

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

O.A. NO. 468 OF 2022

IN THE MATTER OF:

RAJA SINGH

.....APPLICANT

Versus

MINISTRY OF HOUSING AND URBAN AFFAIRS & ORS

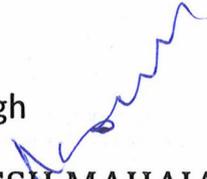
.....RESPONDENTS

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N.D.O.H: 16/09/2022

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Through 

(RAKESH MAHAJAN ADV)

Counsel For the MOEF & CC

S-370, LGF. Panchsheel Park

New Delhi-110017

Mobile No. 9318415544

Mail advocaterakesh.m@gmail.com

New Delhi

Dated: 12/08/2022

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

O.A. NO. 468 OF 2022

RAJA SINGH

...APPLICANT

Versus

MINISTRY OF HOUSING AND URBAN AFFAIRS & ORS.

...RESPONDENTS

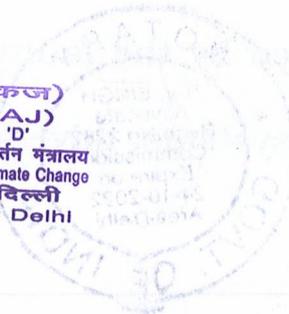
**AFFIDAVIT ON BEHALF OF THE MINISTRY OF
ENVIRONMENT, FOREST AND CLIMATE CHANGE
(RESPONDENT NO.1).**

I, R.N. Pankaj S/o Late Sh. Chhotu Turi aged about 55 years, presently working as Scientist 'D' in the Ministry of Environment, Forest and Climate Change (hereinafter referred to as MoEF&CC) having office at Indira Paryavaran Bhawan, Jor Bagh, New Delhi-

NO. 110003, do hereby solemnly affirm and state as hereunder:



R.N. Pankaj
(आर. एन. पंकज)
(R. N. PANKAJ)
वैज्ञानिक 'डी'/Scientist 'D'
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
Min.of Environment, Forest and Climate Change
भारत सरकार, नई दिल्ली
Govt. of India, New Delhi



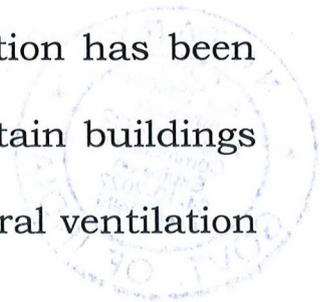
1. That, I am well acquainted with the facts and circumstances of the case and competent to swear this affidavit on behalf of MoEF&CC being the Respondent in the present Original Application.

2. That the Answering Respondent is engaged in, *inter alia*, policy formulation for abatement, control and prevention of pollution and prescribing environmental standards to be implemented through the Central Pollution Control Board (CPCB) and State Pollution Control Boards (SPCBs)/ Pollution Control Committees (PCCs).

Besides, the concerned State Pollution Control Boards/Pollution Control Committees are empowered to take all such measures as are deemed necessary or expedient for the purpose of protection and improving the quality of environment as well as prevention, control and abatement of environmental pollution.

3. That it is submitted that the present Application has been filed being aggrieved by the faulty designing of certain buildings and of ventilation systems, adversely affecting natural ventilation

(अवर. पं. पंकज)
(R. N. PANKAJ)
वैज्ञानिक / Scientist
पर्यावरण, वन एवं जलवायु परिवर्तन विभाग
Min. of Environment, Forest and Climate Change
भारत सरकार, नई दिल्ली
Govt. of India, New Delhi



thereby resulting in excessive and avoidable use of energy and also depriving occupants of natural light and oxygen. Further, the Applicant has prayed the following:

- a. Necessary changes in the building bye-laws for appropriate window design such as wire mesh, sun shading (chhajja), window having a view for psychological relief, provision for theft proofing like grills etc.
- b. Builders to install carbon dioxide meters for ventilation monitoring.
- c. Manufacturers of air conditioners to make innovations in the design of split air conditioners to make provisions for outdoor air instead of just recirculated air.

Rupantaj
(आर. एन. पंकज)
(R. N. PANKAJ)
वैज्ञानिक 'डी' श्रेणी, पंजाब
Min. of Environment, Forest and Climate Change
भारत सरकार, नई दिल्ली
Govt. of India, New Delhi

That it is submitted that this Hon'ble Tribunal vide its order dated 19.04.2022 in O.A. No. 143 of 2016 (WZ) titled as Dileep Nevatia Vs. Union of India & Ors. along with O.A. No. 206 of 2022 titled as Raja Singh Vs. Union of India & Ors. inter alia directed the following:



- a. to evolve an appropriate mechanism by the MoEF and CPCB in coordination with other concerned Ministries particularly the Ministry of Urban Affairs and Ministry of Health, with CPCB being nodal agency.
- b. The joint Committee comprising the afore-said members may hold its first meeting within one month.
- c. The Committee after deliberations shall work out appropriate standards and protocols for indoor air quality for safeguarding public health at Public places under the EP Act, EP Rules or the Air Act within three months.
- d. The standards and protocol thus developed will be open to the applicants to make their respective representations before the Committee.
- e. Based on report of the Committee, MoEF/CPCB may issue appropriate orders under the relevant statutory provisions.

A copy of the Order dated 19.04.2022 in O.A. No. 143 of 2016 (WZ) titled as Dileep Nevatia Vs. Union of India & Ors. along with O.A.



(आर. एन. पंकज)
(R. N. PANKAJ)
वैज्ञानिक 'डी' / Scientist 'D'
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
Min. of Environment, Forest and Climate Change
भारत सरकार, नई दिल्ली
Govt. of India, New Delhi

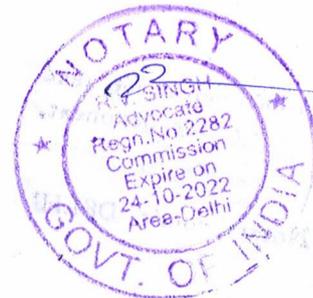


No. 206 of 2022 titled as Raja Singh Vs. Union of India & Ors. is annexed herewith as **ANNEXURE R-1**.

5. That it is submitted that the suggestions being provided by the Applicant in the instant Original Application is to improve the indoor air quality and ventilation. That it is submitted that as submitted hereinabove, in compliance of the Order dated 19.04.2022, CPCB being the Nodal Agency, vide its Office Order dated 18.05.2022 constituted the Joint Committee. A copy of the Office Order dated 18.05.2022 is annexed herewith as **ANNEXURE R-2**.

6. That it is submitted that the Joint Committee is deliberating upon the guidelines for ventilation in buildings, methodology for measurement of emission of indoor air. A copy of the Minutes of the Meeting dated 19.05.2022 and 29.06.2022 is attached herewith as **ANNEXURE R-3**.


(आर. एन. पंकज)
(R. N. PANKAJ)
वैज्ञानिक 'डी'/Scientist 'D'
पर्यावरण, वन एवं जलवायु परिवर्तन विभाग
Min. of Environment, Forest and Climate Change
भारत सरकार, नई दिल्ली
Govt. of India, New Delhi



In view of the above submissions, this Hon'ble Tribunal may pass such order(s) as deemed fit and proper in the facts and circumstances of the case.

Rupankaj

DEPONENT

(आर. एन. पंकज)
(R. N. PANKAJ)

वैज्ञानिक 'डी'/Scientist 'D'
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
Min. of Environment, Forest and Climate Change
भारत सरकार, नई दिल्ली
Govt. of India, New Delhi

VERIFICATION:

Verified at New Delhi on the _____ of August, 2022 that the

contents of the above affidavit are true and correct to the best of my knowledge and belief and nothing material has been suppressed or concealed therein.

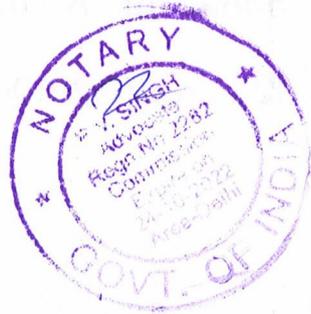
29/08/2022
Identify the deponent/execution who has signed in my presence.

Rupankaj

DEPONENT

(आर. एन. पंकज)
(R. N. PANKAJ)

वैज्ञानिक 'डी'/Scientist 'D'
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
Min. of Environment, Forest and Climate Change
भारत सरकार, नई दिल्ली
Govt. of India, New Delhi



Solemnly affirmed before me, read over & explained to the deponent.

[Signature]
Notary Public, DELHI

10 AUG 2022

ANNEXURE R-1

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Item Nos. 11&12

(Pune Bench)

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

(By Video Conferencing)

Original Application 143/2016 (WZ)
(M.A. No. 377/2017)

Dileep Nevatia

Applicant

Versus

Union of India, Secretary MoEF& CC & Anr.

Respondent(s)

WITH

Original Application 206/2022

Raja Singh

Applicant

Versus

Union of India & Ors.

Respondent(s)

Date of hearing: 19.04.2022

**CORAM: HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
HON'BLE MR. JUSTICE SUDHIR AGARWAL, JUDICIAL MEMBER
HON'BLE MR. JUSTICE DINESH KUMAR SINGH, JUDICIAL MEMBER
HON'BLE PROF. A. SENTHIL VEL, EXPERT MEMBER
HON'BLE DR. VIJAY KULKARNI, EXPERT MEMBER
HON'BLE DR. AFROZ AHMAD, EXPERT MEMBER**Applicant: Mr. Dileep Nevatia, Applicant in Person in OA 143/2016
Mr. C P Mittal, Advocate for Applicant in OA 206/2022Respondent(s): Mr. Siddhesh Paranjape, Advocate for Mr. Rahul Garg, Advocate
for MoEF& CC (in OA 143/2016)
Mr. Aniruddha S Kulkarni, Advocate for CPCB (in OA 143/2016)**ORDER**

1. This order will deal with O.A. No. 143 of 2016 and O.A. No. 206 of 2022 as both the matters have common prayer for direction to evolve standards for Indoor Air Quality (IAQ).

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2. In O.A. No. 143/2016, case set out by the applicant is Indoor Air Pollution (IAP) is as serious as Outdoor Air Pollution (OAP). IAP has potential of affecting public health. IAP causes large number of premature deaths due to pneumonia, chronic obstructive pulmonary disease (COPD), and lung cancer. Most affected groups are women and young children. Morbidities associated with IAP are respiratory illnesses, viz., acute respiratory tract infection and COPD, poor perinatal outcomes like low birth weight and still birth, cancer of nasopharynx, larynx, lung and leukemia. Sulphur dioxide and nitrogen dioxide cause wheezing and exacerbation of asthma. Nitrogen dioxide causes respiratory infections and deteriorates lung functions. Sulphur dioxide has an additional etiological role in exacerbation of COPD and cardiovascular disease. Risk of poor perinatal outcomes, viz., low birth weight and perinatal death increases from exposure to carbon monoxide. People disturbed by excessive levels of indoor noise have increased levels of stress hormones that raise their blood pressure and other risk factors, leading to disease and death. In terms of environmental burden on health, noise is second only to air pollution, according to the WHO. In spite of this factual position, no standards have been laid down for IAP by the MoEF&CC or the CPCB.

3. The application was first heard on 04.10.2016. The Tribunal issued notice to the Respondents – MoEF&CC and CPCB. Replies have been filed by the MoEF&CC and CPCB. Stand of the MoEF&CC is that indoor air quality norms have been developed by Bureau of Indian Standards (BIS) incorporated in National Building Code (2005) of India, applicable to the mega malls where large confined conditions exist. General household buildings do not have air handling system installed with them and as such are largely unregulated. Besides, noise Standards

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and the aged persons. Concededly, there are various standards prescribed for indoor air pollution by the WHO, US and other advanced countries. We therefore, expect the Ministry to pursue with this matter vigorously to ensure that the standards prescribed are at the earliest.

List the matter on 30th August, 2018 before which the MoEF shall file a report on the progress made in the matter by way of an affidavit."

5. The matter has been taken up today after almost four years but no progress report has been filed by the MoEF&CC, as directed.

6. **In O.A. No. 206 of 2022**, case of the applicant is that large public buildings where people gather in large number need to maintain safe and healthy air quality by appropriate regulation under provisions of the Air Act, 1981, to safeguard against air borne infection. The applicant earlier filed a writ petition before the Delhi High Court being the W.P. (C) No. 7810/2021 which was disposed of vide order dated 05.07.2021 with a direction that the same be treated as representation to the authorities – MoEF&CC, Ministry of Housing, DPCC and Commission for Air Quality Management. The DPCC rejected the representation by stating that the Air Act, 1981 is not applicable to indoor pollution. Other authorities have not taken any decision. According to the applicant, the view taken by the DPCC is erroneous as air pollution in large public buildings needs regulation in the interest of public health. The applicant has relied upon articles annexed to the petition as Annexures D to G. It is submitted that it is permissible to lay down standards under the Environment (Protection) Act, 1986 (EP Act), Environment (Protection) Rules, 1986 (EP Rules) as also the Air (Prevention and Control of Pollution) Act, 1981 (Air Act). The applicant has also referred to statement of objects and reasons of the Air Act, 1981 as follows:-

"2. The presence in air, beyond certain limits, of various pollutants discharged through industrial emissions and from certain human activities connected with the traffic, heating,

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use of domestic fuel, refuse, incinerations, etc. has a detrimental effect on the health of the people as also the animal life, vegetation and property.”

7. We have heard learned counsel for the parties. During the hearing, apart from the pleadings referred to above, some further material has been relied upon to which reference will be made.
8. Question for consideration is whether a substantial question of environment arises under section 14 of the NGT Act and whether a case is made out for a direction under section 15(1) of the NGT Act.
9. We have duly considered the averments in the application, earlier order of the Tribunal dated 5.7.2018, stand of the respondents, relevant statutory provisions and the material produced during the hearing.
10. As per an article on the subject¹, toxic gases and particulate matter may be generated indoor which may adversely affect the employees working in such places and also general public visiting such places. The sources of indoor air pollutants can include building material, formaldehyde, volatile organic carbon, radon, asbestos, particulate matter, gaseous pollutants, biological pollutants. Conclusion in the article is as follows:-

“In above review made, it is evident that the indoor air quality is poorly maintained in many Indian buildings because of various reasons. Poor ventilation, reduced per capita floor space, usage of solid fuels for cooking and household products releasing toxic gases and particulate matter are the more depending factors for indoor air pollution. Polluted ambient air is also responsible for indoor air pollution as there is high circulation of air between indoor and ambient air. Therefore, maintaining good ambient condition with natural trees, maximum reduction in usage of indoor polluting household products can help in reducing the indoor pollution to the maximum.”

¹ **Retraction: Review on indoor air quality in Indian buildings** (IOP Conf. Ser.: Mater. Sci. Eng. 1145 012037) - <https://iopscience.iop.org/article/10.1088/1757-899X/1145/1/012156>

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11. In WHO Guidelines for indoor air quality², reference is made to sources of pollutants in indoor buildings including benzene, carbon monoxide, formaldehyde, naphthalene, nitrogen dioxide, polycyclic aromatic hydrocarbons, radon, trichloroethylene and tetrachloroethylene. Having regard to such pollutants, WHO has suggested guidelines as follows:-

“ **Table A. Summary of indoor air quality guidelines for selected pollutants**

Pollutant	Critical outcome(s) for guideline definition
Benzene	<ul style="list-style-type: none"> • Acute myeloid leukemia (sufficient evidence on causality) • Genotoxicity
Carbon monoxide	Acute exposure-related reduction of exercise tolerance and increase in symptoms of ischaemic heart disease (e.g. ST-segment changes)
Formaldehyde	Sensory irritation
Naphthalene	Respiratory tract lesions leading to inflammation and malignancy in animal studies
Nitrogen dioxide	Respiratory symptoms, bronchoconstriction, increase bronchial reactivity, airway inflammation and decreases in immune defence, leading to increased susceptibility to respiratory infection
Polycyclic aromatic hydrocarbons	Lung cancer
Radon	Lung cancer Suggestive evidence of an association with other cancers, in particular leukemia and cancers of the extrathoracic airways.
Trichloroethylene	Carcinogenicity (liver, kidney, bile duct and non-Hodgkin's lymphoma), with the assumption of genotoxicity
Tetrachloroethylene	Effects in the kidney indicative of early renal disease and impaired performance.
Guidelines	Comments
<ul style="list-style-type: none"> • No safe level of exposure can be recommended. • Unit risk of leukemia per $1\mu\text{g}/\text{m}^3$ air concentration is 6×10^{-6} 	

² World Health Organization-Selected Pollutant - https://www.euro.who.int/__data/assets/pdf_file/0009/128169/e94535.pdf

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<ul style="list-style-type: none"> The concentration of airborne benzene associated with an excess lifetime risk of 1/10000, 1/100000 are 17, 17 and 0.17 $\mu\text{g}/\text{m}^3$, respectively. 	
<ul style="list-style-type: none"> 15 minutes-100mg/m^3. 1 hour-35 mg/m^3. 8 hours-10 mg/m^3. 24 hour-7 mg/m^3. 	
<p>0.1 mg/m^3-30 minutes average</p>	<p>The guideline (valid for any 30-minute period) will also prevent effects on lung function as well as nasopharyngeal cancer and myeloid leukemia</p>
<p>0.1 mg/m^3-annual average</p>	<p>The long-term guideline is also assumed to prevent potential malignant effect in the airways</p>
<ul style="list-style-type: none"> 200 $\mu\text{g}/\text{m}^3$-1 hour average 40 $\mu\text{g}/\text{m}^3$-annual average 	<p>No evidence of exposure threshold from epidemiological studies</p>
<ul style="list-style-type: none"> No threshold can be determined and all indoor exposures are considered relevant to health 	<p>B[a]P is taken as a marker of the PAH mixture</p>
<ul style="list-style-type: none"> Unit risk for lung cancer for PAH mixtures is estimated to be 8.7×10^{-5} per ng/m^3 of B[a]P 	
<ul style="list-style-type: none"> The corresponding concentrations for lifetime exposure to B[a]P producing excess lifetime cancer risks of 1/10000, 1/100000 are approximately 1.2, 0.12 and 0.012 ng/m^3, respectively. 	
<ul style="list-style-type: none"> The excess lifetime risk of death from radon-induced lung cancer (by the age of 75 years) is estimated to be 0.6×10^{-5} per Bq/m^3 for lifelong non-smokers and 15×10^{-5} per Bq/m^3 for current smokers (15-24 cigarettes per day); among ex-smokers, the risk is intermediate, depending on time since smoking cessation. The radon concentrations associated with an excess lifetime risk of 1/100 and 1/1000 are 67 and 6.7 Bq/m^3 for current smokers and 1670 and 167 Bq/m^3 for lifelong non-smokers, respectively. 	<p>WHO guidelines provide a comprehensive approach to the management of health risk related to radon.</p>
<ul style="list-style-type: none"> Unit risk estimate of 4.3×10^{-7} 	

<i>per µg/m³</i>	
<ul style="list-style-type: none"> • <i>The concentrations of airborne trichloroethylene associated with an excess lifetime cancer risk of 1:10000, 1:100000 are 230, 23 and 2.3 µg/m³, respectively.</i> 	
<i>0.25 mg/m³-annual average</i>	<p><i>Carcinogenicity is not used as an endpoint as there are no indications that tetrachloroethylene is genotoxic and there is uncertainty about the epidemiological evidence and the relevance to humans of the animal carcinogenicity data</i></p>

12. Our attention has also been drawn to Council of Scientific & Industrial Research (CSIR), Guidelines on ventilation of residential and office buildings³ and a documentary film on Indoor Air Quality Concerns and Action⁴.

13. We may now refer to some of the statutory provisions. Noise Pollution (Regulation and Control) Rules, 2000 have been framed under section 6 read with Section 25 of the EP Act, 1986 read Rule 5 of the EP Rules, 1986. 'Public place' is defined as follows:-

“public place” means any place to which the public have access, whether as of right or not, and includes auditorium, hotels, public waiting rooms, convention centres, public offices, shopping malls, cinema halls, educational institutions, libraries, open grounds and the like which are visited by general public; and.”

14. Thus, on that pattern indoor air quality can be regulated in respect of public places, as defined with such changes in the definition as may be required. Regulation need not be for domestic building as rightly pointed out by the MoEF&CC. There is no statutory bar to regulation of

³ **CSIR Guidelines on ventilation of Residential and office building -**
<https://www.niti.gov.in/sites/default/files/2022-01/VentilationGuidelines-and-VU-C-Disinfection-Technology-for-mitigation-ofSARS-CoV-2.pdf>

⁴ https://www.youtube.com/watch?v=kBie_sq7eRc

indoor air quality under the Air Act or the EP Act and the Rules. Need for such regulation is certainly shown by the studies referred to above. Thus, substantial question of environment arises and is answered to the effect that there is need for regulation of indoor air quality at public places. A case is made out for a direction to evolve an appropriate mechanism by the MoEF and CPCB in coordination with other concerned Ministries particularly the Ministry of Urban Affairs and Ministry of Health, with CPCB being nodal agency. Joint Committee may hold its first meeting within one month and after deliberations work out appropriate standards and protocols for indoor air quality for safeguarding public health at Public places under the EP Act, EP Rules or the Air Act within three months. It will be open to the applicants to make their respective representations before the Committee. Based on report of the Committee, MoEF/CPCB may issue appropriate orders under the relevant statutory provisions.

The applications are disposed of.

A copy of this order be forwarded to the MoEF&CC, CPCB, Ministry of Urban Affairs and Ministry of Health, GoI, by e-mail for compliance.

M.A. No. 377/2017 also stands disposed of.

Adarsh Kumar Goel, CP

Sudhir Agarwal, JM

Dinesh Kumar Singh, JM

Prof. A. Senthil Vel, EM

Dr. Vijay Kulkarni, EM

Dr. Afroz Ahmad, EM

April 19, 2022
Original Application No. 143/2016 &
Original Application No. 206/2022
A

626860/2022/CP



केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय भारत सरकार
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE GOVT. OF INDIA

ANNEXURE R-2

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NGT MATTERMOST URGENT

EQ-11099/21/2022-AQM-HO-CPCB-HO

1013

May 18, 2022

To:

As per list

Sub: First meeting of the joint committee for indoor air quality management- reg.

Sir,

I am directed to forward Office Order dated 18.05.2022, for constitution of a Joint Committee for indoor air quality management (copy enclosed), in compliance to the order of the Hon'ble National Green Tribunal, Principal Bench, Delhi dated 19.04.2022 in OA no. 143/2016 (Dileep Nevatia Vs UoI) with OA no. 206/2022 (Raja Singh Vs UoI).

The first meeting of the committee is scheduled on **May 19, 2022 at 02:30 P.M.**, through video conferencing. Link for the VC shall be shared shortly. It is kindly requested to make it convenient to attend the meeting. A line of confirmation regarding participation will be highly appreciated (E-mail: aqm.cpcb@gov.in, ankush.cpcb@nic.in)

Yours faithfully,

(Ankush Tewani)

Scientist 'D'

Air Quality Management Division

Encl: As above

Handwritten notes:
24-05-2022
Pl. put up on file.
JD (ANP)
RA (VKM)
Rupam
24/5
Pl. see, Sir!

'परिवेश भवन' पूर्वी अर्जुन नगर, दिल्ली-110032
Parivesh Bhawan, East Arjun Nagar, Delhi-110032

दूरभाष/Tel : 43102030, 22305792, वेबसाइट/Website : www.cpcb.nic.in

True Copy
✓

List:

- ✓ 1. Sh. Ved Prakash Mishra, Director (CP),
Ministry of Environment, Forest & Climate Change
Indira Paryavaran Bhawan, Jorbagh Road,
New Delhi – 110 003
2. Dr. Rakesh Kumar, Director,
Council of Scientific and Industrial Research,
Anusandhan Bhawan, 2 Rafi Ahmed Kidwai Marg,
New Delhi – 110001
3. Prof. Arun K. Sharma, Director,
ICMR- National Institute for Implementation Research on Non Communicable
Diseases (NIIRNC)
New Pali Rd, Air Force Area,
Jodhpur, Rajasthan 342005
4. Dr. Mukesh Khare, Professor,
Department of Civil Engineering,
Indian Institute of Technology Delhi
Hauz Khas, New Delhi-110016
5. Dr. Radha Goyal, Deputy Director,
Indian Pollution Control Association
3-5, DDA Shopping Complex, Hargobind Enclave,
Vikas Marg Ext., Delhi – 110092

True copy
Dr

626860/2022/CP



केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय भारत सरकार
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE GOVT. OF INDIA

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EQ-11099/21/2022-AQM-HO-CPCB-HO

May 18, 2022

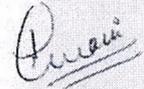
OFFICE ORDER**Sub: Constitution of Joint Committee on Indoor Air Quality Management – reg.**

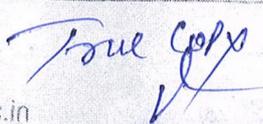
Hon'ble National Green Tribunal, Principal Bench, Delhi vide order dated 19.04.2022 in OA No. 143/2016 (Dileep Nevatia Vs UOI) with OA No. 206/2022 (Raja Singh Vs UOI) directed MoEF&CC and CPCB to evolve an appropriate mechanism in coordination with other concerned Ministries particularly the Ministry of Urban Affairs and Ministry of Health and work out appropriate standards and protocols for indoor air quality for safeguarding public health at Public places.

Accordingly, following Joint Committee is constituted to develop standards/ guidelines/ protocol for indoor air quality management.

S. NO.	NAME	DESIGNATION
1.	Dr. Prashant Gargava, Member Secretary, CPCB	Chairman
2.	Sh. Ved Prakash, Director (CP), MoEF&CC	Member
3.	Representative, MoHUA	Member
4.	Representative, MoH&FW	Member
5.	Representative, BIS	Member
6.	Dr. Rakesh Kumar, Director, CSIR	Expert Member
7.	Prof. Arun Kr. Sharma, ICMR-NIIRNC	Expert Member
8.	Dr. Mukesh Khare, Professor, IIT Delhi	Expert Member
9.	Dr. Radha Goyal, Deputy Director, IPCA	Expert Member
10.	Sh. P.K Gupta, Scientist 'F', CPCB	Member
11.	Sh. Abhijit Pathak, Scientist 'D', CPCB	Member
12.	Sh. Ankush Tewani, Scientist 'D', CPCB	Member Convener

- The Joint committee may co-opt or invite any other experts / officials depending on the specific issues.
- The expenditure involved on TA/ DA or sitting fee shall be provided as per Hon'ble NGT order for attending the meeting of the joint committee.
- The tenure of the joint committee will be for one (01) year.
- This issues with approval of the Competent Authority.


(Ankush Tewani)
Scientist 'D'
AQM Division



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To:

1. Joint Secretary, MoHUA
2. Joint Secretary, MoH&FW
3. Director General, BIS
4. Sh. Ved Prakash, Director (CP), MoEF&CC
5. Dr. Rakesh Kumar, CSIR
6. Prof. Arun K. Sharma, Director, ICMR-NIIRNC
7. Dr. Mukesh Khare, Professor, IIT Delhi
8. Dr. Radha Goyal, Deputy Director, IPCA
9. Sh. P.K Gupta, Director, AQM, CPCB
10. Sh Abhijit Pathak, Sect'D', Air Lab, CPCB

Copy to:

1. PS to CCB, CPCB
2. PS to MS, CPCB

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U226262/2022/CP



केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय भारत सरकार
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE GOVT. OF INDIA

ANNEXURE R/3 136

SPEED POST/EMAIL

EQ-11099/21/2022-AQM-HO-CPCB-HO 1163

May 26, 2022

To:

Sh. Ved Prakash Mishra, Director (CP),
Ministry of Environment, Forest & Climate Change
Indira Paryavaran Bhawan, Jorbagh Road,
New Delhi – 110 003

Sub: Minutes of the first meeting of the joint committee for indoor air quality management- reg.

Sir,

I am directed to forward enclosed minutes of the first meeting of the Joint Committee for indoor air quality management, for perusal and suitable action please.

Yours faithfully,

(Ankush Tewani)

Scientist 'D' and Member Convener

Encl: As above

Dir (VR) - on file
US (PT)
Dr. P. S. / 9.6.22
May please see, hr
JDC (AIR)

Pl. put up on concern file.

RA (VKM)

Rupankaj
9/6/22

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Minutes of First meeting of the Joint Committee for
Indoor Air Quality (IAQ) Management held on May 19, 2022

First meeting of the Joint Committee for Indoor Air Quality Management was held on May 19, 2022 at Central Pollution Control Board. The meeting was chaired by Dr. Prashant Gargava, Member Secretary, CPCB, and Chairman, Joint Committee. The list of participants is annexed.

02. Chairman, Joint Committee welcomed the participants. Sh. Ankush Tewani, Scientist 'D', CPCB made a presentation on the background and mandate of the committee. He informed that the Hon'ble National Green Tribunal in OA no. 143/2016 (Dileep Nevatia vs UoI) and OA no. 206/2022 (Raja Singh vs UoI), vide order dated 19.04.2022, directed CPCB and MoEF&CC, in coordination with MoHUA and MoH&FW to work out appropriate standards and protocols for indoor air quality for safeguarding public health at public places under the EP Act, EP Rules or the Air Act within three months. Accordingly, a joint committee with representation from the aforementioned organisations/ministries along with BIS and eminent experts, has been constituted, and, this first meeting has been convened.

03. Chairman, Joint Committee proposed a phase-wise approach for formulation of guidelines on indoor air quality, which includes (i) exploring available information, i.e. national and international guidelines/standards, best practices vis-à-vis product use, research studies on Indoor Air Quality carried out in India, etc., (ii) identifying the areas where guidelines can be directly made applicable, and those which require further refinement, (iii) preparation of a prioritisation matrix to decide public places where guidelines are needed on priority, considering factors such as population exposure, challenges in implementation/enforcement, etc. (iv) Sensitizing the public, through IEC activities.

04. He further expressed that an activity plan/roadmap needs to be formulated, clearly identifying the targets that are to be achieved in two months' time, and those that are achievable but require more time, for which methodology and timeframe is to be decided.

05. Prof. Mukesh Khare, IIT Delhi added that a protocol also needs to be formulated and expressed that emphasis is to be laid on prioritizing the type of buildings for guidelines preparation, considering type of occupancy, exposure, type of ventilation, etc.

06. Sh. Srinivas, MoHUA informed that they have drafted an addendum to model building byelaws for air quality management, and the same is under approval. These would be applicable to all types of buildings located within municipal corporation areas, however, there

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is no restriction on their adoption in rural areas also. He further added that he'll seek approval of the higher authorities for sharing the draft addendum with the Joint Committee.

07. Dr. Arun Sharma, ICMR-NIIRNC, mentioned that since less time is available, it may be conveyed to NGT that interim guidelines may be formed and standards would need more time. Dr. Radha Goyal, IPCA, suggested that interim guidelines could be prepared after a detailed review of international and national literature and available data is completed, which may be modified further.

08. Dr. Rameshwar, NCDC informed about NCDC's experience in awareness activities regarding National Programme on Climate Change & Human Health and that they have created various awareness templates and modules for awareness programmes. He suggested that these templates and modules may be suitably modified for creating awareness on indoor air pollution in urban spaces.

09. Dr. Rakesh Kumar, CSIR expressed that formulation of standards is a time-consuming process and that meta-analysis of all available information should be the first step to identify the work that needs to be done.

10. Dr. A. K. Lal, BIS stated that there are guidelines for ventilation in building, and methodology for measurement of emissions of indoor air, published by BIS and CBRI, which shall be shared with the joint committee members.

11. After detailed deliberations, the following decisions were made:
- The guidelines may be developed/prepared for urban public places.
 - Inputs may also be invited from other stakeholders, such as TERI which has also worked on Green Rating for Integrated Habitat Assessment (GRIHA).
 - Dr. Radha Goyal would collate the existing available information, including international and national literature and governmental notifications and regulations, and suggest a prioritisation matrix. CPCB would extend all possible support to Dr. Goyal in formulation of the report. Based on the report, interim guidelines may be prepared within 02 months' and further roadmap for development of standards and protocols may be finalised.

Meeting ended with thanks to the Chair.

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[Signature]

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ANNEXURE-I

List of participants:

1. Dr. Prashant Gargava, Member Secretary, CPCB
2. Dr. Mukesh Khare, Professor, IIT-Delhi
3. Sh. Ved Prakash, Director (CP), MoEF&CC
4. Dr. Aakash Shrivastava, Additional Director, National Centre for Disease Control
5. Dr. Rameshwar Sorokhaibam, Deputy Director, National Centre for Disease Control
6. Sh. R. Srinivas, Sr. Town Planner, MoHUA
7. Dr. A. K. Lal, Head- Chemical lab, BIS
8. Dr. Rakesh Kumar, Director, CSIR
9. Dr. Arun Kr. Sharma, Director, ICMR-NIIRNC
10. Dr. Radha Goyal, Dy. Director, IPCA
11. Sh. P. K. Gupta, Scientist 'F', CPCB
12. Dr. Abhijit Pathak, Scientist 'D', CPCB
13. Sh. Ankush Tewani, Scientist 'D', CPCB
14. Sh. Gautam Kumar Sharma, Scientist 'B', CPCB
15. Dr. Shalini Manoj, RA-II, CPCB

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Dr

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**Minutes of Second meeting of the Joint Committee for
Indoor Air Quality (IAQ) Management held on June 29, 2022**

Second meeting of the Joint Committee for Indoor Air Quality Management was convened on June 29, 2022 through video conferencing. The meeting was chaired by Prof. Mukesh Khare, Indian Institute of Technology (IIT), Delhi. The list of participants is placed at Annexure I.

02. Sh. Ankush Tewani, Scientist 'D', CPCB and member convener, welcomed the participants giving a brief background of constitution of the joint committee and its mandate and deliberations held in the first meeting. He expressed that based on the discussions held in the first meeting, views of expert members, and inputs from Society for Indoor Environment's (SIE) (involved by MoEF&CC in the IAQ matter in the past) was sought.

He also informed that communication was received from School of Planning & Architecture (SPA) and Indian Society of Heating, Refrigerating & Air Conditioning Engineers (ISHRAE), for offering support in the matter, while inputs from The Energy and Resources Institute (TERI)/ Green Rating for Integrated Habitat Assessment (GRIHA), were to be sought as discussed in the first meeting. Accordingly, representatives from SPA, ISHRAE, TERI and GRIHA were invited to present their views/feedback.

03. Representative, SPA presented an overview of the NGT O.A. no. 206 of 2022 and presented suggestions including bringing IAQ under purview of Air Act.

04. Sh. Anupam Buttan, representative, GRIHA briefed about certification/rating of buildings being done by them wherein indoor air quality aspect is also considered. Representative, TERI informed about their involvement in IAQ studies and expertise in monitoring of indoor air pollutants.

05. Sh. Vishal Kapur, representative, ISHRAE briefed about the revised document released by them in 2019 on Indoor Environment Quality standards and about study done on buildings across north and south India, where certain indoor air quality parameters were measured. Prof. Khare urged SPA, TERI, GRIHA and ISHRAE to submit their views/suggestions to CPCB in writing, for suitable consideration.

06. SIE informed that it had conducted review of national and international literature/ documents/ guidelines and presented its inputs on various aspects related to Indoor Air Quality

monitoring such as pollutants, measurements and monitoring techniques etc. for consideration by the Committee.

07. Committee deliberated on the inputs provided by SIE. Sh. Abhijit Pathak, CPCB expressed that radon should not be considered as a parameter for indoor air quality as presence of radon in indoor air is only due to certain deficiencies in construction (if piling is not done properly, or there is a gap, radon comes automatically from the earth's crust) and the same cannot be controlled. Similarly, SO₂ monitoring in indoor air may also not be required, as there is no source of SO₂ in indoor air at public places. Prof. Khare agreed with the suggestion. It was suggested that parameters may be finalised in the next meeting.

08. Dr. Radha Goyal, IPCA suggested that occupant perception regarding IAQ issues and hospital data should also be considered while conducting monitoring. Dr. Pathak expressed that it may not be relevant to analyse hospital visits data, as it is difficult to ascertain health effects due to exposure for a few hours in some public place. Further, regarding monitoring of indoor air quality, he suggested that the instruments need to be carefully considered and their details deliberated upon, considering the constraints and the issues reported due to their usage. He added that guidelines should have a section on occupancy of a public place and may include some mechanism linking indoor air quality with ACH (Air Changes per Hour) metric of an HVAC system especially considering the higher crowd during peak time, and supported with literature.

09. Sh. Arun kumar S., representative, BIS, apprised the joint committee about the Handbook on Functional Requirements of Buildings (SP 32- for industrial buildings, and SP 41- for other than industrial buildings) which provides information on ventilation and other aspects, that are helpful in planning and functional design of the buildings as applicable to Indian conditions.

10. Committee expressed that members and SIE to look into the various aspects discussed in today's meeting and decided to discuss and conclude interim guidelines and monitoring protocol, along with a roadmap for field study in next meeting so that report can be submitted to Hon'ble NGT.

Meeting ended with thanks to the Chair.

Revised list of participants:

1. Prof. Mukesh Khare, IIT-Delhi
2. Sh. P. K. Gupta, Scientist 'F', CPCB
3. Dr. A. K. Lal, Head- Chemical lab, BIS
4. Dr. Girish K Makhija, Deputy Director, National Centre for Disease Control
5. Dr. Rameshwar Sorokhaibam, Deputy Director, National Centre for Disease Control
6. Dr. Radha Goyal, Dy. Director, IPCA
7. Sh. Arunkumar S., Civil Engineering Department, Bureau of Indian Standards
8. Dr. Abhijit Pathak, Scientist 'D', CPCB
9. Sh. Ankush Tewani, Scientist 'D', CPCB
10. Sh. Gautam Kumar Sharma, Sc. 'B', CPCB
11. Sh. Dheeraj Damachya, Sc. B, Civil Engineering Department, Bureau of Indian Standards
12. Dr. Priyanka Kulshreshtha, Jt. Secretary, Society for Indoor Environment (SIE)
13. Dr. Sunil Gulia, Member, Society for Indoor Environment (SIE)
14. Dr. Sumanth Chinthala, Member, Society for Indoor Environment (SIE)
15. Dr. Pratima Singh, Member, Society for Indoor Environment (SIE)
16. Dr. Shalini Manoj, RA-II, CPCB
17. Ms. Deuvshree Sharma, SRF, CPCB

List of invitees

1. Prof Anil Dewan, Dept. of Architecture, School of Planning & Architecture
2. Ar. Raja Singh, Research Scholar and Visiting Faculty, School of Planning & Architecture
3. Sh. Vishal Kapur, Indian Society of Heating, Refrigerating & Air Conditioning Engineers (ISHRAE)
4. Sh. Kapil Mehrotra, Member, Advocacy Committee ISHRAE (Govt. connect)
5. Sh. R. Suresh, Sr. Fellow and Area Convenor, The Energy and Resources Institute (TERI)
6. Sh. Ankit Bhalla, Manager, Green Rating for Integrated Habitat Assessment (GRIHA)
7. Sh. Anupam Buttan, Manager, GRIHA