

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL,****PRINCIPAL BENCH, NEW DELHI****Original Application No. 663/2023**

In the matter of:

In re: News item published in Indian Express dated 07.10.2023 titled "GRAP Stage 1 kicks in as air quality dips to poor, condition likely to prevail till Sunday

NDOH: 08.11.2023

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Filed by



(Nandita Moitra)

Sr. Scientist,

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Dated: 8<sup>th</sup> November, 2023

Place:

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**ACTION TAKEN REPORT ON BEHALF OF DELHI  
POLLUTION CONTROL COMMITTEE (RESPONDENT  
NUMBER-2) WITH RESPECT TO ORDER DATED 20.10.2023.**

IT IS MOST RESPECTFULLY SHOWETH:

1. That, the above mentioned matter was taken up by this Hon'ble Tribunal on 20.10.2023 on the basis of the news reports dated 07.10.2023 (published in 'Indian Express'), 03.10.2023 (published in 'Amar Ujala'), 04.10.2023 (published in 'Amar Ujala'), 10.10.2023 (published in 'The Times of India') and 20.10.2023 (published in 'The Times of India'). Hon'ble National Green Tribunal issued notice to Commission for Air Quality Management (CAQM), Chief Secretary, Delhi, Member Secretary- Delhi Pollution Control Committee (DPCC), Commissioner- Municipal Corporation of Delhi (MCD), Member Secretary-Central Pollution Control Committee (CPCB) and Ministry of Environment, Forest and Climate Change (MoEF&CC). That this Hon'ble Tribunal

was pleased to direct all the respondents to file their action taken report on controlling air pollution from different sources in Delhi in accordance with GRAP to maintain AQI in acceptable range to safeguard public health in view of winter season ahead.

2. That following are the important matters on air Pollution pending in the Hon`ble Supreme Court as on day:

(a) WP(C) No. 13029/1985 titled as "M.C. Mehta Vs. UOI & Ors:

The various aspects of the air pollution like vehicular pollution, pollution from dust from Road and construction and demolition activities, Open burning of dry leaves/garbage, Industrial pollution emissions and burning of crop residue are being taken by the Hon`ble Court. This matter was taken up by the Hon`ble Court on 07.11.2023 and matter adjourned for 10.11.2023.

(b) WP(C) No. 1135/2020 titled as Aditya Dubey (Minor) & Anr Vs. UOI & Ors: This petition was filed on the issue of crop burning and other allied issue. The matter is pending for adjudication.

(c) WP© 728/2015 titled as Arjun Gopal & Ors. Vs Union of India and Other: In this matter issue of banning fire cracker. The Hon`ble Supreme Court taken up the matter on 07.11.2023 and pleased to ban the fire crackers all over India.

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3. That following are the important matters on air Pollution taken by this Hon`ble Tribunal in past:

(a) Original Application No. 21/2014 titled as "Vardhman Kaushik Vs. UOI & Ors.

(b) Original Application No. 1038/2018 titled as "News item published in "The Asian Age" Authored by Sanjay Kaw Titled "CPCB to rank industrial units on pollution levels"

(c) Original Application No. 681/2018 titled as "In Re: News item published in "The Times of India" Authored by Shri Vishwa Mohan Titled "NCAP with multiple timelines to clean air in 102 cities to be released around August 15"

4. That the Delhi Government has filed a detailed affidavit on 11.07.2023 indicating the steps taken by field functionaries and action plan to curb the air pollution. Same is inclusive of actions taken by DPCC as well.

5. On the issue of Smog tower following is the factual background:

(a) The Hon`ble Supreme Court of India while hearing the matter of WP(C) No. 13029/1985 titled as "M.C. Mehta Vs. UOI & Ors, on 13.11.2019 ordered:

RE : SMOG IN DELHI

*We have asked the learned counsel appearing for the Union of India as well as the Government of NCT of Delhi to convene a meeting by tomorrow for working out the feasibility of installation of smog towers which take care of the smog within certain range of kilometers, to say 3 to 10 kms and place their*

*concrete proposal before us as it is an urgent matter from the point of view of Delhi.*

(b) The Hon`ble Court on 25.11.2019 in the aforesaid matter ordered:

*Para:- 6. With respect to Smog Towers, let a concrete decision be taken within 10 days from today what kind of towers are required which may operate successfully and how many such towers are required so as to take care of the pollution which is being caused in Delhi and NCR region. The decision be taken not only by the Government of Delhi, but also by the States of Punjab, Haryana and Uttar Pradesh, where the position is reported to have deteriorated.*

(c) The Hon`ble Court on 13.01.2020 in the aforesaid matter passed a detailed judgment:

*v)(a) As proposed in the reply of the Delhi Government, let the Smog Tower at Connaught Place be completed by Delhi Government as proposed in their reply affidavit. Let the Smog Tower be completed within three months.*

*(b) Let Smog Tower be installed at Anand Vihar as pointed out by Central Pollution Control Board (CPCB). Let Delhi Government provide space of 30 x 30 meters for installation of an experimental tower at Anand Vihar within seven days. The project to be funded by the Union Government, however, Ministry of Environment, Forest and Climate Change is directed to monitor the project. Let project be completed within three months.*

(d) That the Smog Tower at Baba Kharag Singh Marg, Connaught Place, New Delhi has been installed and inaugurated on 23.08.2021. The smog tower has the following specifications:

**Tower Specifications**

- Height of Smog Tower: - 24.2 meters above Ground Level.
- Plan Area of Smog Tower: - 28 x 28 meters. (784 Sq.m).
- Tower is a combination of RCC & Steel Structure.
- The Tower will suck the air from the top and release filtered air near the ground through Fans.
- Quantity of air to be filtered: - 1000 cubic meter per sec.
- Expected Area of Influence is about 1Km in radius from the center of Smog Tower.

**Fan, Filter & ESS Specification**

- Total Fans: - 40 Nos
- Air Flow Rate: - 25 Cubic Meter per Second
- Fan Speed: - 960 RPM (Rotation per Minute)
- Fan Outlet Velocity: - 16.1 meter per second
- Total Filters: - 10000Nos
- 3M Filterete Electrostatic Air Filters are rated on their ability to capture the smallest airborne particles in your home's air, which make up 99% the particles you breathe in each day. Particles this small can stay in your lungs while large particles may settle in the floor within

minutes. The measure of a filter's ability to capture these small particles is called Micro particle Performance Rating (MPR). The MPR of filters is 2200.

- Noval Filters will attract and capture microscopic particles such as smoke, cough and sneeze debris, bacteria and viruses- and large particles, including lint, household dust and pollen.
- Capacity of ESS: - 1250 KVA
- Monitoring of Smog Tower will be carried out through in built SCADA System (Supervisory Control and Data Acquisition)

(e) That due to installation of Smog tower, the following benefits were expected:

- Adaptive Clean Air System (ACAN) Technology used for outdoor air cleaning system (Smog Tower) is introduced in India by IIT Bombay and transferred to Tata Projects Limited by University of Minnesota USA through its commercial arm Clean air- CARE LLC.
- This is the first point study in India to assess a noval air cleaning system in reducing particulate air pollution in urban areas.
- IIT Bombay is performing CFD modelling of tower's air flow, PM 2.5 particulate reduction, effective impact zones viz a viz different meteorological and geographical etc. conditions.
- IIT Bombay IIT Delhi shall perform experimental pilot study for 2 years to assess the performance of tower and assess the

efficiency of reduction of the air particulate matter under various climate conditions. The results of pilot study will provide a clear estimation about the number and capacity of such technology in reduction of PM 2.5 level for entire Delhi.

- (f) Even the recommendation of Committee of Dr Mukesh Khare, Prof IIT Delhi recorded that no such system is available or under development or under R&D which can be effective for an area of 10 Sq. Km., but in conclusion it recommended that at the most we can go for pilot study. Therefore, Govt of Delhi envisaged this as experimental tower to assess the feasibility of outdoor air cleaning system.
- (g) That the cost of the pilot project was approved at Rs. 19,42,35,120 /- excluding taxes, duties, annual maintenance charges and other specific works. It is further submitted that as per the MoU, DPCC has also made additional payment for certain project activities such as Forest Clearance Fee, laying electrical cables, transformers and other electrical components to draw power to the facility as per actuals i.e. over and above the sanctioned cost of Rs. 1,64,15,658/-.
- (h) The report provided by IIT Bombay shows that the overall efficiencies are around 48-56% for 20m; 34-30% for 21-99m; 12-13% for 100-199m; 16% both at 300 m and 500 m.
- (i) As evident from the final report of IIT Delhi that percentage reduction recorded at a distance of 200 m was only between 13-15 % which is not significant. This reduction due to meteorological parameters also play a role in AQI reduction. The report transpires

that desired objective to provide clean air in one kilometre radius (area of influence) could not be met as impact evaluated by IIT Bombay is very limited upto 200m.

- (j) This low efficiency of Smog Tower was also assessed viz a viz economy and it was found that annual O&M charge was approximately Rs. 1.5 Cr per annum for O&M agency and approximately 90 lacs per annum for electricity bill payable to NDMC. So, roughly Rs. 20 lacs per month was being incurred for the O&M cost on the Smog Tower for just limited PM reduction impact (10-12% for just 200m).
- (I) The IIT Bombay has accepted that system could be reengineered by judiciously integrating filter less air purging technology, lower height of tower and smaller fans for having more impact.
- (J) The other smog tower at Anand Vihar smog did not have a positive impact as revealed from the AQI levels during winter period especially in the CAAQMS at Anand Vihar which still remains an air pollution hotspot. The CAAQMS stations situated just 30 m from the Smog Tower witnessed the AQI in severe category during peak months (Oct2022-Jan2023) and there is hardly any improvement shown/recorded in air quality.**
- (K) The performance of Connaught Place Smog Tower is not satisfactory. Delhi's Air quality is also dependent on meteorological factors which also highly contributes to the air

quality of Delhi. Even slight wind speed and turbulence in weather sweeps off the pollutants and AQI improves.

- (L) **DPCC has also analysed the data and it is revealed that “At Mandir Marg, in the year 2022-23, PM10 increased to 9% compared to 2019-20. At Anand Vihar, PM10 increased to 37% compared to 2019-20 & PM2.5, increased to 2%. Study/analysis showed that there is no improvement in ambient air quality in terms of Particulate Matter after installation of Smog Tower at Mandir Marg and Anand Vihar. It has also been observed that Anand Vihar, despite having Smog Tower (just adjacent to CAAQMS) has been consistently in Top 5 Hotspots.”**
- (M) Given the less impact of the tower and substantial public money involved in its operation, it was considered that there is no merit to operate the tower with significant expenditure but least impact on air quality.
- (N) The view of the DPCC on the ineffectiveness of smog tower was clarified on 31.05.2023 to the Government of NCT of Delhi, but no concrete decision on the matter.
- (o) The Hon`ble Supreme court while the matter on 07.11.2023 directed for restart of the smog tower. Accordingly directions were issued to O& M Agency, to restart it. And the smog tower is in operation as of now.

(p) The smog tower reduces 17% of air pollutants in 100 m radius @Rs 15 L/ Month. Area of Delhi 1483 Sq km= 1483000000 sqm. To cater the Delhi requirement of smog tower would be

- No of such tower required -  $1483000000 \div 314 \times 100 \times 100 = 47229$  nos of such tower
- Capital cost-  $47229 \times \text{Rs } 25 \text{ Cr (apprx)} = \text{Rs. } 11,80,725 \text{ crores (apprx)}$  + Recurring cost of about Rs 15 L/ Month/ tower .

(6) That atmospheric air pollution does not have any boundary. Air shed of Delhi is not limited to the boundaries of Delhi State. Delhi is surrounded by the states of Uttar Pradesh and Haryana. Delhi has an area of 1,483 sq. kms. Its maximum length is 51.90 kms and greatest width is 48.48 kms. 10 to 17% of reduction in a 100 m radius ie 0.0314 Sq km per tower that too at the capital cost of rupees 25 crores with the recurring cost of 10 to 15 lakh per month per Smog Tower is not at all justified. It is not even a drop in an ocean. This is the precise reason that the smog Tower installed by government of India being monitored by ministry of environment in forest Government of India in pursuance of Honorable Supreme Court order dated 13th January, 2020 is not being operated even at a location of highest air quality index of Delhi i.e. Anand Vihar. Both the Towers were for experiment and the experiment results are not at all encouraging to incur the heavy expenditure from the public money. In case 17% reduction in 100 m radius is to be considered favourable Delhi needs more than 40,000 such towers to cover its geographic area. This cannot be a practical solution and the result of the experiment should be accepted and Smog Tower already erected may be used for dissemination of the technical information about control of air pollution as museum.

(7) The report submitted by IIT-Bombay has been examined and DPCC's own assessment, based on air quality being monitored by real time ambient air quality stations located nearby to the two installed Smog Towers in Delhi ie. At Anand Vihar and Cannought Place, have revealed that the smog towers have not been effective in curbing the air pollution. The views of the DPCC on the ineffectiveness of smog tower have been communicated to the Government of NCT of Delhi, but no concrete decision on the matter. It has been found that the efficacy of the Smog Tower has not impacted the air quality.

(8) It is therefore requested to this Hon'ble Tribunal that the present status report may kindly be taken on record.

*Nandita*

(Nandita Moitra)  
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Delhi Pollution Control Ceramittee

Delhi

Dated: 8<sup>th</sup> November, 2023