

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI
Original Application No. 1233 of 2024**

In the matter of:

News Item titled "Heavy metals in PM 2.5 New Study reveals air quality concerns in East Delhi" appearing in the Times of India dated 29.09.2024

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**Filed by Adv. Amit Singh Chauhan
On behalf of Central Pollution Control Board**

Place: Delhi

Dated: 29.01.2025

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI
Original Application No. 1233 of 2024**

In the matter of:

News Item titled "Heavy metals in PM 2.5 New Study reveals air quality concerns in East Delhi" appearing in the Times of India dated 29.09.2024

**REPLY ON BEHALF OF RESPONDENT NO. 3 CENTRAL POLLUTION
CONTROL BOARD (CPCB)**

Most Respectfully Showeth:

1. That this Hon'ble Tribunal vide its order dated 16.10.2024 impleaded the Central Pollution Control Board (hereinafter referred as CPCB / Answering Respondent) as Respondent No. 3 in the above captioned O.A. and vide Notice dated 18.11.2024 has sought the reply of CPCB in the instant matter. The present reply is filed in compliance of the said order dated 16.10.2024 on behalf of the CPCB.
2. That the 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. That the matters raised in the news article, as referred in the order dated 16.10.2024 passed by this Hon'ble Tribunal in the subject matter, are regarding research study published in International Journal of Environmental Studies. The research study formulated the heavy metal exposure index and highlighted the

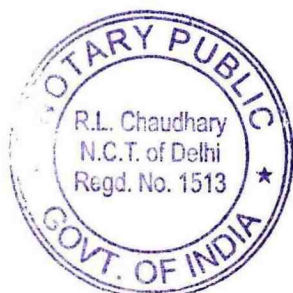


high level of metals, sulphates and nitrates in the air, based on the study of PM 2.5 samples collected during 2019 and 2020 in the six districts namely East Delhi, Jaisalmer, Ludhiana, Visakhapatnam, Panchkula and Patiala.

4. That it is humbly submitted that Ministry of Environment, Forest and Climate Change (MoEF&CC), in exercise, of the powers conferred by section 6 and section 25 of the Environment (Protection) Act, 1986, notified National Ambient Air Quality Standards (NAAQS) for 12 pollutants including metals viz. Lead, Nickel and Arsenic in the year 2009 to protect public health and environment from air pollution. Copy of the NAAQS is annexed herewith and marked as **Annexure-I.**
5. The NAAQS were developed through Indian Institute of Technology Kanpur (IITK) under guidance of Air quality and health experts.
6. That the annual average concentrations of Lead, Nickel and Arsenic, monitored by Respondent CPCB at seven locations in Delhi (including East Delhi) for the period 2019-2023 are tabulated in Table 1 below: -

Table 1: Annual average concentration of metals (Lead, Nickel and Arsenic) during 2019-2023 in Delhi.

Annual average concentration of Nickel (ng/m ³) (Prescribed annual standard: 20 ng/m ³)					
Locations in Delhi	2019	2020	2021	2022	2023
ITO	9	6	14	9	7
PITAMPURA	10	11	9	8	7
SIRIFORT	11	6	5	5	5
JANAKPURI	9	12	7	6	6
NIZAMUDDIN	7	10	4	5	5
SHAHZADA BAGH	15	14	7	6	8



SHAHDARA (East Delhi)	14	16	14	10	10
Annual average concentration of Lead (ng/m ³) (Prescribed annual standard: 500 ng/m ³)					
Locations in Delhi	2019	2020	2021	2022	2023
ITO	174	138	144	137	152
PITAMPURA	163	193	177	157	157
SIRIFORT	147	131	127	94	107
JANAKPURI	141	139	135	110	149
NIZAMUDDIN	153	185	118	118	133
SHAHZADA BAGH	189	194	154	143	155
SHAHDARA (East Delhi)	406	453	209	175	228
Annual average concentration of Arsenic (ng/m ³) (Prescribed annual standard: 6 ng/m ³)					
Locations in Delhi	2019	2020	2021	2022	2023
ITO	3	4	5	4	4
PITAMPURA	3	3	4	3	4
SIRIFORT	4	2	3	3	3
JANAKPURI	3	3	3	3	4
NIZAMUDDIN	4	3	3	3	3
SHAHZADA BAGH	3	4	4	3	4
SHAHDARA (East Delhi)	6	6	6	5	6

7. That it is humbly submitted that the above monitoring results during 2019-2023 indicate that annual average concentrations of Lead, Nickel and Arsenic are within NAAQS, at all monitored locations of Delhi and no exceedances were observed.
8. That further, it is submitted that the monitoring of metals was conducted on fortnightly basis for two consecutive days in Delhi, Ludhiana, Visakhapatnam, Patiala during April-June 2024 with the help of SPCBs/PCCs and no exceedances were observed for monitored metals (Nickel, Lead and Arsenic) in these cities.
9. That, the answering respondent no. 3 craves leave of the Hon'ble Tribunal to file additional reply, if required, in future.



10. That, in the light of the above submissions, it is respectfully submitted that this Answering Respondent, i.e., CPCB, shall abide by any order(s) or direction(s) passed by this Hon'ble Court in the instant OA.



A handwritten signature in blue ink, appearing to read "Aditya Sharma".

(Aditya Sharma)
Scientist 'E'
Central Pollution Control Board

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI
Original Application No. 1233 of 2024**

In the matter of:

News Item titled "Heavy metals in PM 2.5 New Study reveals air quality concerns in East Delhi" appearing in the Times of India dated 29.09.2024

AFFIDAVIT

I, **Aditya Sharma** working as Scientist 'E' in Central Pollution Control Board, Parivesh Bhawan, East Arjun Nagar, Delhi, the Respondent No. 3 in the above matter, do hereby solemnly affirm, declare on oath and state as under: -

1. That I, the deponent herein is 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 and authorized 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 record 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




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 Env. Forest & Climate Change, Govt. of India
परिवेश भवन, पूर्वी अर्जुन नगर
Parivesh Bhawan, East Arjun Nagar
दिल्ली / Delhi-110032

VERIFICATION

Verified at New Delhi on this day of 29 JAN 2025 2025 that the contents of the above reply are correct and true on the basis of the records of the case as mentioned in the day-to-day affairs of the CPCB. Nothing has been concealed therefrom or mis-stated.


DEPONENT

ATTESTED

NOTARY PUBLIC
GOVT. OF INDIA
29 JAN 2025

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



भारत का राजपत्र

The Gazette of India

असाधारण

EXTRAORDINARY

भाग II—खण्ड 3—उप-खण्ड (i)

PART II—Section 3—Sub-section (i)

प्राधिकार से प्रकाशित

PUBLISHED BY AUTHORITY

सं. 660]

नई दिल्ली, सोमवार, नवम्बर 16, 2009/कार्तिक 25, 1931

No. 660]

NEW DELHI, MONDAY, NOVEMBER 16, 2009/KARTIKA 25, 1931

पर्यावरण एवं वन मंत्रालय

अधिसूचना

नई दिल्ली, 16 नवम्बर, 2009

सा.का.नि. 826(अ).- केन्द्रीय सरकार, पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) की धारा 6 और धारा 25 द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, पर्यावरण (संरक्षण) नियम, 1986 में और संशोधन करने के लिए निम्नलिखित नियम बनाती है, अर्थात्:-

- (1) इन नियमों का संक्षिप्त नाम पर्यावरण (संरक्षण) सांत्व संशोधन नियम, 2009 है ।
(2) ये राजपत्र में प्रकाशन की तारीख को प्रवृत्त होंगे ।
- पर्यावरण (संरक्षण) नियम, 1986 (जिन्हें इसके पश्चात् उक्त नियम कहा गया है) के नियम 3 के, उप नियम (अख) में "अनुसूची -VII के स्तंभ (3) से (5) " शब्दों, कोष्ठकों, अंकों और अक्षरों के स्थान पर " अनुसूची-VII के स्तंभ (4) और स्तंभ (5) में "शब्दों, कोष्ठकों, अंकों और अक्षरों को रखा जाये ।
- अनुसूची- VII और इससे संबंधित प्रविष्टियों के स्थान पर निम्नलिखित अनुसूची और प्रविष्टियाँ रखी जाएंगी, अर्थात्:-

*[अनुसूची VII]

[नियम 3(अख) देखिए]

राष्ट्रीय परिवेशी वायु गुणवत्ता मानक

क्रम संख्या	प्रदूषक	समय आधारित औसत	परिवेशी वायु में सांद्रण		
			औद्योगिक, रिहायशी, ग्रामीण और अन्य क्षेत्र	पारिस्थितिकीय संवेदनशील क्षेत्र (केन्द्रीय सरकार द्वारा अधिसूचित)	प्रबोधन की पद्धति
(1)	(2)	(3)	(4)	(5)	(6)
1	सल्फर डाई आक्साइड (SO ₂), µg/m ³	वार्षिक* 24 घंटे**	50 80	20 80	-उन्नत पश्चिम और गार्डक -पराबैंगनी परिरक्षित

(1)	(2)	(3)	(4)	(5)	(6)
2	नाइट्रोजन डाई आक्साइड (NO ₂), µg/m ³	वार्षिक* 24 घंटे**	40 80	30 80	-उपांतरित जैकब और हॉचाइजर (सोडियम-आर्सेनाइट) -रासायनिक संदीप्ति
3	विविक्त पदार्थ (10 माइक्रान से कम आकार) या PM ₁₀ , µg/m ³	वार्षिक* 24 घंटे**	60 100	60 100	-हरात्मक विश्लेषण, -टोयम -बीटा तनुकरण पद्धति
4	विविक्त पदार्थ (2.5 माइक्रान से कम आकार) या PM _{2.5} µg/m ³	वार्षिक* 24 घंटे**	40 60	40 60	-हरात्मक विश्लेषण, -टोयम -बीटा तनुकरण पद्धति
5	ओजोन (O ₃) µg/m ³	8 घंटे** 1 घंटा**	100 180	100 180	-पराबैंगनी दीप्तिकाल - रासायनिक संदीप्ति - रासायनिक पद्धति
6	सीसा (Pb) µg/m ³	वार्षिक* 24 घंटे**	0.50 1.0	0.50 1.0	ई पी एम 2000 या समरूप फिल्टर पेपर का प्रयोग करके AAS/ICP पद्धति - टेफ्लॉन फिल्टर पेपर का प्रयोग करते हुए ED-XRF
7	कार्बन मोनोक्साइड (CO) mg/m ³	8 घंटे* 1 घंटा*	02 04	02 04	-अविपेक्षी अवरक्त (NDIR) स्पैक्ट्रम मापन
8	अमोनिया (NH ₃) µg/m ³	वार्षिक* 24 घंटे**	100 400	100 400	-रासायनिक संदीप्ति -इण्डोफिनॉल ब्ल्यू पद्धति
9	बैन्जीन (C ₆ H ₆) µg/m ³	वार्षिक*	05	05	- आन लाइन गैस क्रोमेटोग्राफी - अधिशोषण तथा निःशोषण के बाद गैस क्रोमेटोग्राफी
10	बेन्जो (ए) पाईरीन (BaP) केवल विविक्त कण, ng/m ³	वार्षिक*	01	01	-विलायक निष्कर्षण के बाद HPLC/GC द्वारा विश्लेषण
11	आर्सेनिक (As) ng/m ³	वार्षिक*	06	06	-असंवितरक अवरक्त स्पैक्ट्रमिती, ई पी एम 2000 या समरूप फिल्टर पेपर का प्रयोग करके ICP/AAS पद्धति
12	निकिल (Ni) ng/m ³	वार्षिक*	20	20	ई पी एम 2000 या समरूप फिल्टर पेपर का प्रयोग करके ICP/AAS पद्धति

* वर्ष में एक समान अंतरालों पर सप्ताह में दो बार प्रति 24 घंटे तक किसी एक स्थान विशेष पर लिये गये न्यूनतम 104 मापों का वार्षिक अंकगणीतीय औसत ।

** वर्ष में 99 प्रतिशत समय पर 24 घंटे या 8 घंटे या 1 घंटा के मानीटर मापमान, जो लागू हों, अनुपालन किये जायेंगे । दो प्रतिशत समय पर यह मापमान अधिक हो सकता है, किन्तु क्रमिक दो मानीटर करने के दिनों पर नहीं ।

टिप्पण :

1. जब कभी और जहाँ भी किसी अपने-अपने प्रवर्ग के लिये दो क्रमिक प्रबोधन दिनों पर मापित मूल्य, ऊपर विनिर्दिष्ट सीमा से अधिक हो तो इसे नियमित या निरंतर प्रबोधन तथा अतिरिक्त अन्वेषण करवाने के लिये पर्याप्त कारण समझा जायेगा।

[फा. सं. क्यू-15017/43/2007-सी.पी.डब्ल्यू.]

रजनोरा दुबे, संयुक्त सचिव

टिप्पण : मूल नियम, भारत के राजपत्र में असाधारण सं.का.आ.844 (अ), तारीख 19 नवम्बर 1986 द्वारा प्रकाशित किये गये थे और पश्चातवर्ती संशोधन सं.का.आ.433 (अ), तारीख 18 अप्रैल 1987, सा.का.नि. 176 (अ), तारीख 2 अप्रैल 1996 और हाल में ही सा.का.नि. 97 (अ), तारीख 18 फरवरी 2009; सा.का.नि. 149 (अ), तारीख 4 मार्च, 2009; सा.का.नि. 512 (अ), तारीख 9 जुलाई, 2009; सा.का.नि. 543 (अ), तारीख 22 जुलाई, 2009; सा.का.नि. 595 (अ), तारीख 21 अगस्त, 2009; और सा.का.नि. 974 (अ) तारीख, 04 नवम्बर 2009 द्वारा प्रकाशित किए गए।

MINISTRY OF ENVIRONMENT AND FORESTS

NOTIFICATION

New Delhi, the 16th November, 2009

G.S.R. 826(E).— In exercise of the powers conferred by section 6 and section 25 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby makes the following rules further to amend the Environment (Protection) Rules, 1986, namely:—

1. (1) These rules may be called the Environment (Protection) Seventh Amendment Rules, 2009.

(2) They shall come into force on the date of their publication in the Official Gazette.

2. In the Environment (Protection) Rules, 1986 (hereinafter referred to as the said rules), in rule 3, in sub-rule (3B), for the words, brackets, figures and letters, "in columns (3) to (5) of Schedule VII", the words, brackets, figures and letters "in columns (4) and (5) of Schedule VII" shall be substituted.

3. For Schedule VII to the said rules and entries relating thereto, the following Schedule and entries shall be substituted, namely:—

“[SCHEDULE VII]

[See rule 3(3B)]

NATIONAL AMBIENT AIR QUALITY STANDARDS

S. No.	Pollutant	Time Weighted Average	Concentration in Ambient Air		
			Industrial, Residential, Rural and Other Area	Ecologically Sensitive Area (notified by Central Government)	Methods of Measurement
(1)	(2)	(3)	(4)	(5)	(6)
1	Sulphur Dioxide (SO ₂), µg/m ³	Annual* 24 hours**	50 80	20 80	- Improved West and Gaeke -Ultraviolet fluorescence
2	Nitrogen Dioxide (NO ₂), µg/m ³	Annual* 24 hours**	40 80	30 80	- Modified Jacob & Hochheiser (Na-Arsenite) - Chemiluminescence
3	Particulate Matter (size less than 10µm) or PM ₁₀ µg/m ³	Annual* 24 hours**	60 100	60 100	- Gravimetric - TOEM - Beta attenuation
4	Particulate Matter (size less than 2.5µm) or PM _{2.5} µg/m ³	Annual* 24 hours**	40 60	40 60	- Gravimetric - TOEM - Beta attenuation

(1)	(2)	(3)	(4)	(5)	(6)
5	Ozone (O ₃) µg/m ³	8 hours** 1 hour**	100 180	100 180	- UV photometric - Chemiluminescence - Chemical Method
6	Lead (Pb) µg/m ³	Annual* 24 hours**	0.50 1.0	0.50 1.0	- AAS /ICP method after sampling on EPM 2000 or equivalent filter paper - ED-XRF using Teflon filter
7	Carbon Monoxide(CO) mg/m ³	8 hours** 1 hour**	02 04	02 04	- Non Dispersive Infra Red (NDIR) spectroscopy
8	Ammonia(NH ₃) µg/m ³	Annual* 24 hours**	100 400	100 400	-Chemiluminescence -Indophenol blue method
9	Benzene (C ₆ H ₆) µg/m ³	Annual*	05	05	- Gas chromatography based continuous analyzer - Adsorption and Desorption followed by GC analysis
10	Benzo(a)Pyrene (BaP) - particulate phase only, ng/m ³	Annual*	01	01	- Solvent extraction followed by HPLC/GC analysis
11	Arsenic (As), ng/m ³	Annual*	06	06	- AAS /ICP method after sampling on EPM 2000 or equivalent filter paper
12	Nickel (Ni), ng/m ³	Annual*	20	20	- AAS /ICP method after sampling on EPM 2000 or equivalent filter paper

* Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

** 24 hourly or 08 hourly or .01 hourly monitored values, as applicable, shall be complied with 98% of the time in a year. 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.

Note.— Whenever and wherever monitoring results on two consecutive days of monitoring exceed the limits specified above for the respective category, it shall be considered adequate reason to institute regular or continuous monitoring and further investigation.”

[F. No. Q-15017/43/2007-CPW]

RAJNEESH DUBE, Jt. Secy.

Note.— The principal rules were published in the Gazette of India, Extraordinary vide number S.O.844(E), dated the 19th November, 1986; and subsequently amended vide numbers S.O. 433(E), dated the 18th April, 1987; G.S.R. 176 (E), dated the 2nd April 1996; and were recently amended vide numbers G.S.R. 97(E), dated the 18th February, 2009; G.S.R. 149(E), dated the 4th March, 2009; G.S.R. 512(E), dated the 9th July, 2009; G.S.R. 543(E), dated the 22nd July, 2009; G.S.R. 595(E), dated the 21st August, 2009; and G.S.R. 794(E), dated the 4th November, 2009.

Item No.04

Court No. 1

**BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI**

Original Application No. 1233/2024

News Item titled "Heavy metals in PM 2.5 New Study reveals air quality concerns in East Delhi" appearing in the Times of India dated 29.09.2024

Date of hearing: 16.10.2024

**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
Respondent: None

ORDER

1. This original application is registered *suo-motu* on the basis of the news item titled "Heavy metals in PM 2.5 New Study reveals air quality concerns in East Delhi" appearing in the Times of India dated 29.09.2024.

2. The news item relates to a study conducted by the Indian Institute of Technology, Delhi revealing severe heavy metal pollution in East Delhi's air, raising significant health concerns. As per the news item, the study detected alarming levels of heavy metals such as lead, cadmium, and nickel in the air. In East Delhi district, chromium, copper, zinc, molybdenum and lead were the major heavy metals found in PM2.5. These metals are known to have severe health impacts, including respiratory and cardiovascular diseases.

3. The news item states that the study formulated the heavy metal exposure index (HEI) in East Delhi (part of a mega city), Jaisalmer (desert), Ludhiana (industrial city), Visakhapatnam (coastal), Panchkula and Patiala. Panchkula was chosen as it is a particulate matter attainment city as the

air quality is usually better throughout the year while Patiala was studied as widespread stubble burning takes place here. The study found that HEI, which is toxicity load, was the highest in East Delhi before the Covid-19 lockdown. However, after the lockdown, it was highest in Ludhiana, followed by East Delhi. A higher HEI value implies a higher level of heavy metal exposure owing to PM2.5 in ambient air. The study found the highest value of HEI for Ludhiana (21.78), followed by East Delhi (21.45) and Panchkula (10.74). The value was above the median value of 8 for these three districts.

4. The news item highlights that the primary sources of these pollutants include industrial emissions, vehicular exhaust, and construction activities. Furthermore, the presence of heavy metals poses serious health risks, particularly to vulnerable populations such as children and the elderly. Long-term exposure can lead to respiratory issues, neurological disorders, and other serious health problems

5. The news item raises substantial issues relating to compliance with provisions of the Air (Prevention and Control of Pollution) Act, 1981 and Environment (Protection) Act, 1986.

6. The 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.

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

1. **Delhi Pollution Control Committee (DPCC), Through its Member Secretary:** 6th Floor, C Wing, Delhi Secretariat, I.P. Estate, Delhi - 110002;

2. **Punjab Pollution Control Board (PPCB), Through its Member Secretary:** Vatavaran Bhawan, Nabha Road, Patiala, Punjab - 147001;
 3. **Central Pollution Control Board (CPCB), Through its Member Secretary:** Parivesh Bhawan, East Arjun Nagar, Delhi – 110032;
 4. **Ministry of Environment, Forest and Climate Change (MoEF), Through its Regional Office**
Aranya Bhawan, Mahatma Gandhi Road, Jhalana Institutional Area, Jaipur – 304002, Rajasthan;
 5. **District Magistrate (DM), East Delhi:** Office of District Magistrate (East), L.M. Bund, Shastri Nagar, Delhi – 110031;
 6. **District Magistrate (DM), Ludhiana:** District Administrative Complex, Ludhiana, Punjab- 141001
8. Let notice be issued to the respondents for filing their response/reply by way of affidavit before the Tribunal at least one week before the next date of hearing. If any respondent directly files the reply without routing it through his advocate then the said respondent will remain virtually present to assist the Tribunal.
9. List on 06.02.2025.

Prakash Shrivastava, CP

Arun Kumar Tyagi, JM

Dr. A. Senthil Vel, EM

October 16, 2024
Original Application No. 1233/2024
JG..