
25.	site_5814	Kherwadi_Bandra East, Mumbai - MPCB
26.	site_5960	Byculla, Mumbai - BMC
27.	site_5961	Shivaji Nagar, Mumbai - BMC
28.	site_5962	Kandivali West, Mumbai - BMC

29.	site_5963	Sewri, Mumbai – BMC
30.	site_5964	Ghatkopar, Mumbai – BMC
31.	site_261	Airoli, Navi Mumbai – MPCB
32.	site_5103	Nerul, Navi Mumbai – MPCB
33.	site_5114	Mahape, Navi Mumbai – MPCB
34.	site_5401	Sector-19A Nerul, Navi Mumbai – IITM
35.	site_5799	Sector-2E Kalamboli, Navi Mumbai – MPCB
36.	site_5803	Tondare-Taloja, Navi Mumbai – MPCB
37.	site_5805	Kopripada-Vashi, Navi Mumbai – MPCB
38.	site_5815	Sanpada, Navi Mumbai – MPCB
39.	site_305	Pimpleshwar Mandir, Thane – MPCB
40.	site_5797	Kasarvadavali, Thane – MPCB
41.	site_5800	Upvan Fort, Thane – MPCB
42.	site_5798	Katrap, Badlapur – MPCB
43.	site_5813	Gokul Nagar, Bhiwandi – MPCB
44.	site_5118	Khadakpada, Kalyan – MPCB
45.	site_5806	Bhayandar West, Mira-Bhayandar – MPCB
46.	site_5812	Sidhi Vinayak Nagar, Ulhasnagar – MPCB
47.	site_5808	Bolinj, Virar – MPCB

Sr. No.	Pune Metropolitan Region	15 Stations
1.	site_292	Karve Road, Pune – MPCB
2.	site_5404	Mhada Colony, Pune – IITM
3.	site_5405	Alandi, Pune – IITM
4.	site_5406	Bhosari, Pune – IITM
5.	site_5407	Hadapsar, Pune – IITM
6.	site_5408	Transport Nagar-Nigdi, Pune – IITM
7.	site_5409	Revenue Colony-Shivajinagar, Pune – IITM
8.	site_5410	MIT-Kothrud, Pune – IITM

9.	site_5766	Katraj Dairy, Pune – MPCB
10.	site_5767	Savitribai Phule Pune University, Pune – MPCB
11.	site_5988	Bhumkar Nagar, Pune – IITM
12.	site_5996	Panchawati_Pashan, Pune – IITM
13.	site_5763	Gavalinagar, Pimpri Chinchwad – MPCB
14.	site_5764	Park Street Wakad, Pimpri Chinchwad – MPCB
15.	site_5765	Thergaon, Pimpri Chinchwad – MPCB

ANNEXURE-II

Measures taken for control of Ozone:

Several initiatives undertaken by Government at the national level, to control the precursors of ozone, i.e. NOx and VOC, and methane and CO are as follows:

The Government has launched National Clean Air Programme (NCAP) in 2019 as a national level strategy to reduce air pollution levels across the country. CPCB has identified 130 million plus/non-attainment cities (cities exceeding NAAQS, consecutively for five years). City Specific Clean Air Action Plans have been prepared and rolled out for implementation in all these 130 non-attainment/million plus cities to improve the air quality. These city specific clean air action plans target city specific air polluting sources like Soil & Road Dust, Vehicles, Domestic Fuel, MSW Burning, Construction Material and Industries with short-term priority action as well as those to be implemented in a medium to longer time frame along with the responsible agencies which improves the ambient air quality. Under NCAP, annual action planning for approved city action plans need to be submitted by concerned Urban Local Bodies (ULBs), which comprise the following actions to control NOx emissions:

- Use of off-peak passenger travel time to move freight and restrict entry of heavy vehicles into cities during the day
- Clean Fuel & Fuel Quality in vehicles
- Introduction of new electric buses (with proper infrastructure facilities such as charging stations) and CNG buses for public transport which will reduce plying of private vehicles on road and help to curb tail-pipe emissions.
- CNG infrastructure for auto gas supply in the city and transition of public transport vehicles to CNG mode.
- Charging infrastructure for E-vehicles
- Phase out old vehicles and introduce vehicle scrappage policy.
- Intensify monitoring of industries to reduce emission by the industries.
- Shifting of polluting industries.
- Conversion to CNG/PNG from pet coke / wood / coal / Furnace oil.
- Regular check and control of burning of municipal solid wastes.

Besides, waste management rules w.r.t solid waste, bio-medical waste, and hazardous wastes etc. are being implemented and EPR (Extended Producer Responsibility) regime for plastic waste, e-waste, used oil, tyre, etc. is in place, which stipulates mandatory targets for

recycling/reuse, ensuring waste is managed in environmentally sound manner, thereby preventing it from burning.

CPCB has issued Directions under Section 5 of Environment (Protection) Act,1986 to all SPCBs/PCCs for implementation of the Solid Waste Management Rules,2016 regarding fire incidents at Municipal Solid Waste dumpsites and also regarding biomining of legacy waste. CPCB has also published Guidelines for Disposal of Legacy Waste.

Further, sector-specific interventions are listed below:

A. **Transport Sector**

- The introduction of BS VI-compliant vehicles across the country since April 2020 have reduced NOx emissions as compared to erstwhile BSIV-compliant vehicles, with 70-85% reduction in the case of 2-wheelers, 25%-68% in the case of 4-wheelers, and 87% in the case of heavy-duty vehicles. There is also 29-49% reduction in CO emissions from BSVI compliant 2 wheelers as against BSIV compliant 2 wheelers.
- BS-VI fuel has been introduced which has 5 times less Sulphur content (50 ppm in BS-IV to maximum 10 ppm in BS-VI compliant fuel). This has enabled the introduction of advanced emission control technologies, including Diesel Particulate Filters (DPF) to reduce Particulate Matter (PM) and Selective Catalyst Reduction (SCR) systems for reduction in Nitrogen Oxides (NOx) emissions in BS-VI vehicles.
- Vapour Recovery System (hereinafter referred as VRS) has been installed at all Delhi-NCR petrol pumps, in compliance with the orders of the Hon'ble NGT and Hon'ble Supreme Court. Further, VRS has been installed at those pumps selling more than 100 KLPM petrol and located in million plus cities and selling more than 300 KLPM petrol and located in cities with population more than 1 lakh. Installation of VRS minimizes the release of Benzene and other VOC emissions during petroleum refueling and unloading operations.
- The government is also promoting electric mobility, resulting in zero vehicular emissions, under the PM Electric Drive Revolution in Innovative Vehicle Enhancement (PM E-DRIVE) Scheme launched in September, 2024 with an outlay of ₹10,900 crore. The scheme aims to support electric vehicles including e-2W, e-3W, e-

Trucks, e-buses, e-Ambulances, EV public charging stations and upgradation of testing agencies.

- Over 25 states have notified or drafted state Electric Vehicle (EV) policy, to promote the use of EVs.
- The Government has been promoting blending of ethanol in petrol under the Ethanol Blended Petrol (EBP) Programme. The National Policy of Biofuels-2018, as amended in 2022, inter-alia advanced the target of 20% blending of ethanol in petrol to Ethanol Supply Year (ESY) 2025-26 from 2030. The target of 10% ethanol blending in petrol was achieved in June, 2022 i.e., five months ahead of the target during ESY 2021-22. Use of E10 fuel is expected to reduce CO and HC emissions by 20% in 2 wheelers and 4 wheelers as compared to normal gasoline. Use of E20 fuel is expected to reduce HC emissions by 20% for 2 wheelers and 4 wheelers, compared to emissions with normal gasoline. In case of CO, use of E20 fuel is expected to reduce CO emissions by 50% in case of 2 wheelers and 30% in case of 4 wheelers.

B. **Power plants and Industries**

- Industrial emission Standards for NOx and VOC have been revised/ introduced for various sectors such as man-made fiber industry, Fertilizer Industry, Pharmaceutical industry, paint industry etc.
- NOx emission standards have also been prescribed for coal/lignite-based thermal power plants, industrial boilers, Cement Plant (without co-processing of wastes) and Standalone Clinker Grinding Plants, furnaces etc.
- Promotion of installation of efficient Ultra Supercritical/Supercritical units over Subcritical Thermal Units as these units are more efficient and their emission per unit of electricity generation is less than subcritical units.
- Ministry of Power has issued a policy on utilization of Biomass for Power generation through co-firing in coal-based power plants. The policy mandates 5-7% co-firing of Biomass primarily of agro residue with coal, after assessing the technical feasibility.
- Inefficient and old thermal power plants having capacity of about 18,802.24 MW comprising 267 units have already been retired till 30.06.2024.

- India in its Intended Nationally Determined Contributions (INDCs) stands committed to achieve about 50 percent cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030. As of Jul 2024, India has already achieved 45.5% Installed Capacity from non-fossil fuel-based resources.

C. **Biomass burning, with emphasis on paddy straw burning in Northern India**

- Central Pollution Control Board (CPCB) has framed Guidelines for grant of one-time financial support under Environment Protection Charge funds for establishment of pelletisation and Torrefaction plants to promote utilisation of paddy straw. In case of setting up of pelletisation plant, Rs. 28 lakhs per tonne per hour (TPH), or 40% of the capital cost considered for plant and machinery of a 01 TPH plant, whichever is lower, is provided as one-time financial assistance with a maximum total financial support of Rs. 1.4 crore per proposal. In case of setting up of torrefaction plants, Rs. 56 lakhs per TPH, or 40% of the capital cost considered for plant and machinery of a 01 TPH plant, whichever is lower, is provided as one-time financial assistance with a maximum total financial support of Rs. 2.8 crore per proposal. A total of 17 applications for establishment of pelletization and Torrefaction plants under the above mentioned CPCB Guidelines have been sanctioned so far, out of which 02 plants are not coming up. Pellet production capacity of 15 sanctioned plants is 2.07 lakh tonne/annum. These plants are expected to utilize 2.70 lakh tonne of paddy straw per annum.
- CPCB had deployed 26 teams (in 16 districts of Punjab and 10 districts of Haryana) for the period 01st October - 30th November, 2024 to intensify monitoring and enforcement actions regarding stubble burning. These teams coordinated with concerned authorities/ officers deployed at the district level by the State Govt. and reported to the Commission for Air Quality Management in National Capital Region and Adjoining Areas (CAQM).
- CAQM has issued directives & advisories to various stakeholders including the 11 Thermal Power Plants (TPPs) located within 300 km of Delhi, State Governments of Punjab, Haryana and Uttar Pradesh on “Ex-Situ Stubble Management” and to establish

an ecosystem and robust supply chain mechanism to boost ex-situ utilisation of straw for tackling the problem of stubble burning.

- CAQM has also directed coal based TPPs including cogenerating Captive TPPs situated in NCR to initiate immediate steps to co-fire biomass-based pellets (with focus on paddy straw utilization) with coal through a continuous and uninterrupted supply chain targeting at least 5% co-firing of biomass pellets.
- CAQM has provided a Framework to the states concerned for control / elimination of crop residue burning and directed these to draw up detailed state-specific action plans based on the major contours of the framework. Based on the framework, action plans for prevention and control of paddy stubble burning were prepared and directions were issued by CAQM to state governments of Haryana, Punjab, UP, Rajasthan and NCT of Delhi for strict implementation of the framework and revised action plan
- As per revised model contract for use of biomass in TPPs, issued by Ministry of Power, power plants within 300 kms of NCR shall use minimum 50% of raw material as stubble/ straw/crop residue of rice paddy sourced from Punjab, Haryana or NCR.
- Ministry of Petroleum and Natural Gas (MoPNG) has launched a scheme to provide financial assistance to Compressed Bio-gas producers for procurement of biomass aggregation equipment for ex-situ management of paddy straw.
- Ministry of Agriculture & Farmers Welfare (MoA&FW) in 2018 launched scheme for providing subsidy for purchase of crop residue management machinery and establishment of custom hiring centres (CHCs) in NCT of Delhi and the States of Punjab, Haryana and Uttar Pradesh for insitu management of paddy straw. MoA&FW in 2023 revised guidelines under the scheme to support establishment of crop residue/paddy straw supply chain, by providing financial assistance on the capital cost of machinery and equipment.
- MNRE is supporting setting up of Biomass Briquette/Pellet manufacturing plants and to support Biomass (non-bagasse) based cogeneration projects in Industries in the country, by providing Central Financial Assistance (CFA).
- MNRE is also providing CFA for setting up of Waste to Energy plants for generation of Biogas, Bio-CNG/enriched Biogas/Compressed Biogas, Power/ generation of

producer or syngas, from urban, industrial, agricultural wastes and municipal solid waste.

- Under the Pradhan Mantri JI-VAN Yojana, a 2G Ethanol Project has been set up by Indian Oil Corporation Limited at Panipat, Haryana, which is expected to utilize 2 lakh metric tonnes of paddy straw per annum. Another 2G Ethanol Project is being set up by HPCL at Bathinda (Punjab).

Regarding control of Methane, being a greenhouse gas, measures to control methane emissions are undertaken by several Ministries/Departments and reported to the United Nations Framework Convention on Climate Change. These measures include:

- Promotion of Small Hydro Power, Bagasse and Biomass based power, by MNRE
- Promoting System of Rice Intensification as part of National Food Security Mission (NFSM) and Bringing Green Revolution to Eastern India (BGREI)
- Increasing area under Direct Seeded Rice (DSR) as part of National Food Security Mission (NFSM) and Bringing Green Revolution to Eastern India (BGREI)
- Promoting crop diversification
- Balanced Ration for Livestock, which promotes Optimum feeding of animals through Ration Balancing Programme (RBP)
- Feeding bypass proteins: Optimizing the use of protein supplement within the ruminant system
- Sub-Mission on Agricultural Mechanization (SMAM) and central sector scheme on promotion of agricultural mechanization for in-situ management of crops residue launched to increase the reach of farm mechanization to small and marginal farmers and promoting ‘Custom Hiring Centres’ to offset the high cost of individual ownership

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Item No.05 Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No.1069/2024

News Item titled "CSE report finds dangerous increase in ozone pollution across urban India" appearing in Down to Earth dated 06.08.2024

Date of hearing: 20.08.2024

CORAM: HON'BLE MR. JUSTICE PRAKASH SHRIVASTAVA, CHAIRPERSON
HON'BLE MR. JUSTICE ARUN KUMAR TYAGI, JUDICIAL MEMBER
HON'BLE DR. A. SENTHIL VEL, EXPERT MEMBER

Applicant: None appeared

ORDER

1. This original application is registered *suo-motu* on the basis of the news item titled "CSE report finds dangerous increase in ozone pollution across urban India" appearing in the Down to Earth dated 06.08.2024.

2. News item relates to the rising ground level ozone pollution across India's major cities. As per the news item, this invisible gas, unlike the more familiar fine particulate matter, also known as PM2.5, poses a serious health threat, particularly to those with respiratory problems.

3. The news item states that as per a report by the Centre for Science and Environment titled "Air Quality Tracker: An invisible threat" metropolitan areas of Bengaluru (Karnataka), Chennai (Tamil Nadu), Kolkata (West Bengal), Mumbai and Pune (Maharashtra), Delhi-National Capital Region, Greater Ahmedabad (Gujarat), Greater Hyderabad (Telangana), Greater Jaipur (Rajasthan) and Greater Lucknow (Uttar Pradesh) were analyzed and all 10 areas studied witnessed exceeded national ozone standard, with Delhi NCR being the most affected. Smaller

cities like Ahmedabad and Pune were also found to be experiencing a particularly rapid increase in ozone pollution.

4. As per the news item, Ground level ozone is not directly emitted from any source. It is produced from complex interaction between Nitrogen Oxides (NOx) and volatile organic compounds (VOCs) that are emitted from vehicles, power plants, factories and other combustion sources and undergo cyclic reactions in the presence of sunlight to generate ground level ozone. VOCs can also be emitted from natural sources, such as plants.

5. The news item further highlights that between April and July this year, Delhi-NCR recorded 176 days of ground-level ozone exceedances, the highest among the ten metropolitan areas studied. Mumbai and Pune both had 138 days, followed by Jaipur with 126 days and Hyderabad with 86 days. Kolkata had 63 exceedance days, Bengaluru 59, Lucknow 49 and Ahmedabad 41. Chennai had the fewest exceedances, with just nine days. Furthermore, ozone levels were elevated even at night, with Mumbai recording the most instances of night-time exceedances.

6. News item also stated that the duration of ozone exposure lasted an average of 12-15 hours across most cities. Moreover, it alleges that while summer is the peak season for ozone, the problem persists year-round in many areas, particularly in sunnier southern cities. The news item also pointed out that as particulate pollution is reduced, issues with nitrogen oxides (NOx) and ground-level ozone increase. This necessitates significant tightening of regulatory benchmarks for ozone to address toxic emissions from industry, vehicles, households and open burning.

7. The news item asserts that ground-level ozone is a highly reactive gas and has serious health consequences. Those with respiratory

conditions, asthma and chronic obstructive pulmonary disease as well as children with premature lungs and older adults are at serious risk. This can inflame and damage airways, make lungs susceptible to infection, aggravate asthma, emphysema and chronic bronchitis and increase the frequency of asthma attacks leading to increased hospitalization.

8. Power of the Tribunal to take up the matter *suo-motu* has been recognized by the Hon'ble Supreme Court in the matter of *"Municipal Corporation of Greater Mumbai vs. Ankita Sinha &Ors." reported in 2021 SCC Online SC 897*.

9. The news item raises substantial issue relating to compliance of provisions of Air (Prevention and Control of Pollution) Act, 1981; The Ozone Depleting Substances (Regulation and Control) Rules, 2000 and the Environment Protection Act, 1986.

10. Hence, we implead the following as respondents in the matter:

1) Central Pollution Control Board, through its Member Secretary, Parivesh Bhawan, East Arjun Nagar, Delhi-110032

2) Ministry of Environment, Forest and Climate Change, through its Secretary, Indira Paryavaran Bhawan Jorbagh Road, New Delhi – 110 003

11. Issue notice to the above respondents for filing their response /reply in the form of affidavit before the Tribunal at least one week before the next date of hearing. If any of the respondents directly files the reply without routing it through his advocate then the said respondent will remain virtually present to assist the Tribunal.

12. List on 28.11.2024.

Prakash Shrivastava, CP

Arun Kumar Tyagi, JM

Dr. A. Senthil Vel, EM

August 20, 2024
Original Application No.1069/2024
SN

Item No. 08 Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 1069/2024

News Item titled "CSE report finds dangerous increase in ozone pollution across urban India" appearing in Down to Earth dated 06.08.2024

Date of hearing: 28.11.2024

CORAM: HON'BLE MR. JUSTICE PRAKASH SHRIVASTAVA, CHAIRPERSON
HON'BLE MR. JUSTICE ARUN KUMAR TYAGI, JUDICIAL MEMBER
HON'BLE DR. A. SENTHIL VEL, EXPERT MEMBER

Respondents: Ms. Praveena Gautam, Mr. Pawan Shukla, Ms. Tissy Thomas & Ms. Akanksha Tyagi, Advs. for MoEF & CC
Mr. Srinivas Vishven, Adv. for CPCB (Through VC)

ORDER

1. In this original application, registered *suo-moto* on the basis of news item, Tribunal is examining the issue of rising ground level ozone pollution across India's major cities.

2. Learned Counsel for respondent no.1-CPCB submits that CPCB is in the process of analyzing the data which has been collected for ten cities (108 locations) in respect of rising ground level ozone pollution. He has sought one week time to file the reply.

3. Learned Counsel for respondent no.2 also seeks two weeks' time to file the reply.

4. List on 21.03.2025.

Prakash Shrivastava, CP

Arun Kumar Tyagi, JM

Dr. A. Senthil Vel, EM

November 28, 2024
JG..