

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 93/2021

In the matter of: -
Mukesh Kumar Aggarwal

...Applicant

Versus

Central Pollution Control Board & Ors.

...Respondent(s)

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2.	Annexure I: A copy of order dated 21.12.2021 passed by Hon'ble NGT (PB) in O.A. No. 93 of 2021, Mukesh Kumar Aggarwal Vs Central Pollution Control Board & Ors.	

S. K. Gupta
Scientist-E

Central Pollution Control Board
Parivesh Bhawan, East Arjun Nagar, Delhi- 110032

Place: Delhi
Date: 09.05.2022

Assessment of the carrying capacity and number of brick kilns which are required to be closed and/or which can be operated, in the matter of OA No. 93/2021: Mukesh Kumar Aggarwal Vs. Central Pollution Control Board & Ors.

It was observed by Hon'ble National Green Tribunal vide order dated 21/12/2021 that:

14. Simple work in terms of order of this Tribunal does not warrant any fresh study or any intricate research by any other institution. Assessment of the ground situation needs to be made for a decision whether and how many brick kilns ought to be allowed in the light of air quality data in the area. We further note that contrary to orders of this Tribunal only brick kilns operating without consent are reported to have been closed. There is no mention about closure of brick kilns violating siting criteria and consent terms, using obsolete technology contrary to CPCB guidelines or operating in excess of the carrying capacity i.e. when data shows inability to take more pollution load in the area, except by use of technology which avoids pollution load and if the air quality is not harmful for public health. If air quality norms are already exceeding, all that the Committee needs to say is that no brick kiln can be allowed during the period air pollution is above threshold, till improvement of air quality. If the air quality can sustain lesser number or maintaining longer distance, it has to be ascertained. If improved technology can help, it may be so mentioned. The Committee is to operate within these parameters. Precautionary principle has to guide the issue.

15. In Mant and Chhata area where 168 and 59 brick kilns are said to be operating in a cluster. The Committee was required to determine whether siting norms were reasonable and being followed and whether the air quality permitted could sustain the pollution load generated by 41 the brick kilns. The Air Quality Monitoring Stations were required to be set up at appropriate locations based on which effective monitoring of the pollution load was possible.

16. As already mentioned, the State PCB has miserably failed to monitor compliance of consent conditions, ambient air and stack monitoring, siting criteria as well as compliance of environmental norms. Such lapse on the part of the State PCB has resulted in serious damage to the environment and public health. The Chairman, State PCB needs to take action against such failure, including the erring officers of the State PCB posted in the area.

It was also directed by the Hon'ble NGT that :

17. In view of above discussion, further steps in the matter be taken by the statutory regulators and monitored by the Committee constituted by this Tribunal. The Committee will stand reconstituted as follows: i. Justice Anil Kumar Sharma, former Judge of Allahabad High Court now available at Mathura - Chairman.ii. Member Secretary, CPCB – Member. iii. District Magistrate, Mathura– Member. iv. Member Secretary, SEIAA, UP - Member. v. Member Secretary, UP State PCB – Member. If any member finds it difficult to attend physically, with the permission of the Chairman of the Committee, he can be allowed to participate online.

18. The Committee may accordingly give further report in the light of above observations. In the report, number of brick kilns closed or required to be closed or could be allowed and the period during which the same could be allowed as a result of assessment and monitoring by the Committee may be specified. Further report be furnished to this Tribunal within two months by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF. The report may also be uploaded on the website of CPCB for any response by any stakeholder before the next date.

In compliance of aforesaid directions of Hon'ble NGT, the carrying capacity of the ambient air environment has been assessed for Mant and Chhata areas of Distt. Mathura. Carrying Capacity of the ambient air environment may be defined as “the maximum emission load (PM₁₀), which an area can sustain at maximum rate of operation of any air polluting activity/activities”. Further, estimation of the carrying capacity of any area involves estimation of three components - i) Existing Pollution Load, ii) Total Assimilative Capacity and iii) Supportive Carrying Capacity.

The month-wise air volume of each area for dispersion of pollutants, was calculated by multiplying the area (Km²) with average atmospheric mixing heights/depths as obtained from Indian Meteorological Department (IMD), for the months of January, 2021 – December, 2021

In order to estimate the existing pollution load, PM_{2.5} concentration as derived from Aerosol Optical Depth (AOD) was obtained from IIT Delhi for the period from January, 2021 to December, 2021 for Mant and Chhata area.

The data of PM_{2.5} derived from AOD, was extrapolated to PM₁₀ concentration on the basis of ratio of PM₁₀/PM_{2.5} for summer and winter season. The month-wise **Existing Pollution Load** in terms of PM₁₀ was estimated by multiplying the volume of air in a particular area by PM₁₀ concentration.

The Pollution load at which the maximum permissible concentration is reached is considered as the assimilative capacity. The maximum permissible concentration of PM₁₀ as per National Ambient Air Quality Standard (NAAQS) of PM₁₀(24-hour average) is 100 µg/m³ and this was used for estimating the **Total Assimilative Capacity**, by multiplying with the volume of air available for dispersion in each grid.

The difference between the maximum permissible concentration/load of PM₁₀ i.e **Total Assimilative Capacity** and the existing average PM₁₀ concentration/ load i.e **Existing Pollution Load** gives an indication of the **Supportive Carrying Capacity** of an area available for sustaining the operation of additional air polluting activities. The positive values shows the capacity to accommodate additional pollution load and the negative values indicate that the pollution load is in excess of the assimilative capacity of the area i.e no additional pollution load can be accommodated and measures are required to bring the pollution load within the assimilative capacity.

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

Estimation of total existing PM₁₀ Load:

Total area in **Km²: a**; Average Atmospheric Mixing Height/Depth during a particular month in **Km: b**

Total Volume of Air in the district during a particular month in **Km³: a x b = c**

Average PM₁₀ Concentration of Ambient Air in the area (Mant and Chhata) for a particular month in **Kg/Km³: d**

Therefore, Total estimated load of particulate matter (PM₁₀) in ambient air of the area (Mant and Chhata) during a particular month (**x**): **c x d = x Kg**

Estimation of Assimilative Carrying Capacity w.r.t. PM₁₀:

Total Volume of Air in the area (Mant and Chhata) during a particular month in **Km³: c**

NAAQS Standard for Particulate Matter (PM₁₀) : **100µg/m³** i. e. **100 Kg/Km³**

Therefore, Assimilative Capacity w.r.t PM₁₀ in ambient air of the area (Mant and Chhata) in a particular month (**y**) : **c x 100 = yKg**

Estimation of Supportive carrying Capacity w.r.t. PM₁₀:

Supportive Carrying Capacity (**z**) = Assimilative Carrying Capacity (**y**) - Total Estimated Load (**x**)

The final outcome of the assessment with regard to the range of Supportive Carrying Capacity of the ambient air environment in the Mant and Chhata areas of Distt. Mathura, is summarized in the Table 1 and Table 2 respectively. The negative values indicate that there is no supportive carrying capacity and the pollution load in terms of PM₁₀, is exceeding the Assimilative Carrying Capacity.

Table 1: Carrying Capacity Assessment of Mant Area of Distt. Mathura

Carrying Capacity Assessment of MANT Area, Distt. Mathura										
S.No.	Month & Year	Area, Km ²	Mixing height, Mtr	Mixing height, Km	Avg. PM _{2.5} Conc,ug/m ³	Avg. PM ₁₀ Conc, ug/m ³	Volume of Ambient Air, Km ³	Assimilative Capacity, Kg	Existing PM ₁₀ Load, Kg	Supportive Capacity, Kg
1	Jan, 2021	731	267	0.267	115	210	195	19530	40957	-21428
2	Feb, 2021	731	296	0.296	92	168	216	21636	36426	-14790
3	March, 2021	731	415	0.415	51	93	304	30369	28288	2081
4	April, 2021	731	641	0.641	63	131	469	46853	61396	-14543
5	May, 2021	731	653	0.653	43	89	477	47729	42291	5437
6	June, 2021	731	812	0.812	41	84	594	59354	50000	9354
7	July, 2021	731	641	0.641	34	71	469	46885	33449	13435
8	Aug, 2021	731	470	0.470	36	74	343	34335	25424	8911
9	Sept, 2021	731	490	0.490	27	56	358	35827	20046	15781
10	Oct, 2021	731	350	0.350	62	126	256	25579	32142	-6563
11	Nov, 2021	731	273	0.273	152	308	200	19992	61647	-41655
12	Dec, 2021	731	257	0.257	114	231	188	18803	43476	-24673

Table 2: Carrying Capacity Assessment of Chhata Area of Distt. Mathura

Carrying Capacity Assessment of Chhata Area of Distt. Mathura										
S.No.	Month & Year	Area, Km ²	Mixing height, Mtr	Mixing height, Km	Avg. PM _{2.5} Conc, ug/m ³	Avg. PM ₁₀ Conc, ug/m ³	Volume of Ambient Air, Km ³	Assimilative Capacity, Kg	Existing PM ₁₀ Load, Kg	Supportive Capacity, Kg
1	Jan, 2021	1057	272	0.272	114	208	287	28706	59677	-30971
2	Feb, 2021	1057	312	0.312	97	178	330	32976	58596	-25620
3	March, 2021	1057	439	0.439	55	100	464	46393	46440	-47
4	April, 2021	1057	693	0.693	60	125	732	73202	91204	-18002
5	May, 2021	1057	692	0.692	45	93	731	73121	68137	4984
6	June, 2021	1057	849	0.849	43	89	897	89718	80057	9661
7	July, 2021	1057	651	0.651	34	71	688	68830	48963	19867
8	Aug, 2021	1057	466	0.466	37	76	493	49258	37602	11656
9	Sept, 2021	1057	480	0.480	28	59	508	50786	30000	20786
10	Oct, 2021	1057	358	0.358	65	119	379	37868	45113	-7245
11	Nov, 2021	1057	269	0.269	146	267	285	28476	76135	-47659
12	Dec, 2021	1057	252	0.252	112	205	267	26658	54590	-27932

The existing pollution load (PM₁₀) estimated for determining the supportive carrying capacity is the sum total of the PM₁₀ emissions from the all known and unknown activities/sources having pollution potential. Therefore, the resultant supportive carrying capacity is dependent on various factors and may not be attributed to a single source. As a result, the criteria governing the setting up of industries is based on sitting norms and the emission standards.

MoEF&CC vide Notification GSR No. 143 (E) dated 22.02.2022 has notified particulate matter standards of 250 mg/Nm³ with reference to the brick kilns (**Annexure-1**). The MoEF&CC notification has also mandated time bound adoption of zig-zag technology and also prescribed guidelines for siting of brick kilns, fugitive dust emission control, permitted fuels and porthole & platform for emission monitoring. These guidelines should be strictly adhered to by the brick kilns and monitored by State Pollution Control Board.

Item No. 04

(Court No. 1)

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

(By Video Conferencing)

Original Application No. 93/2021
(I.A. No. 217/2021)

Mukesh Kumar Aggarwal

Applicant

Versus

Central Pollution Control Board & Ors.

Respondent(s)

Date of hearing: 21.12.2021

**CORAM: HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
HON'BLE MR. JUSTICE SUDHIR AGARWAL, JUDICIAL MEMBER
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER**

Applicant: Mr. Salik Shafique, Advocate

Respondent(s): Mr. Pradeep Misra & Mr. Daleep Dhyani, Advocates for UPPCB
Mr. S.P. Singh, Senior Advocate with Mr. Raunak Parekh, Adv. for
Om Guru Ent Udyog (R- 107)
Mr. Mukesh Kumar, Advocate for CPCB

ORDER

1. The issue for consideration is the remedial action against air pollution caused by brick kilns in Mathura District, particularly in Mant and Chhata areas, where large number of brick kilns are functioning in violation of environment norms, without any meaningful regulation.

2. Case of the applicant is that he is permanent resident of Kosi Kalan (Rural), Tehsil Chhata, District Mathura and is living with his old age parents. They are severely affected by the air pollution in Mathura District where AQI crosses 400. One of the identified causes of air pollution is 350 brick kilns operated by coal using polluted fuel like spent

organic, solvent, oily residue, pet coke, filter press cake, plastic rubber, leather waste etc. Operation of such brick kilns is against declared norms for siting by maintaining prescribed distance of habitations, educational institutions and hospitals. The said kilns do not have the requisite consents and are non-compliant with regard to the siting norms prescribed by CPCB as well as under the Uttar Pradesh Brick Kilns (Siting Criteria for Establishment) Rules, 2012. The applicant has filed satellite images of a kiln in village – Surir situated at the distance only 20 kms from Kosi Kalan and Mathura, Uttar Pradesh, where a cluster of around 65 brick kilns is being operated within the small area of 4 km. belt which is highly populated residential area. A Government Hospital is situated only at the distance of 265 mtrs. Rashtriya Inter College is situated at the distance of 400 mtrs. Air quality of Mathura is as bad as air quality of NCR and safeguards are needed at par with the Taj Trapezium Zone (TTZ). But while remedial measures have been taken for preventing polluting activities in NCR and TTZ, similar measures are required for Mathura District.

3. The applicant has referred to Comprehensive Environment Pollution Index (CEPI) compiled by the CPCB with regard to the Industrial areas in the country, based on the air, water and land pollution. CPCB has on that basis categorised industrial areas as critically polluted/severely polluted and polluted. Those above the score of 70 are critically polluted. The score of Mathura industrial area is 91.10. Brick kilns are mushrooming and are being allowed to be set up without requisite consents and safeguards.

4. Adverse health impacts of polluted air quality have been noted inter-alia in judgement of Hon'ble Supreme Court in M.C. Mehta v. UOI¹, M.C. Mehta v. UOI², M.C. Mehta v. UOI³ and K. Guruprasad Rao v. State of Karnataka,⁴ Arjun Gopal v. UOI.⁵ Reference has also been made to the order of this Tribunal dated 15.10.2020 in O.A. No. 1016/2019, *Utkarsh Panwar v. CPCB & Ors.* whereby the Tribunal directed stopping of all brick kilns in NCR beyond the assimilative carrying capacity in the air in NCR, till such brick kilns shift to PNG. Till such shifting to PNG, it was directed that the brick kilns cannot operate except in limited number and only from March to June when assimilative air capacity permits such operations.

5. The impact of air pollution on public health is noted in the order of the Hon'ble Supreme Court in *Arjun Gopal*, supra as follows:

Table 1

<i>AQI</i>	<i>Associated Health Impacts</i>
<i>Good (0-50)</i>	<i>Minimal impact.</i>
<i>Satisfactory (51-100)</i>	<i>May cause minor breathing discomfort to sensitive people.</i>
<i>Moderately polluted (101-200)</i>	<i>May cause breathing discomfort to people with lung disease such as asthma, and discomfort to people with heart disease, children and older adults.</i>
<i>Poor (201-300)</i>	<i>May cause breathing discomfort to people on prolonged exposure, and discomfort to people with heart disease.</i>
<i>Very Poor (301-400)</i>	<i>May cause respiratory illness to the people on prolonged exposure. Effect may be more pronounced in people with lung and heart diseases.</i>
<i>Severe May (401-500)</i>	<i>May cause respiratory impact even on healthy people, and serious health impacts on people with lung/heart disease. The health impacts may be experienced even during light physical activity.</i>

6. In Mathura, brick kilns are operative throughout the year without any study of the assimilative air capacity of the area and without following the laid down siting criteria and without consents. The

¹ (1998) 9 SCC 149

² (2000) 7 SCC 422

³ (2002) 4 SCC 378

⁴ (2012) 12 SCC 736

⁵ (2017) 1 SCC 412

statutory regulatory authorities have not taken any meaningful action. The applicant has also pointed out letters of CPCB seeking information on the subject from the UP State PCB but it appears that no further action has been taken. Brick kilns in question do not even follow Zig Zag Technology which is being followed in other air polluted areas and even outside the air polluted areas, in pursuance of directions of State PCB dated 28.06.2017 as follows:-

- “1. *All the Brick kilns operating without permission and valid consent from SPBs, not meeting prescribed norms and siting guidelines be closed down with immediate effect.*
2. ***Provide status on conversion of natural draft to induced draft brick kilns (with rectangular kiln shape and zig zag brick setting).***
3. *Enforce strictly the siting criteria guideline for brick kilns.*
4. *All the moving area around the main Brick Kiln should be paved with the bricks to minimize the fugitive dust emission from the Brick Kilns operations. This condition should be incorporated in the consent conditions while granting the Consent by the UP Pollution Control Board.*
5. *Ensure that fine dust not to accumulate all around the brick kiln.”*

7. The applicant has filed a list of 189 Brick kilns which according to the applicant are violating the siting criteria or other environmental norms. It is also submitted that even if there is compliance by any individual brick kiln, if the assimilative air capacity cannot sustain coal fired brick kilns, such brick kilns cannot operate adding further to the already polluted air. The applicant has stated that the brick kilns in question are contributing upto 28% air pollution.

8. The matter was earlier dealt with vide orders dated 13.04.2021 and 12.08.2021. Vide order dated 13.04.2021, the Tribunal constituted a joint Committee comprising CPCB, State PCB and District Magistrate, Mathura to verify the facts and furnish a factual and action taken report in terms of compliance of siting and environmental norms, including the

assimilative capacity of the air to sustain particular number of brick kilns.

9. Vide order dated 12.08.2021, the Tribunal considered the report of the joint Committee dated 04.08.2021. Extracts from the said report are extracted below for ready reference:

“... Majority of brick kilns units located here are of two types:

- (1) *Fixed Chimney Bull's Trench Kiln (FCBTK) based on natural draft.*
- (2) *Zig-zag Kiln (natural and forced draft).*
 - *As per the list provided by UPPCB, Mathura there are 227 Brick kiln units are located in Mathura district which have valid consent to operate (CTO). Detailed list is attached as Annexure-4.*
 - *Out of 227 Brick kiln units, 189 units are operational at present; rest 38 units are not functional due to various reasons like closure direction by UPPCB and environmental compensation imposition. Detailed list is attached as Annexure-5, 6.*
 - *30 no. of Brick kiln units are Zig-zag type and rest 159 no. of the Brick kiln units are old Fixed Chimney Bull's Trench Kiln (FCBTK) type.*
 - **65 no. of Brick kiln units are registered in the State GST, Mathura as per list received from Assistant Commissioner, Sales Tax (SGST) Kosi Kalaan, Mathura. (Annexure-7)**

1. Compliance of Siting:

Mant Cluster:

- *Joint team inspected Mant cluster of brick kilns units located in Sureer, Sureer kalaan, Sureer vizau, Bazna, naujheel, seopatti, morkee areas of Mant tehsil, Mathura.*
- *As per information and documents produced by UPPCB, Mathura to the Joint inspection team, 168 no. units are operating presently in Mant area. **Majority of brick kilns here are old type based on FCBTK type with natural draft.***
- *As informed by RO UPPCB Mathura that consent to establishment (CTE) for new Brick Kiln is issued by UPPCB after getting siting report from concerned SDM, because revenue village and Khasra no. proposed siting location of Brick Kilns, as per Uttar Pradesh Brick kiln*

(Siting Criteria for Establishment) Rules, 2012 can be verified by the concerned dept. under SDM of that area.

- **Siting locations of the brick kilns was not found as per the Uttar Pradesh Brick kiln (Siting Criteria for Establishment) Rules, 2012** (UP Govt. notification no. 921/55, parya/12-94(parya)/2012 Dated: June 27, 2012 (Annexure-8). UPPCB Mathura informed to joint inspection team that **mostly Brick Kilns units at Mant location were established before said notification of UP Govt. 2012.**
- All the units located at Mant were found using permissible fuel for brick kilns i.e. Coal/Toori (agriculture waste fuel) except **five brick kilns, those were found using plastic and rubber parts of old vehicles, shredded old automobile tyre and remnants of vehicle and other combustible machinery scraps (Annexure-09, Pg. no. 19) along with the toori. UPPCB issued closure directions to these units.**
- **Greenery and plantation was observed in some units only.**
- **No paved road and 3 meter boundary wall was observed.**
- **Dust emission was noticed in moving areas of all brick kiln units as no water sprinkler facility was found.**
- **There was no permanent provision for stack emission monitoring at most of the Brick Kiln units. Temporary arrangement was made by the monitoring teams for stack monitoring. (Annexure-10, Pg. no. 21-23)**
- During the visit many units were found not operational and due to corona pandemic, few brick kilns units of this particular location were selected randomly for stack emission monitoring by the Joint inspection team. As per the monitoring report provided by the UPPCB, Mathura (Annexure-11) out of 12 brick kilns units, 10 units were found complying with the emission norms and 02 were failed.
- **UPPCB Mathura assured the joint inspection team that direction will be issued for making necessary arrangement/up-gradation of the unit, to achieving the standard emission norms/compliance.**

Chhata Cluster:

- Joint team inspected the Chhata cluster of brick kilns units located in Unjhani bangar, shergarh, rampur, baadha bangar, rajagarhi, mehraul, shernagar areas of Chhata tehsil of Mathura.
- As per information and documents produced by UPPCB, Mathura to the Joint inspection team, 59 no. of brick kilns units are operating presently in Chhata area.
- As informed by RO UPPCB Mathura that consent to establishment (CTE) for new Brick Kiln is issued by UPPCB after getting siting report from concerned SDM, because revenue village and khasra no. proposed siting location of Brick Kilns, as per Uttar Pradesh Brick kiln

(Sitting Criteria for Establishment) Rules, 2012 can be verified by the concerned dept. under SDM of that area.

- Majority of brick kilns in this area are Zig-zag Kiln (natural and forced draft) type. Siting locations of the brick kilns was found as per the Uttar Pradesh Brick kiln (Sitting Criteria for Establishment) Rules, 2012 (UP Govt. notification no. 921/55-parya/12-94(parya) /2012 Dated: June 27, 2012. The UPPCB Mathura informed to joint team that mostly brick kiln units were established after said notification of UP Govt.
- Only permissible fuel was found in all brick kilns units.
- **Greenery and plantation was not observed in majority of units.**
- **No paved road and 3 meter boundary wall was observed.**
- **Dust emission was noticed in all moving areas of brick kiln units as no water sprinkler facility was found.**
- **There was no permanent provision for stack emission monitoring at most of the units. Temporary arrangement was made by the monitoring teams for stack monitoring of the brick kiln units.**
- During the visit many units were found not operational and due to corona pandemic, few brick kilns of this particular location were selected randomly for stack emission monitoring by the Joint inspection team. As per the monitoring report provided by the UPPCB, Mathura out of 09 brick kilns units, 08 units were found complying the emission norms and 01 failed.
- **UPPCB Mathura assured the joint inspection team that direction will be issued for making necessary arrangement/up-gradation of the unit, to achieving the standard emission norms/compliance.**

2. Compliance status of Environmental Norms:

- All the operational units were found having valid Consent to Operate (CTO) issued by the UPPCB Mathura.
- As per the list provided by UPPCB Mathura, total 227 no. of brick kilns were granted permission for operation in Mathura district.
- Out of these, 33 no. brick kilns units are not in operational presently; in addition, closure directions have been issued by UPPCB to 05 units.
- **It was informed to joint inspection team by Regional officer, UPPCB Mathura that it is mandatory for every operating Brick Kiln to perform stack monitoring of the unit by any NABL accredited laboratory each year during the operating season to check the compliance of environmental norms and submit test report to UPPCB. If a unit fails to achieve the standard environmental norms, direction will be issued for the compliance by making necessary arrangement/up-gradation.**
- To know the status of permission from mining department Mathura, a letter was issued by UPPCB Mathura to the

District Mining department for providing list of permitted brick kiln units in Mathura. **However, Department of Sales Tax (SGST) has submitted list of 65 no. registered Brick Kilns units.**

- During the field visit, many units were found not operational. Out of operational units 21 no. of brick kiln units could be selected randomly by Joint inspection team due to constraint of Corona pandemic time and their stack emission monitoring was carried out.
- As per the monitoring report of 21 brick kilns units provided by the UPPCB Mathura, 18 units were found complying the norms and 03 were failed to achieve the standard. UPPCB Mathura assured the joint inspection team that direction will be issued to 03 units for making necessary arrangement/up-gradation of the unit, to achieving the standard emission norms/compliance (Emission norms for Brick Kilns as per MoEF&CC notification no. 423 Dated: 22.07.2009).
- As informed by the RO UPPCB Mathura to the joint inspection team that no brick kiln unit is operational in TTZ area falling under Mathura district.
- As per the UPPCB Mathura, brick kilns are permitted to operate only in 04 months period i.e. March to June every year in Mathura district.

3. Compliance status for calculating Assimilative capacity of the air to sustain particular number of brick kilns:

As per the direction of NGT court, committee has referred the report dated 06.07.2020 furnished by CPCB in O.A. No. 1016/2019. A formula was used by the CPCB to determining district-wise carrying capacity of ambient air in Report in compliance to Hon'ble NGT order dated 17.03.2020 (Uploading date 23.03.2020) in the matter of O.A. No. 1016 of 2019 titled as Utkarsh Panwar Vs. CPCB & Ors. before Hon'ble National Green Tribunal, Principle Bench, New Delhi. Same formula was used to calculate the assimilative capacity of the air to sustain particular number of brick kilns in Mathura.

Since, gravity settling Chambers are provided in the brick kilns as air pollution control Mechanism, wherein large particles get separated and settled down, therefore, it was assumed that the particle size of particulate emissions from the brick kiln stacks are broadly upto 10 pm. The following components were derived in order to assess the carrying capacity of Mathura District w.r.t. PM10:

- i. Estimation of Existing Pollution Load w.r.t PM10,
- ii. Estimation of Assimilative Carrying Capacity w.r.t PM10
- iii. Estimation of Supportive Carrying Capacity w.r.t PM10

The value of emission load derived with stack emission of 750 mg/Nm³, is as follows:

Emission load from brick kilns having capacity of 20000 bricks/day, considering stack PM emission of 750 mg/Nm³ at 17% O₂: 3000 Kg/day

Estimation of total existing PM10 Load:

Total area of Mathura district in **Km²**: **a**; Average Atmospheric Mixing Height during a particular month in **Km**: **b**

Total Volume of Air in Mathura district during a particular month in **Km³**: $a \times b = c$ Average PM10 Concentration of Ambient Air in Mathura district for a particular month in **Kg/Km³**: **d**

Therefore, Total estimated load of particulate matter (PM10) in ambient air of Mathura district during a particular month (**x**): $c \times d = x$
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There is no continuous/manual ambient air quality monitoring station operational in Mant and Chhata Tehsil, Mathura which are approximately 25-35 km. away from Mathura city.

So, the ambient air quality data has been taken from Mathura city, where 02 no. manual ambient air quality monitoring stations are being operated by RO UPPCB Mathura. Average of both the manual monitoring stations has been taken for calculating total PM10 load in the different months of year 2020 at Mathura. Estimated total existing PM10 Load in Mathura during different months of year 2020 is given at Table-1

S. No.	Month (Year-2020)	Estimated Load
1	Jan	248276 Kg
2	Feb	346420 Kg
3	Mar	295241 Kg
4	Apr	195207 Kg
5	May	195792 Kg
6	Jun	281795 Kg
7	Jul	208946 Kg
8	Aug	234257 Kg
9	Sep	237760 Kg
10	Oct	282598 Kg
11	Nov	220489 Kg
12	Dec	218582 Kg

[Area of Mathura District adopted from District Mathura website <https://mathura.nic.in>, Average Mixing height monthly data (year-2020) adopted from Continuous air quality station East Arjun Nagar, Delhi-CPCB (Appx. 75 Km away from Brick kiln cluster), as there is no SODAR machine installed/operational in Mathura]

Estimation of Assimilative Carrying Capacity w.r.t. PM10:

Total Volume of Air in Mathura district during a particular month in Km³:c

Particulate Matter (PM10) required to keep Ambient Air Quality at Satisfactory Level/Prescribed NAAQ Standard: **100** pg/m³ i.e. **100 Kg/Km³** (Ref: Air Quality Index/NAAQ Std)

Therefore, Assimilative Capacity w.r.t PM10 in ambient air of Mathura district during a particular month (**y**): $C \times 100 = y \text{ Kg}$

Calculated assimilative carrying capacity in the different months of year 2020 at Mathura is given at Table-2:-

S. No.	Month (Year-2020)	Assimilative Carrying
1	Jan	149115 Kg
2	Feb	196830 Kg
3	Mar	196173 Kg
4	Apr	206568 Kg
5	May	199788 Kg
6	Jun	199854 Kg
7	Jul	136121 Kg
8	Aug	184454 Kg
9	Sep	176118 Kg
10	Oct	173906 Kg
11	Nov	143175 Kg
12	Dec	138782 Kg

Estimation of supportive carrying capacity of Mathura w.r.t. PM10:

Month wise supportive carrying capacity of Mathura district, as determined by using the above is summarized in Table-3:-

Supportive Carrying Capacity (z)=Assimilative Carrying Capacity (**y**) - Total Estimated Load (x)

S. No.	Month	Supportive Carrying Capacity
1	Jan	-99161Kg
2	Feb	-149591Kg
3	Mar	-99067Kg
4	Apr	11361Kg
5	May	3996Kg
6	Jun	-81940Kg
7	Jul	-72825Kg
8	Aug	-49803Kg
9	Sep	-61641Kg
10	Oct	-108691Kg

11	Nov	-77314Kg
12	Dec	-79800Kg

Total number of brick kilns which can be operated month wise in Mathura district:

Month wise Supportive Carrying Capacity of Mathura district / Emission load from one brick kiln.

Assuming that all the brick kilns units were in operation during monitoring, the number of brick kilns which are required to be shut was calculated by dividing the excess load by the emission load of one brick kiln. As per the report of UPPCB Mathura, appx. 3000 Kg/ day Fuel (Toori/Coke) used by Brick Kiln unit with the capacity of 20,000 bricks/day during operation. The number of brick kilns, which can be operated in such cased was determined as follows:

No. of brick kilns which can be operated = Total number of brick kilns

Operational in that particular month - (Negative Supportive Carrying Capacity/ Emission Load from one brick Kiln)

S.No.	Month of Year	Maximum No. of Brick Kiln can be
1	Jan	156
2	Feb	139
3	Mar	156
4	Apr	193
5	May	190
6	Jun	162
7	Jul	165
8	Aug	172
9	Sep	168
10	Oct	153
11	Nov	163
12	Dec	162

Summary of observations during the inspection are as below:

- Only brick kilns units with valid CTO issued by UPPCB were found operational in Mathura district. No brick kiln was found operating in TTZ area falling in Mathura district.
- **Some of the operational brick kilns located in the Mant area were found not complying the siting norms.** It was informed to Joint inspection team that these units were established before Uttar Pradesh Brick kiln (Sitting Criteria for Establishment) Rules, 2012 was issued.
- The Brick kiln units operational in the Chhata region, were found complying the UP Government siting criteria norms.

- **There is need to up-gradation of present old type FCBTK brick kiln units in to zig-zag type kiln technology for optimal combustion and emission reduction.**
- *Only permitted fuel burning should be allowed and strict action (closure of unit as well as environmental compensation) may be taken, if any violation is found.*
- *As per the UPPCB Mathura, brick kilns are permitted to operate only in 04 months period i.e. March to June only.*
- **As per the AAQM data of Mathura district and calculation for Supportive Carrying Capacity of the air, maximum no. of brick kiln may be permitted during different months in Mathura district is as per Table.4.**
- **Display board containing the name of Brick Kiln unit & details, address, owner name and contact, last monitoring date and data was not displayed at the units in Mant as well as Chhata in Mathura.**
- **As per Regional officer, UPPCB Mathura, it is mandatory for each operating Brick Kiln unit to perform stack monitoring of the unit each year during the operating season by NABL accredited laboratory, to check the compliance of standard emission norms and submit test report to UPPCB.**
- **All the moving area around the main Brick Kiln is unpaved, which is huge source of fugitive dust emissions during brick kiln operations. It was observed that fine dust was accumulated all around the brick field.**
- **Arrangement for water sprinkling on earthen surface inside the premises of Brick Kiln units was not available.**
- **There was no sufficient greenery or boundary wall constructed around the Brick Kiln units to stop the fugitive emission of dust.**
- **There was no permanent provision for stack emission monitoring at the stack of most of the Brick Kiln units like pot hole, ladder, platform etc.**
- **Majority of Brick Kilns units are based on natural draft. Some units have zigzag setting with induced draft also known as Hydra brick kiln units in this region.**
- **Heaps of Toori (permissible agriculture waste fuel) was found openly stored in premises of Brick Kilns, which need to be covered.**
- **Non-availability of trained workers (firemen and brick setters) to optimizing combustion for operating Brick Kilns efficiently.**

Recommendations:

- **There is need to convert all old FCBTK (natural draft) Brick Kiln units in to improved zig-zag Kilns with induced draft technology, as soon as possible.**
- **Strict compliance of the siting criteria as per the Uttar Pradesh Brick kiln (Sitting Criteria for Establishment)**

Rules, 2012 (UP Govt. notification no. 921/55-parya/12-94(parya)/2012 Dated: June 27, 2012. The Brick kiln units, which are not as per the siting criteria norms, may be relocated.

- **The housekeeping at Brick Kiln units needs to improve. Approach road and moving areas around the Brick Kiln needs to be paved properly to minimize the fugitive dust emissions.**
- **As per the AAQM data of Mathura district and calculation for Supportive Carrying Capacity of the air, maximum no. of brick kiln may permitted during different months in Mathura district is as per Table.4. However, competent authority may take the decision and may issue directions for the operation of Brick Kiln Units and compliance of norms.**
- **The unit operators should develop a buffer zone of wide green cover along the periphery to arrest fugitive particulate matter from spreading out.**
- **There should be arrangement for water sprinkling on earthen surface inside the premises of Brick Kiln units during operational hours.**
- **Display board with all the details should be fixed at the entrance of the unit.**
- **Appropriate provision for stack emission monitoring at the stack should be provided.**
- **Only permissible fuel should be used for running Brick Kilns and need to store properly at the site.**
- **A standard operating procedure (SOP) should be formulated and training should be given to workers (firemen and brick setters) for operating Brick Kilns efficiently.”**

10. From the above, the Tribunal noted the continuing violations to the detriment of public health in allowing operation of brick kilns, without following an appropriate siting criteria and in disregard of the carrying capacity of air quality to sustain the pollution load of brick kilns in question. It was found that there was need to forthwith stop operation of brick kilns operating in violation of environmental norms - not following consent conditions, operating in excess of carrying capacity, CPCB guidelines and orders of this Tribunal, and those violating siting guidelines. The Tribunal noted the Precautionary and sustainable development principles and need for remedial action when air quality level is harmful for human health. To apply the said principles in the interest of human health, study of correct data was required which is

also termed as carrying capacity study to determine whether and how many brick kilns will be desirable in the context of such data. There was need to install Air quality monitoring equipments in the concerned area and if online monitoring stations cannot be set up, easily available equipments be used to continuously monitor air quality. Stringent monitoring mechanism be put in place. Process of mechanically giving consents be reviewed by the State PCB in view of binding 'precautionary' principle. Public health needs to be given due preference over the economic interests for establishment of brick kilns. Violators be strictly proceeded against by way of prosecution, recovery of compensation and preventing pollution. While determining carrying capacity, other sources contributing to pollution loads may also be factored in, considering concentrations of PM₁₀ in microgram per cubic metre instead of kgs. Further, mixing heights data may be referred from the nearest location of IMD station. Reasons for high CEPI score (91.1) and remedial action plan were required to be gone into. The Tribunal accordingly observed and directed in order dated 12.08.2021 as follows:

“xxxxxx.....xxx
6. *Vide order dated 13.04.2021, the Tribunal required a joint Committee comprising CPCB, State PCB and District Magistrate, Mathura to verify the facts and furnish a factual and action taken report in terms of compliance of siting and environmental norms, including the assimilative capacity of the air to sustain particular number of brick kilns. **It was further directed that the Committee may look into the report dated 06.07.2020 furnished in O.A. No. 1016/2019, supra, relating to control of pollution in the NCR, as well as discussion in the said order.** The State PCB was also to verify whether brick kilns in question are operating without consent, as alleged, in which case the State PCB was to take remedial action, following due process of law. The report was to be and has been uploaded on the website of the CPCB, so as to be accessed by any affected party. Objections to the report, if any, could be filed before the hearing.*

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9. We have heard learned Counsel for the appearing parties. Learned Counsel for the applicant submitted that Zig-Zag technology is mandatory under the CPCB direction as the said technology comparatively produces lesser pollution. **All brick kilns using old polluting technology FCBTK be closed. Reliance has been placed on the order of this Tribunal on the subject dated 22.01.2019 in OA 718/2017, Anil Kumar v. Union of India & Ors. In violation of the directions of the CPCB, fresh consents are being given by the State PCB for operation of brick kilns using old FCBTK technology. Infact time has come to close coal fired activities in area where air quality is poor or above. Out of 189 brick kilns, only 30 brick kilns are using Zig-Zag technology. The remaining are required to be closed. It is preferable to shift to gas based fuel.**

Mathura District is part of Taj Trapezium Zone (TTZ) where 'orange' and 'red' category industries are not permitted. Even if Mant and Chhata or other areas all under outside TTZ, **the level of air quality has to be considered before granting/renewing any consent having regard to mandate of Air (Prevention and Control of Pollution) Act, 1981. In the report, the data considered is of the entire year and not of the months during which air quality is beyond norms and pollution level is high. Data is not of the local area where the brick kilns are working. The report ignores the order of this Tribunal dated 17.02.2021 in OA 1016/2019, Utkarsh Panwar v. Central Pollution Control Board & Ors., whereby the Tribunal allowed operation of brick kilns only from March to June, having regard to the air quality, limiting to the number which was sustainable as per carrying capacity. Carrying capacity needs to be worked out following correct norms and correct data. Brick kilns not complying with the consent conditions need to be closed till compliance as per precautionary principle. Siting criteria is to apply even to old brick kilns as every renewal is at par with new consent. No doubt the earlier order in Utkarsh Panwar is for Delhi and NCR, the principle underlying the said order has to be followed. Further reference has to be made to the notification issued by the Govt. of India prescribing standards for brick kilns. The prescribed standards are:**

“18. Standards of the Brick Kilns of Small Unit was 1000 mg/Nm³, Medium Unit was 750 mg/Nm³ and large Unit was 750 mg/Nm³.

19. Thereafter, the MoEF on in the year 2015 issued Environment Protection draft Amendment Rules, 2015. The Particulate matter standards as per the draft rules for Natural Draft Kilns was 500 mg/Nm³ and Induced Draft Kilns was 250 mg/Nm³.

20. The MoEF& CC on 15.03.2018 published draft prescribed standards for brick kilns under the Environment Protection Rules, 1986. The proposed prescribed standard for particulate matter is 250 mg/Nm³ for all class of brick kilns.”

The Uttar Pradesh Brick Kilns (Siting Criteria for Establishment) Rules, 2012 requires a distance from 250 meters from the Government Hospital habitation area, school, colleges and highway. But in violation of the said criteria, there are brick kiln clusters in violation thereof. 54 brick kilns have been recently granted consent to establish without considering the air quality data. The CEPI score for Industrial Areas/Clusters monitored during 2018, mention Mathura as '91.10 score' and hence Mathura is a 'Critically Polluted Area'. Further, as per the CPCB uniform categorization of industries, the Brick Kilns unit falls under 'Orange' category and hence the UPPCB cannot be allowed to issue consent to establish to new units. Brick kilns which are located in very small area and these brick kilns continuously require raw material i.e. Soil, the Joint Committee has made no observation regarding source of such minor mineral and whether necessary permissions have been obtained for the same or not.

The brick kilns are also violate the consent conditions. The joint Committee has found:

- “i. Greenery and Plantation was not observed in majority of the units.***
- ii. No paved road and 3 meters boundary wall were observed.***
- iii. No permanent arrangement of stack monitoring.***
- iv. Absence of water sprinklers to suppress the dust.***
- v. No display board consisting of name of the unit, address, monitoring data among other things.***
- vi. Out of 189 brick kilns only 65 number of brick kilns are registered for GST.”***

Banned fuel such as plastic, rubber parts of old vehicles, shredded old automobile tyres and remnants of vehicles and other combustible machinery scraps were also found being used by the brick kilns units. The Joint committee in its report at Page No. 121 states that only permissible fuel was found in Chhata cluster but in the same report at Page No. 134 annexed photograph stating that Brick Kiln at Chhata was found using non permitted fuel.

10. We have considered the issue and also heard learned Counsel for the State PCB/CPCB/Brick kiln owner. From the above resume, it is seen that there are acknowledged serious violations of environmental norms in permitting the operation of brick kilns but the statutory authorities have failed to enforce the law, to protect public health and citizens right to breathe clean air which has to prevail over right to business. Precautionary principle is completely ignored. Air quality norms are violated. Consents have been mechanically given and renewed without any regard to statutory obligation of assessing air quality. There is no effective monitoring mechanism against violations. Even after violations are found, closure is not being ordered till compliance, which has to be the norm under the law. Even

air quality monitoring stations have not been set up at air pollution hot spots. Norms applied for calculating carrying capacity are not as required thereby permitting more pollution than permissible. Even those found using prohibited fuel have not been proceeded against. Those registered for GST are also not proceeded against. How will air standards be enforced? Public trust doctrine is given a go by. Casualty is public health particularly of innocent citizens who look to the State for their protection. They are helpless when the State fails in its duty.

11. This Tribunal, vide order dated 17.02.2021 in OA 1016/2019, Utkarsh Panwar v. Central Pollution Control Board & Ors., considered the issue of permissibility of brick kilns beyond the assimilative carrying capacity in the NCR and in the light of the Expert Committee report. This Tribunal directed that brick kilns be allowed to operate only from March to June using Zig-zag technology only to the extent of such number of brick kilns as were found to be viable in terms of the carrying capacity. The Tribunal directed that if the brick kilns shift to PNG, units may be allowed to function if pollution norms can be maintained. This Tribunal banned fire crackers where air quality is poor and above vide order dated 1.12.2020 in OA 249/2020. Vide order dated 15.7.2019 in OA 710/2017, the Tribunal directed District Environment Committees headed by District Magistrates to prepare District Environment Plans to control and regulate pollution as per Constitutional mandate. In OA 681/2018, vide order dated 8.10.2018, steps were directed to be taken for control of air pollution in cities identified as 'non-attainment' by Air Quality Monitoring Committees, to be headed by the Environment Secretaries, by preparing action plans.

12. Extract from order dated 1.12.2020 in OA 249/2020 is reproduced below:

"18.If the air quality is 'poor' and above, it has been held by the Hon'ble Supreme Court in the table quoted in para 4 above that there is danger of heart diseases, respiratory illness and other serious health impact even before Covid. Covid is going to further aggravate the situation and therefore atleast in areas where air quality is 'poor' and above, no bursting of fire crackers should be permitted in view of 'Precautionary' principle, to be statutorily enforced by this Tribunal under Section 20 read with section 15 of the National Green Tribunal Act, 2010.

32.In view of above discussion, following directions are issued:

i. There will be total ban on sale and use of all kinds of fire crackers during Covid-19 pandemic in the NCR and all cities/towns in the country where the ambient air quality falls under the 'poor' and above category.

v. We further direct that the Air Quality Monitoring Committees (AQMC) in terms of order of this Tribunal dated 08.10.2018 in OA No. 681/2018 to coordinate with the District Magistrates. for compliance of the above directions.”

13. Applying the same principles, we are of the view that the brick kilns ought to be permitted to the extent of carrying capacity, correctly calculated, strictly as per consent conditions, siting criteria and other environment norms. When air quality standards are exceeded, only non polluting technology has to be followed. Existing guidelines have to be strictly adhered to. Precautionary principle has to be applied and non compliant activity stopped.

xxxxxx.....xxx

15. In the said order⁶, the Tribunal held that coal fired brick kilns be not allowed in Delhi and NCR except to the extent of carrying capacity. The observations of the Tribunal are reproduced below:

xxxxxx.....xxx

E. Order dated 15.10.2020:

17. In Arjun Gopal & Ors. v. UOI & Ors.⁷, it was observed that the residents of NCR faced severe air quality standards which were worst in the World. It had serious adverse health impact. Life of citizens in NCR had been brought to virtual standstill. The Capital was smoked into an environmental emergency of unseen proportions. It will be appropriate to extract some observations from the judgment:-

“4. The onset of winter and the festival/marriage season this year, presented to the residents of NCR severe concerns regarding the air quality standards. According to reports, the air quality standards in early November of this year were the worst in the world. **It is reported that the PM_{2.5} levels recorded were “beyond scale” values (see India's Air Quality Among World's Worst Over Diwali Weekend: Report. 4-11-2016, Hindustan Times). The report indicates that 24-hour average of PM_{2.5} levels in South Delhi in 2016 were 38% higher than on the Diwali night of 2015. The day after Diwali, these levels were twice as high as the day after Diwali in 2015, crossing 650 µg/m³, which is 26 times above the WHO's standards or levels considered safe. Shockingly, on the morning of 1-11-2016, Delhi woke up to an average PM_{2.5} level of over 700 µg/m³ — some of the highest levels recorded the world over and 29 times above WHO standards. The report further states that the WHO guideline**

⁶ OA 1016/2019

⁷ (2017) 1 SCC 412

for 24-hour average PM_{2.5} levels is 25 µg/m³ and with an annual average PM_{2.5} level of 122 µg/m³, Delhi's air is the worst among global megacities with dense populations. We have particularly referred to the PM 2.5 levels because of the extreme effects and near invisibility of this type of particulate matter. PM_{2.5} or particulate matter 2.5 (PM_{2.5}), refers to tiny particles or droplets in the air that are two-and-one-half microns or less in width. It may be noted that the widths of the larger particles in the PM_{2.5} size range would be about thirty times smaller than that of a human hair. These particles primarily emanate from vehicle exhausts and other operations that involve the burning of fuels such as wood, heating oil or coal, and of course, use of fire crackers.

5. In India, air quality standards are measured in terms of the Air Quality Index (hereinafter "AQI"). The AQI was launched in India on 17-10-2014 by the Ministry of Environment and Forests. According to the press release of the Press information Bureau of the same date, it consists of a comprehensive set of parameters to monitor and assess the air quality. The AQI considers eight pollutants (PM₁₀, PM_{2.5}, NO₂, SO₂, CO, O₃, NH₃, and Pb), and based on the levels of these pollutants six categories of AQI ranging from "Good" to "Severe" have been prescribed. The index also suggests the health effects of the pollution categorywise. The gradation of AQI and its health impact is extracted below:

Tables 1 and 2 have already been reproduced in para 1 above and are not being repeated.

xxx.....xxx

6. Reports indicate that AQI in Delhi was much above the severe standard, shooting off the AQI 500 mark on many days this November. On the day after Diwali, it was more than 14 times the safe limits (see Delhi's Pollution Levels Peaks at 14-16 Times Safe Limits, 31-10-2016, The Hindu). The adverse health effects of these hazardous levels of pollution are only too evident from the table given above. We do not intend to refer to the multiplicity of reports and data on this front.

7. The hazardous levels of air pollution in the last few weeks has spared very few from its ill effects. The life of the citizens of NCR was brought to a virtual standstill, not to

speaking about the plight of the thousands of mute flora and fauna in NCR. Schools were declared shut, denizens of the city advised to stay indoors, construction activities stopped, power stations shut and ban imposed on burning of garbage and agricultural waste. The fall in air quality has had a significant impact on people's lifestyle as well. The rising costs to protect against air pollution are substantial. It has come to our notice that people are queuing up to purchase protective masks and air purification systems in the wake of dense smog all over the NCR. In short, the capital was "smogged" into an environmental emergency of unseen proportions.

8. The adverse effects of these extreme levels of air pollution spare no one — the young, the old, the infirm and even the future generations. A study of the data of the Global Health Depository of the World Health Organisation reveals that India has the world's highest death rate from chronic respiratory diseases and that about 1.5 million people in India die annually due to indoor and outdoor pollution (see Delhi Wakes up to an Air Pollution Problem it cannot Ignore, 15-2-2015, The New York Times). The Kolkata-based Chittaranjan National Cancer Institute (CNCI), in a study commissioned and handed over to the Central Pollution Control Board, found that key indicators of respiratory health, lung function to palpitation, vision to blood pressure, of children in Delhi, between four and 17 years of age, were worse off than their counterparts elsewhere. It also found that more than 40% of the school children suffer from lung damage (see Landmark Study Lies Buried, 2-4-2015, The Indian Express). We note with apprehension that there are nascent studies that suggest that pollution can lower children's IQ, hurt their test scores and increase the risks of autism, epilepsy, diabetes and even adult-onset diseases like multiple sclerosis (see Holding Your Breath in India, 29-5-2015, The New York Times).

9. It has been brought to our notice that the severe air pollution in the NCR is leading to multiple diseases and other health related issues amongst the people. It is said that the increase in respiratory diseases like asthma, lung cancer, bronchitis, etc. is primarily

attributable to the worsening air quality in the NCR. The damage being caused to people's lungs is said to be irreversible. Other health related issues like allergies, temporary deafness are also on the rise. Various experts have pointed towards multiple adverse effects of air pollution on human health like premature deaths, rise in mortality rates, palpitation, loss of vision, arthritis, heart ailments, cancer, etc.

10. When we refer to these extreme effects, we are not merely referring to the inconvenience caused to people, but to abject deprivation of a range of constitutionally embedded rights that the residents of NCR ought to have enjoyed. Needless to state, the grim situation of air quality adversely affected the right to education, work, health and ultimately, the right to life of the citizens, and this Court is constitutionally bound to address their grave concerns. May we remind ourselves, that this is not the first time that this Court was impelled into ensuring clean air for the citizens of the capital region (see *M.C. Mehta v. Union of India* [*M.C. Mehta v. Union of India*, (1998) 6 SCC 60], [*M.C. Mehta v. Union of India*, (1998) 9 SCC 589], *M.C. Mehta v. Union of India* [*M.C. Mehta v. Union of India*, (1998) 8 SCC 648] and *M.C. Mehta v. Union of India* [*M.C. Mehta v. Union of India*, (1998) 8 SCC 206]).”

18. In the context of banning sale of crackers having adverse impact on the air quality, it was held that **even if there were several sources of pollution, a particular polluting activity could be prohibited.** No equality could be pleaded in this regard. Right to trade was not absolute and could be restricted for protection of Environment which was a specific Directive Principle of State Policy enforcement of which was a reasonable restriction on fundamental right to trade. The ‘Precautionary Principle’ of environmental law allows prohibition of a polluting activity even in absence of scientific certainty. Relevant extracts are as follows:-

“37 The aforesaid findings are sufficient to negate the arguments of the opposite side that there is absence of scientific study about the adverse effect of firecrackers during Diwali. In environmental law, “precautionary principle” is one of the well-recognised principles which is followed to save the environment. It is rightly argued by the petitioners that this principle does not need exact studies/material. The very word “precautionary” indicates that such a measure is taken by way of

precaution which can be resorted to even in the absence of definite studies. In Vellore Citizens' Welfare Forum [Vellore Citizens' Welfare Forum v. Union of India, (1996) 5 SCC 647], this Court explained the principle in the following manner: (SCC pp. 658 & 660, paras 11 & 14-16)

“11. Some of the salient principles of “Sustainable Development”, as culled out from Brundtland Report and other international documents, are Inter-Generational Equity, Use and Conservation of Natural Resources, Environmental Protection, the Precautionary Principle, Polluter Pays Principle, Obligation to Assist and Cooperate, Eradication of Poverty and Financial Assistance to the developing countries. We are, however, of the view that “the precautionary principle” and “the polluter pays principle” are essential features of “Sustainable Development”. The “precautionary principle” — in the context of the municipal law — means:

- (i) Environmental measures — by the State Government and the statutory authorities — must anticipate, prevent and attack the causes of environmental degradation.*
- (ii) **Where there are threats of serious and irreversible damage, lack of scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.***
- (iii) The “onus of proof” is on the actor or the developer/industrialist to show that his action is environmentally benign.*

14. In view of the abovementioned constitutional and statutory provisions we have no hesitation in holding that the precautionary principle and the polluter pays principle are part of the environmental law of the country.

15. Even otherwise once these principles are accepted as part of the Customary International Law there would be no difficulty in accepting them as part of the domestic law. It is almost an accepted proposition of law that the rules of Customary International Law which are not contrary to the municipal law shall be deemed to have been incorporated in the domestic law and shall be followed by the courts of law. To support we may refer to H.R. Khanna, J.s' opinion in ADM, Jabalpur v. Shivakant Shukla [ADM, Jabalpur v. Shivakant Shukla, (1976) 2 SCC 521] , Jolly George Varghese case [Jolly George Varghese v. Bank of Cochin,

(1980) 2 SCC 360] and Gramophone Co. case [Gramophone Co. of India Ltd. v. Birendra Bahadur Pandey, (1984) 2 SCC 534 : 1984 SCC (Cri) 313].

16. *The constitutional and statutory provisions protect a person's right to fresh air, clean water and pollution-free environment, but the source of the right is the inalienable common law right of clean environment. ...*"

38. *The precautionary principle accepted in the aforesaid judgment was further elaborated in A.P. Pollution Control Board case [A.P. Pollution Control Board v. M.V. Nayudu, (1999) 2 SCC 718] as under: (SCC pp. 732-34, paras 31-35)*

"31. The "uncertainty" of scientific proof and its changing frontiers from time to time has led to great changes in environmental concepts during the period between the Stockholm Conference of 1972 and the Rio Conference of 1992. In Vellore Citizens' Welfare Forum v. Union of India [Vellore Citizens' Welfare Forum v. Union of India, (1996) 5 SCC 647] a three-Judge Bench of this Court referred to these changes, to the "precautionary principle" and the new concept of "burden of proof" in environmental matters. Kuldip Singh, J. after referring to the principles evolved in various international conferences and to the concept of "sustainable development", stated that the precautionary principle, the polluter pays principle and the special concept of onus of proof have now emerged and govern the law in our country too, as is clear from Articles 47, 48-A and 51-A(g) of our Constitution and that, in fact, in the various environmental statutes, such as the Water Act, 1974 and other statutes, including the Environment (Protection) Act, 1986, these concepts are already implied. The learned Judge declared that these principles have now become part of our law. The relevant observations in Vellore case [Vellore Citizens' Welfare Forum v. Union of India, (1996) 5 SCC 647] in this behalf read as follows: (SCC p. 660, para 14)

'14. In view of the abovementioned constitutional and statutory provisions we have no hesitation in holding that the precautionary principle and the polluter pays principle are part of the environmental law of the country.'

The Court observed that even otherwise, the abovesaid principles are accepted as part of the customary international law and hence there should be no difficulty in accepting them as part of our domestic law. In fact, on the facts of the case before this Court, it was directed that the authority to be appointed under Section 3(3) of the Environment (Protection) Act, 1986

‘shall implement the “precautionary principle” and the “polluter pays principle”’.

The learned Judges also observed that the new concept which places the burden of proof on the developer or industrialist who is proposing to alter the status quo, has also become part of our environmental law.

32. The Vellore [Vellore Citizens' Welfare Forum v. Union of India, (1996) 5 SCC 647] judgment has referred to these principles briefly but, in our view, it is necessary to explain their meaning in more detail, so that courts and tribunals or environmental authorities can properly apply the said principles in the matters which come before them.

33. A basic shift in the approach to environmental protection occurred initially between 1972 and 1982. Earlier, the concept was based on the “assimilative capacity” rule as revealed from Principle 6 of the Stockholm Declaration of the U.N. Conference on Human Environment, 1972. The said principle assumed that science could provide policy-makers with the information and means necessary to avoid encroaching upon the capacity of the environment to assimilate impacts and it presumed that relevant technical expertise would be available when environmental harm was predicted and there would be sufficient time to act in order to avoid such harm. But in the 11th Principle of the U.N. General Assembly Resolution on World Charter for Nature, 1982, the emphasis shifted to the “precautionary principle”, and this was reiterated in the Rio Conference of 1992 in its Principle 15 which reads as follows:

‘Principle 15.—In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for proposing cost-effective measures to prevent environmental degradation.’

34. In regard to the cause for the emergence of this principle, Charmian Barton, in the article earlier referred to in “The Status of the Precautionary Principle in Australia” [(1998) 22 *Harvard Environmental Law Review* 509 at p. 547] says:

*‘There is nothing to prevent decision-makers from assessing the record and concluding that there is inadequate information on which to reach a determination. If it is not possible to make a decision with “some” confidence, **then it makes sense to err on the side of caution and prevent activities that may cause serious or irreversible harm.** An informed decision can be made at a later stage when additional data is available or resources permit further research. To ensure that greater caution is taken in environmental management, implementation of the principle through judicial and legislative means is necessary.’*

In other words, the inadequacies of science is the real basis that has led to the precautionary principle of 1982. It is based on the theory that it is better to err on the side of caution and prevent environmental harm which may indeed become irreversible.

35. *The principle of precaution involves the anticipation of environmental harm and taking measures to avoid it or to choose the least environmentally harmful activity. It is based on scientific uncertainty. Environmental protection should not only aim at protecting health, property and economic interest but also protect the environment for its own sake. Precautionary duties must not only be triggered by the suspicion of concrete danger but also by (justified) concern or risk potential. The precautionary principle was recommended by the UNEP Governing Council (1989). The Bomako Convention also lowered the threshold at which scientific evidence might require action by not referring to “serious” or “irreversible” as adjectives qualifying harm. However, summing up the legal status of the precautionary principle, one commentator characterised the principle as still “evolving” for though it is accepted as part of the international customary law, “the consequences of its application in any potential situation will be influenced by the circumstances of each case’. (See First Report of Dr. Sreenivasa Rao Pemmaraju — Special Rapporteur, International Law Commission dated 3-4-1998, paras 61 to 72.)”*

(emphasis in original)

39. In such cases which pertain to the protection of environment, thrusting of “onus of proof” on the developer/industrialist in *Vellore Citizens' Welfare Forum* [*Vellore Citizens' Welfare Forum v. Union of India*, (1996) 5 SCC 647] was also elaborated by the Court in the following manner: (*A.P. Pollution Control Board case* [*A.P. Pollution Control Board v. M.V. Nayudu*, (1999) 2 SCC 718] , SCC pp. 734-35, paras 36-38)

“36. We shall next elaborate the new concept of burden of proof referred to in *Vellore case* [*Vellore Citizens' Welfare Forum v. Union of India*, (1996) 5 SCC 647] at p. 658. In that case, *Kuldip Singh, J.* stated as follows: (SCC p. 658, para 11)

‘(iii) The “onus of proof” is on the actor or the developer/industrialist to show that his action is environmentally benign.’

37. It is to be noticed that while the inadequacies of science have led to the “precautionary principle”, the said “precautionary principle” in its turn, has led to the special principle of burden of proof in environmental cases where burden as to the absence of injurious effect of the actions proposed, — is placed on those who want to change the status quo (*Wynne*, “*Uncertainty and Environmental Learning: Reconceiving Science and Policy in the Preventive Paradigm*” [(1992) 2 *Global Environmental Change* 111 at p. 123]). This is often termed as a reversal of the burden of proof, because otherwise in environmental cases, those opposing the change would be compelled to shoulder the evidentiary burden, a procedure which is not fair. Therefore, it is necessary that the **party attempting to preserve the status quo by maintaining a less polluted state should not carry the burden of proof and the party who wants to alter it, must bear this burden.** (See *James M. Olson*, “*Shifting the Burden of Proof: How the Common Law can Safeguard Nature and Promote an Earth Ethic*” [(1990) 20 *Environmental Law* 891 at p. 898] .) (Quoted in “*The Status of the Precautionary Principle in Australia*” [(1998) 22 *Harvard Environmental Law Review* 509 at p. 547] at pp. 519, 550.)

38. The precautionary principle suggests that where there is an identifiable risk of serious or irreversible harm, including, for example, extinction of species, widespread toxic pollution in major threats to essential ecological processes, it may be appropriate to place the burden of proof on the person or entity proposing the activity that is potentially harmful to the environment. (See *Report of Dr Sreenivasa Rao Pemmaraju, Special Rapporteur, International Law Commission, dated 3-4-1998, Para 61.*)”

(emphasis in original)

41. It may be stressed that in *Vellore Citizens' Welfare Forum case* [*Vellore Citizens' Welfare Forum v. Union of India*, (1996) 5 SCC 647], this Court had banned the tanneries when it was found that they were causing immense damage to the environment. Thus, environment protection, which is a facet of Article 21, was given supremacy over the right to carry on business enshrined in Article 19(1)(g). We state at the cost of repetition that right to health, which is recognised as a facet of Article 21 of the Constitution and, therefore, is a fundamental right, assumes greater importance. It is not only the petitioners and other applicants who have intervened in support of the petitioners but the issue involves millions of persons living in Delhi and NCR, whose right to health is at stake. However, for the time being, without going into this debate in greater details, our endeavour is to strive at balancing of two rights, namely, right of the petitioners under Article 21 and right of the manufacturers and traders under Article 19(1)(g) of the Constitution.

44. Applying the aforesaid principle, in the first blush it may appear that the aforesaid argument has substantial force in it. However, that would be only one side of the picture as there are two contra-arguments which are sufficient to take the sheen out of the aforesaid plea. First aspect is that the argument of economic hardship is pitched against right to health and life. **When the Court is called upon to protect the right to life, economic effect of a particular measure for the protection of such right to health will have to give way to this fundamental right. Second factor, which is equally important, is that the economic loss to the State is pitched against the economic loss in the form of cost of treatment for treating the ailments with which people suffer as a result of burning of these crackers. Health hazards in the form of various diseases that are the direct result of burning of crackers have already been noted above. It leads to asthma, coughing, bronchitis, retarded nervous system breakdown and even cognitive impairment. Some of the diseases continue on a prolonged basis. Some of these which are caused because of high level of PM_{2.5} are even irreversible. In such cases, patients may have to continue to get the medical treatment for much longer period and even for life.** Though there are no statistics as to what would be the cost for treating such diseases which are as a direct consequence of fireworks on these occasions like Diwali, it can safely be said that

this may also be substantial. It may be more than the revenue which is generated from the manufacturers of the crackers. However, we say no more for want of precise statistical data in this behalf.”

Carrying Capacity Concept

19. Carrying capacity is a facet of sustainable development. It is inherent in ‘Precautionary Principle’ as well as in ‘Inter-generational Equity’. In *MC Mehta v. UOI & Ors.*⁸, **construction activity in the catchment area of Badkhal were directed to be restricted/regulated to the level of Carrying capacity.** It was observed that:-

“Preventive measures have to be taken keeping in view of the carrying capacity of the ecosystem operating in the environmental surroundings under consideration.”

20. In *Vellore Citizens’ Welfare Forum v. UOI & Ors.*⁹, it was observed that quality of human life is to be improved within the carrying capacity to supporting ecosystem. Relevant extract is as follows:-

“10..... During the two decades from Stockholm to Rio “Sustainable Development” has come to be accepted as a viable concept to eradicate poverty and improve the quality of human life while living within the carrying capacity of the supporting ecosystems. “Sustainable Development” as defined by the Brundtland Report means “Development that meets the needs of the present without compromising the ability of the future generations to meet their own needs”. We have no hesitation in holding that “Sustainable Development” as a balancing concept between ecology and development has been accepted as a part of the customary international law though its salient features have yet to be finalised by the international law jurists.”

21. These observations are reiterated in (2006) 6 SCC 371.¹⁰

Pollution from Brick kilns – shifting from coal to Natura gas as fuel

⁸ (1997) 3 SCC 715

⁹ (1996) 5 SCC 647

¹⁰ Para 66 to 76

22. In *M.C. Mehta (Taj Trapezium Pollution) v. UOI & Ors.*¹¹, the Hon'ble Supreme Court held that pollution caused by brick kilns in Taj Trapezium area was harmful to the Taj. Brick kilns within radius of 20 km were directed to be closed/relocated and replacement of the fuel by natural gas was suggested.¹²

CNG replaced for diesel as fuel, closing Thermal Plant and controlling carbon emitting activities to control pollution

23. In *M.C. Mehta v. UOI & Ors.*¹³ the issue for consideration was vehicular pollution on account of use of diesel considering the constitutional obligation, adverse impact of air pollution on health, the Hon'ble Supreme Court directed allocation of CNG and replacement of diesel vehicles of CNG.¹⁴ In *M.C. Mehta v. UOI & Ors.*,¹⁵ various directions were issued to deal with the adverse air quality in Delhi including phasing out of old vehicles, **closing Badarpur Thermal Power Station** increasing Metro frequency, stopping burning of waste, vacuum cleaning of roads.

Tribunal's Approach to the subject

24. The Tribunal has a mandate to follow these principles under Section 20 read with Section 15 of the National Green Tribunal Act, 2010 and can issue appropriate directions for enforcement of these principles, as laid down in *Mantri Techzone Pvt. Ltd. v. Forward Foundation and Ors.*,¹⁶ and the Director General (Road Development) NHAI *v. Aam Aadmi Lok Manch.*¹⁷ Environmental rule of law requires strict enforcement of these principles as laid down in *Hanuman Laxman Aroskar v. UOI*.¹⁸

25. This Tribunal in O.A. No. 681/2018, vide order dated 21.08.2020, dealt with the remedial measures for restoration of air quality in 122 Non-attainment cities, including Delhi where air quality is generally beyond norms. The Tribunal directed stopping polluting activities, including brick kilns and assessment of carrying capacity of urban areas to take policy decisions to control polluting potential activities beyond carrying capacity. The Tribunal observed:-

“3. The Tribunal noted the concern arising from such large scale air pollution which grapples the

¹¹ (2001) 9 SCC 235

¹² Para 1 & 2

¹³ (2002) 4 SCC 356

¹⁴ Para 1,3,11,21 to 24, 26 & 29

¹⁵ (2016) 4 SCC 269

¹⁶ 2019 SCC online SC 322, Para 43-47

¹⁷ AIR 2020 (SC) 3471, Para 75

¹⁸ (2019) 15 SCC 401

country in spite of statutory mechanism under the Air Act, directions of the CPCB under section 18(1)(b), dated 29.12.2015 and directions of the Hon'ble Supreme Court for control of **vehicular pollution¹⁹, industrial and construction sector pollution²⁰, power sector pollution²¹ and agricultural sector pollution²²** and orders of this Tribunal dealing with the said issues²³. The Tribunal also referred to a Comprehensive Action Plan (CAP) for air pollution control for NCR prepared in pursuance of order of the Hon'ble Supreme Court dated 06.2.2017 by the Environment Pollution (Prevention and Control) Authority (EPCA) in consultation with the CPCB and Delhi Pollution Control Committee (DPCC) on 05.04.2017²⁴ and Graded Response Action Plan (GRAP) notified by the MoEF&CC on 12.01.2017 stipulating specific steps for different levels of air quality such as **improvement in emission and fuel quality and other measures for vehicles, strategies to reduce vehicle numbers, non-motorised transport network, parking policy, traffic management, closure of polluting power plants and industries including brick kilns, control of generator sets, open burning, open eateries, road dust, construction dust, etc.**²⁵

4. Implementation of prescribed norms in the light of legal provisions and court directions remains a challenge. The consequence is that India is being ranked high in terms of level of pollution compared to many other countries with enormous adverse

¹⁹ Rural Litigation and Entitlement Kendra, Dehradune and Others Vs State of U.P. Others (1985) 2 SCC 431, M.C. Mehta v. Union of India (2001) 3 SCC 756, M.C. Mehta v. Union of India (1998) 6 SCC 63, M.C. Mehta v. Union of India (2002) 4 SCC 356, M.C. Mehta v. Union of India (1998) 6 SCC 60

²⁰ M.C. Mehta v. Union of India (1997) 2 SCC 353, M.C. Mehta v. Union of India and Shriram Foods and Fertilizer Industries and Anr. (1986) 2 SCC 176, Rural Litigation and Entitlement Kendra, Dehradun v. State of U.P. (1985) 2SCC 431, Mohd. Haroon Ansari v. District Collector (2004) 1 SCC 491, Union of India v. Union Carbide Co. (1989) 1 SCC 674, M.C. Mehta v. Union of India (1992) 3 SCC 256, Sterlite Industries (India) Ltd. etc. v. Union of India & Ors.(2013) 4SCC 575 , M.C. Mehta v. Union of India (2004) 6 SCC 588, M.C. Mehta v. Kamal Nath (2000)6 SCC 213

²¹ Consumer Education and Research Centre v. Union of India (1995)3 SCC 42, Dahanu Taluka Environment Protection group and Ors. v. Bombay Suburban Electricity Supply Company Ltd. and Ors (1991) 2SCC 539

²² Arjun Gopal and Ors v. Union of India and Ors (2017) 16 SCC 280, Dr. B.L Wadhwa v. Union of India and Ors (1996) 2 SCC 594

²³ Vardhman Kaushik v. Union of India and Ors. O.A no. 21 of 2014, Vikrant Kumar Tongad v. Environment Pollution (Prevention and Control) Authority and Ors, O.A No. 118 of 2013, Satish Kumar v. Union of India and Ors, O.A. No. 56 (T_{HC}) OF 2013, Smt. Ganga Lalwani V. Union of India and Ors. O.A No. 451 of 2018

²⁴ Report No.71, EPCA-R/2-17/L-21, Comprehensive Action Plan for air pollution control with the objective to meet ambient air quality standards in the National Capital Territory of Delhi and National Capital Region, including states of Haryana, Rajasthan and Uttar Pradesh.

²⁵ S.O.118(E), Notification, Ministry of Environment, Forest and Climate Change

impact on public health. Most victims are children, senior citizens and the poor.²⁶

5. The GRAP categorises levels of pollution as severe plus, severe, very poor, moderate to poor. The action to be taken in such situations includes stopping entry of trucks, stopping construction activities, odd and even scheme of private vehicles, shutting of schools, closing of brick kilns, stone crushers, hot mix plants, power plants, intensifying public transport services, mechanized cleaning of road, and sprinkling of water, stopping the use of diesel generator sets, enhancing parking fees, etc.

6. The MoEF&CC has by various notifications put restrictions on activities in Coastal areas, Flood plains, Taj corridor Eco-sensitive zones, etc. in view of ecological sensitivity and impact of such activities on environment if such activities are carried out in unregulated areas. This needs to be extended to the NACs in view of impact on public health and environment to give effect to the 'Precautionary' and 'Sustainable Development' principles."

7to13...xxx.....xxx.....xxx

14. According to the CPCB, draft framework has been prepared and SA study completed in four States (for 05 cities). Study was under progress in 14 States (for 54 cities), and at proposal stage in 10 States (for 37 cities). Methodology for carrying capacity has been shared with State PCBs/PCCs. Twelve (12) States/UTs have given the details of the carrying capacity and the remaining have yet to take necessary steps. CC/SA studies are pre requisite for meaningful planning to enforce environmental law. This pre-requisite should have been undertaken long ago. Air quality norms have been statutorily laid down under the Air (Prevention and Control of Pollution) Act, 1981 as well as the Environment (Protection) Act, 1986 and such norms are being flagrantly violated, which has been made by the Parliament a criminal offence. If the rule of law has to have meaning and guilty are to be punished, the policies of the State have to be based on scientific studies to contain polluting activities within the scope of Carrying Capacity."

26. Dealing with the issue of air pollution in manufacture of tiles at Morbi in Gujrat, vide order dated 6.3.2019 OA 20/17 Babubhai v GPCB, this Tribunal directed closure of industries operating with coal unless they shifted to natural

²⁶ <https://www.thehindu.com/sci-tech/energy-and-environment/india-ranks-177-out-of-180-in-environmental-performance-index/article22513016.ece>, <https://www.ndtv.com/delhi-news/delhis-air-pollution-has-caused-of-death-of-15-000-people-study-1883022>.

gas. This was referred in the earlier order of this Tribunal in the present matter. It was further observed that while under the orders of the Hon'ble Supreme Court, GRAP was laid down providing for closing of specified activities on crossing of air quality norms as laid down in the GRAP, the same did not debar consideration of further situations requiring closure/regulation.

Conclusion

27. Thus, in view of report of the CPCB, at this stage **it is not possible to vacate direction not to permit operation of brick kilns in NCR beyond the carrying capacity found by the CPCB. All applications of the brick kiln owners seeking rejection of CPCB report and vacation of interim order against operation of brick kilns, without air quality assimilative capacity permitting such activity will stand rejected subject to further exploring viable options, including change to clean fuel like natural gas.** We are conscious that brick kilns may be necessary. Object of this order is not to stop any legitimate business activity but to enforce the right to breathe fresh air which is right to file. The source apportionment studies, placed on record, show that brick kilns contribute 5-7% PM. Air pollution Control devices to be installed by the polluting sources including the brick kilns need to comply not only the consent standards but are also the Ambient Air Quality norms and available assimilative capacity of the region. **If the right to fresh air is not enforced, the consequences of brick kilns beyond carrying capacity of the air quality in the area are disastrous in terms of deaths and air borne diseases. This will be contrary to the mandate of the Constitution and the environmental law, particularly the principle of 'Sustainable Development'. It is well established that deteriorated ambient air quality in terms of PM₁₀ and PM_{2.5} affects respiratory system particularly, the lungs which may make individuals more vulnerable to get other related fatal diseases.**²⁷

28. Accordingly, we direct CPCB to constitute a Committee of five experts to suggest ways and means, if any, by which sustenance of brick kilns activities may be viable. It will be open to CPCB to nominate in-house or other Experts. The CPCB may also explore viability of PNG as replacement of coal and other best practices in terms of fuel used, at other places or in other Countries. It will be open to the brick kilns owners/associations to give any other suggestions or alternatives for consideration by CPCB in spirit of collaboration with a view to find a solution within two weeks from today. Subject to the report of the expert

²⁷ <https://airqualitynews.com/2020/08/13/the-link-between-air-pollution-and-covid-19/http://www.babushahi.com/full-news.php?id=107487>

Committee finding it viable, possibility of permitting operation of brick kilns, having regard to the extent of pollution load and its effect on the air pollution level in NCT of Delhi may be considered. The CPCB may constitute an expert Committee within three weeks which may give its report within six weeks thereafter. Further report may be furnished in the matter before the next date by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/OCR Support PDF and not in the form of Image PDF.”

Order dated 17.02.2021 in OA 1016/2019:

xxx xxxxxx

14. The report also annexes a study of Tunnel kiln technology, using PNG as fuel, employed by M/s Wienerberger Building Solutions Private Limited, KIADB Industrial Area, Kunigal, Karnataka, **(which has not been found viable by the Committee)**, as follows:-

“5.0 Plant Description:

M/s Wienerberger Building Materials Solutions Private Limited, a Brick Manufacturer founded in 1819 in Vienna, Austria, is having 204 plants spread across 30 countries, is engaged in using natural, eco-friendly building material of international quality standards. The unit located in Plot No. 1 & 2, Kunigal Industrial Area, Phase II, Gottikere Village, Kunigal, Karnataka has Tunnel kiln, a continuous moving ware kiln technology. Wienerberger at Kunigal is the production facility, 70 kms from Bangalore, is Austria-based Wienerberger’s first Asian manufacturing unit. The fully automated, state-of-the-art facility manufactures bricks called porotherm perforated clay bricks. The environment friendly production unit runs 365 days a year, producing 450 tonnes of bricks per day. Quality is ensured by the latest European production equipments 24 hour factory production control with in-house laboratory for chemical and physical tests of raw materials and finished products. The unit makes different types of horizontal and vertical perforated light weight clay bricks. The porotherm horizontally perforated light weight clay bricks has following advantages:

- Weighs 60 % less than conventional walling material
- Compressive strength $\geq 3.5 \text{ N/mm}^2$
- Density of approx. $700\text{-}800\text{kg/m}^3$
- Conveniently large and light weight bricks
- Excellent thermal insulation
- Low water absorption ~ 15%

Brick is a 100 % natural clay product with natural additives like coal ash, rice husk and granites slurry. No toxic or any chemical additives are used, thereby free from toxic gases.”

15. The report also refers to direction issued by the CPCB on 27.11.2020 under Section 18 (1) (b) of the Air (Prevention & Control of Pollution) Act, 1981 for upcoming industrial units in NCR **to use only gas** and also refers to an earlier order requiring even the existing industries in NCR Delhi, **to shift to PNG by 31.03.2019 where gas supply is available**. The relevant part of the order is quoted below:-

“xx.....xx.....xx.....”

*Whereas, considering the Considering deteriorating air quality in NCR-Delhi and also the fact that **already directions have been issued to all the existing industries in NCR-Delhi to switch over to cleaner fuels, it is decided that only those new industrial units shall be allowed to set-up in NCR-Delhi, which use cleaner fuels namely, natural gas (PNG/CNG), liquefied petroleum gas, bio gas, propane, butane etc. and***

Now therefore, in view of the above and exercising the powers conferred under section 8(1)(b) of Air (Prevention and Control of Pollution) Act, 1981, you are hereby directed to allow only those new industrial units in NCR-Delhi, which are using cleaner fuels, namely, natural gas (PNG/CNG), liquefied petroleum gas, bio-gas, propane, butane etc.”

16. We have heard Counsel for the brick kiln operators at great length and also perused the written submissions filed by them but their effort being to revisit the earlier order against which their appeal stands dismissed, we do not find any reason to pass any different order. As already observed in the beginning of this order, the data in Table 15 in the CPCB report shows that in severe air quality condition, coal fired brick kilns using zig zag technology are not sustainable in view of carrying capacity of the region. **Only from March to June, limited number of brick kilns operated by zig zag technology can be permitted**. Thus, unless there is change to cleaner fuel (PNG), brick kilns beyond the capacity shown by Table 15 above cannot be allowed.

17. There is variance of figures of brick kilns permissible during March to June within the carrying capacity. Nature of brick kiln activity being continuous, only such number can be allowed which can be sustained throughout the said period i.e. the minimum figure of a particular month out of the four months, which comes to 444 in Haryana (in the month of May) and 200 in UP (in

the month of June). Thus, only this number can be allowed for the time being during the period air quality is not severe. **Shortlisting for the purpose may be done applying a suitable siting criteria taking into account inter-se distance, distance from sensitive locations and compliance of consent conditions. Further, location of brick kilns be scattered on pro-rata basis, in different directions of the area, having regard to background and carrying capacity parameters. On that broad basis, selection criteria be worked out by a joint Committee of CPCB and State PCBs. Those brick kilns which switch over to PNG will be entitled to operate even beyond months of March to June and even beyond the number of brick kilns on Zig-Zag technology within the carrying capacity. This can be revisited if air quality improves or if carrying capacity increased as a result of measures adopted by the State authorities in future, by reducing pollution load from different sources.**

18. The Tunnel kiln technology with PNG can be followed, if viable, on which it may be permissible for the brick kilns to function even in severe conditions for existing or new brick kilns. The direction dated 27.11.2020 by CPCB also shows the need for reducing pollution load and not to allow activities by using coal.

19. As mentioned earlier, the recommendation that the brick kilns can be allowed with effective monitoring appears to be hypothetical in view of monitoring having been found to be hardly effective, on performance audit of PCBs, as will be shown in later part of this para. While in absence of carrying capacity, brick kilns are not permissible in 'severe' air quality situation, need for improving monitoring and minimising pollution is undisputed. In this regard, matter has been considered by this Tribunal in OA 95/2018, Aryavart Foundation v. M/s Vapi Green Enviro Ltd. & Ors.²⁸, and in the light of report of performance audit of State PCBs, it has been found that performance is inadequate in terms of staff, equipment and functioning. Similar situation has been found in OA 837/2018, Sandeep Mittal Ministry of Environment, Forests & Climate Change & Ors.²⁹, in relation to monitoring of EC conditions by the MoEF&CC. We have recently come across several cases of industrial accidents and one of the reasons for the same is inadequate monitoring. In OA 85/2020, Aryavart Foundation through its President v. Yashyashvi Rasayan Pvt. Ltd. & Anr.³⁰, directions have been issued to improve

²⁸ vide order dated 05.02.2021

²⁹ Vide order dated 01.02.2021

³⁰ Vide order dated 03.02.2021

the same. We have already noted in other proceedings³¹ that as per official statistics, 100 industrial clusters are polluted, 351 river stretches are polluted and 122 cities are non-attainment in terms of air quality, apart from huge gaps in waste generation and management. In spite of monitoring of the said issues by this Tribunal, the situation is far from any improvement. Thus, it is undeniable that stringent steps for monitoring to achieve goal of sustainable development are required. While monitoring must certainly improve, such suggestion is not enough to presume that pollution load by coal-fired brick kilns will reach zero so as to sustain coal-fired brick kilns in NCR in severe air quality conditions. In such situation, potential damage to public health cannot be ignored, while dealing with the issue of activity having potential for pollution, in the area having no carrying capacity to sustain further pollution load.

20. Thus, we conclude that going by the order dated 15.10.2020, in 'severe' air quality conditions, coal-fired brick kilns cannot be allowed to operate in NCR even if zig zag technology is used and improved procedures are followed, as suggested by the Committee, unless there is switch over to the PNG. All other issues have already been dealt with in the earlier order. In para 7 of order dated 05.03.2020 and para 8 of order dated 23.03.2020, we have already held that compliance by an individual brick kiln, otherwise contributing to pollution load beyond carrying capacity, does not confer a right to continue such activity, when such activity attracts GRAP in 'severe' air quality condition. As noted in para 11 of the order dated 15.10.2020, the CPCB has found that there is no assimilative capacity during the period air quality is 'severe' and only during months of March to June there is a limited capacity. Inter-se distance of at least 500 meters is required to be maintained in location of brick kilns. When brick kilns start, they should not be allowed to start simultaneously but their firing should be staggered to

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- ³¹ (i) Vide order dated 21.09.2020, OA 673/2018, *In Re: News item published in "The Hindu" authored by Shri Jacob Koshy, titled "More river stretches are now critically polluted: CPCB"*
- (ii) Vide order dated 21.08.2020, OA 681/2018, 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"
- (iii) Vide order dated 14.11.2019 in OA 1038/2018, News item published in "The Asian Age" Authored by Sanjay Kaw Titled "CPCB to rank industrial units on pollution levels"
- (iv) Vide order dated 28.02.2020 in OA No. 606/2018, Compliance of Municipal Solid Waste Management Rules, 2016.
- (v) Vide order dated 18.01.2021 in OA 710/2017, *Shailesh Singh, v. Sheela Hospital & Trauma Centre, Shahjahanpur & Ors.* with regard to **bio-medical waste**
- (vi) Vide order dated 29.01.2021 in OA 804/2017, *Rajiv Narayan v. Union of India & Ors.* with regard to **hazardous waste.**
- (vii) Vide order dated 15.01.2021 in OA 512/2017, *Shailesh Singh v. State of UP* with regard to **e-waste.**
- (viii) Vide order dated 08.01.2021 in EA 13/2019 in OA 247/2017, *Central Pollution Control Board v. State of Andaman & Nicobar & Ors.* with regard to **plastic waste.**

avoid adverse impact on the environment. Other safeguards of fugitive dust emission management need to be adopted. In para 18 of order dated 15.10.2020, the issue of non-availability of plea of discrimination to GRAP, attracting some polluting categories and not attracting other polluting activities, has already been dealt with. Accordingly, we reiterate this mandate.

21. In view of the above discussion, unless there is change to cleaner fuel (PNG), brick kilns beyond the number mentioned in Table 15 above cannot be allowed, in the NCR. Since there is variance of figures given during March to June, only such number can be allowed which can be sustained throughout the period i.e. the minimum figure of a particular month out of the four months which comes to 444 in Haryana (in the month of May) and 200 in UP (in the month of June). Such shortlisting may be done applying a suitable siting criteria taking into account inter-se distance and distance from sensitive locations and compliance of consent conditions for which the CPCB, State PCB may work out an appropriate mechanism. Further, location of brick kilns be scattered on pro-rata basis, in different directions of concerned area, having regard to background and carrying capacity parameters. Needless to say, those brick kilns which switch over to PNG will be entitled to operate even beyond months of March to June and even beyond limited number mentioned, subject to compliance with law.”

16. In view of earlier orders quoted above and discussion in paras 10 to 12, we are of the view that steps need to be forthwith taken to stop operation of brick kilns already found to be operating in violation of environmental norms till compliance by the State PCB in exercise of its statutory power, following due process of law, till compliance. This will include brick kilns not following consent conditions, operating in excess of carrying capacity, CPCB guidelines and orders of this Tribunal, and those violating siting guidelines. Necessary action be ensured within two months. At the same time, there is need for further study of carrying capacity, applying correct data and norms. Air quality monitoring equipments be installed in the concerned area and if online monitoring stations cannot be set up, easily available equipments be used to continuously monitor air quality. Stringent monitoring mechanism be put in place. Process of mechanically giving consents be reviewed by the State PCB in view of binding ‘precautionary’ principle. Public health needs to be given due preference to the need for establishment of brick kilns. Violators be strictly proceeded against by way of prosecution, recovery of compensation and preventing pollution. While determining carrying capacity, other sources contributing pollution loads may be factored in while considering concentrations of PM10 in microgram per cubic metre in addition to loads given in kgs. Further, mixing heights data may be referred from the nearest location of IMD station. It is also necessary to clarify reasons of high CEPI score (91.1) particularly for Air and remedial action plan.

17. Our directions are summed up as follows:

- (A) *Brick kilns operating in violation of environmental norms - without consent, in violation of consent conditions, in violation of siting criteria, beyond carrying capacity be forthwith closed, following due process of law, exercising statutory powers by the State PCB.*
- (B) *The State PCB in coordination with the District Magistrate and the Air Quality Monitoring Committee headed by Secretary Environment may ensure setting up of air quality monitoring stations at appropriate locations and also take other steps for effective monitoring of compliance of air quality norms in the area in question.*
- (C) *Consent given to all the brick kilns be reviewed by the State PCB in the light of CPCB directions as well as the air quality norms, siting criteria and carrying capacity. Shortlisting as per carrying capacity may be done on the basis of technology used, inter se distance, distance from sensitive locations and comparative level of compliance.*
- (D) *Tunnel kiln technology with PNG may be appropriately encouraged in the interest of reduction of pollution load.*
- (E) *Five-member Committee is constituted to undertake further study of carrying capacity of the area in terms of number of brick kilns which can be sustained applying right parameters and based on relevant data of air quality, overcoming deficiencies pointed out hereinabove. The Committee will comprise of the following:*
 - i. Justice Anil Kumar Sharma, former Judge of Allahabad High Court now available at Mathura - Chairman.*
 - ii. Representative of CPCB of the level not below Additional Director – Member.*
 - iii. Professor Mukesh Khare, former Prof. IIT Delhi – Member.*
 - iv. Member Secretary, SEIAA, UP - Member.*
 - v. Chief Engineer Environment, UP State PCB – Member.*

The CPCB and the State PCB will be the nodal agency for coordination and compliance. The Committee may visit the site and interact with the stakeholders. The Committee may meet within 15 days from today to take stock of the situation. Thereafter, it may visit the site and study the available data of air quality and location of the brick kilns. It will be free to conduct proceedings online except for visit to the site which may be undertaken by all or such members as may be decided by the Chairman of the Committee. The Committee will be free to consult any other expert/institution. The Committee may give its report to this Tribunal within three months by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF. The report may be uploaded on the website and it will be open to any

aggrieved party to file their response, if any, before the next date. Justice Anil Kumar Sharma will be entitled for honorarium @ Rs. 2 lac per month and Prof. Mukesh Khare will be entitled for honorarium @ Rs. 1.5 lac per month. The said honorarium will be payable by the State PCB out of the 'consent funds' available with it. Logistic support may be provided by CPCB/State PCB/District Magistrate to enable the Committee to complete its task."

11. Interim reports have been filed by the joint Committee on 18.11.2021 and 16.12.2021. In the first report, it is stated that work of undertaking carrying capacity has been assigned to the IIT Delhi for which MoU has been signed on 23.10.2021 by the State PCB. The Committee has sought direction for payment of charges to the IIT Delhi. In the second report, proceedings of the 6th meeting of the Committee dated 14.12.2021 have been filed. The said minutes record that brick kilns operating without consent were closed.

12. We have heard learned Counsel for the State PCB. On being asked how the simple work which was expected to be done by the Committee is being outsourced at unnecessary huge cost and causing delay in much needed remedial action, he submitted that there appeared to be some communication gap about the role expected from the Committee. Further, there is no figure of illegally operating brick kilns which have now been closed. We are informed that those which did not have consent have been closed. What about those violating consent conditions, not following siting norms, continuing old technology against guidelines? There seems to be flagrant violation of orders of this Tribunal on these aspects. The Committee appointed by this Tribunal may look into these aspects and ensure remedial action which may be mentioned in its report.

13. Engagement of IIT for carrying capacity assessment appears to be as a result of some communication gap which is not as per mandate of

the Tribunal. Instead of this course of action, what is required is the analysis of available data on the pattern of approach of the Expert Committee in its report dated 06.07.2020 filed by the CPCB, dealt with vide order dated 15.10.2020 in OA No. 1016/2019, Utkarsh Panwar supra.

14. Simple work in terms of order of this Tribunal does not warrant any fresh study or any intricate research by any other institution. Assessment of the ground situation needs to be made for a decision whether and how many brick kilns ought to be allowed in the light of air quality data in the area. We further note that contrary to orders of this Tribunal only brick kilns operating without consent are reported to have been closed. There is no mention about closure of brick kilns violating siting criteria and consent terms, using obsolete technology contrary to CPCB guidelines or operating in excess of the carrying capacity i.e. when data shows inability to take more pollution load in the area, except by use of technology which avoids pollution load and if the air quality is not harmful for public health. If air quality norms are already exceeding, all that the Committee needs to say is that no brick kiln can be allowed during the period air pollution is above threshold, till improvement of air quality. If the air quality can sustain lesser number or maintaining longer distance, it has to be ascertained. If improved technology can help, it may be so mentioned. The Committee is to operate within these parameters. Precautionary principle has to guide the issue.

15. In Mant and Chatta area where 168 and 59 brick kilns are said to be operating in a cluster. The Committee was required to determine whether siting norms were reasonable and being followed and whether the air quality permitted could sustain the pollution load generated by

the brick kilns. The Air Quality Monitoring Stations were required to be set up at appropriate locations based on which effective monitoring of the pollution load was possible.

16. As already mentioned, the State PCB has miserably failed to monitor compliance of consent conditions, ambient air and stack monitoring, siting criteria as well as compliance of environmental norms. Such lapse on the part of the State PCB has resulted in serious damage to the environment and public health. The Chairman, State PCB needs to take action against such failure, including the erring officers of the State PCB posted in the area.

17. In view of above discussion, further steps in the matter be taken by the statutory regulators and monitored by the Committee constituted by this Tribunal. The Committee will stand reconstituted as follows:

- i. Justice Anil Kumar Sharma, former Judge of Allahabad High Court now available at Mathura - Chairman.
- ii. Member Secretary, CPCB – Member.
- iii. District Magistrate, Mathura– Member.
- iv. Member Secretary, SEIAA, UP - Member.
- v. Member Secretary, UP State PCB – Member.

If any member finds it difficult to attend physically, with the permission of the Chairman of the Committee, he can be allowed to participate online.

18. The Committee may accordingly give further report in the light of above observations. In the report, number of brick kilns closed or required to be closed or could be allowed and the period during which the same could be allowed as a result of assessment and monitoring by the

Committee may be specified. Further report be furnished to this Tribunal within two months by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF. The report may also be uploaded on the website of CPCB for any response by any stakeholder before the next date.

List for further consideration on 03.03.2022.

I.A. No. 217/2021 has been filed by the State PCB seeking direction for monetary support by the Central Government. We do not find any merit in the application which is hereby dismissed.

A copy of this order be forwarded to Justice Anil Kumar Sharma, former Judge of Allahabad High Court now available at Mathura, Chairman, UP State PCB, Member Secretaries of CPCB, UP State PCB, SEIAA, UP and District Magistrate, Mathura by e-mail for compliance.

Adarsh Kumar Goel, CP

Sudhir Agarwal, JM

Dr. Nagin Nanda, EM

December 21, 2021
Original Application No. 93/2021
(I.A. No. 217/2021)
DV