

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL,

Principal Bench, New Delhi

In

Original Application No. 1016/2019

In the Matter of: -

Utkarsh Panwar

Applicant

Vs.

CPCB & Ors.

Respondent(s)

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(S. K. Gupta)

Scientist 'E'

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

Place: Delhi

Date: 6th July, 2020

Report with reference to the Order of Hon'ble NGT dated 17/03/2020, in the matter of O.A. No. 1016 of 2019; Utkarsh Panwar Vs. CPCB & Ors.

1. Background

The Hon'ble NGT vide its order dated 5.03.2020 in the matter of O.A. No. 1016 of 2019; Utkarsh Panwar Vs. CPCB & Ors. directed as under:

"In view of the above, it is necessary to look at the relevant data at different locations '24 hourly' and 'monthly average' during the relevant months. Since such data is maintained by the CPCB/PCBs, the CPCB may collect such data for corresponding months of March, April, May and June in the year 2019 and furnish the same before the next date. The break-up of location of the brick kilns District-wise may also be furnished to consider as to which of the brick kilns can be allowed after verification that such brick kilns are actually working on 'Zig-Zag' technology, pending further assessment of the carrying capacity by the CPCB, as already directed earlier vide order dated 06.02.2020".

In compliance of the aforesaid order, the following details were submitted by CPCB for NCR-districts located in Haryana, Uttar Pradesh and Rajasthan:

- i. District wise break-up of location of Zig-Zag type brick kilns.
- ii. Ambient Air Data of NCR Districts of the states of Haryana, Uttar Pradesh and Rajasthan w.r.t. 24 hourly and monthly average values of PM₁₀ and PM_{2.5} during March, April, May & June for the year 2019.

The above data submitted by CPCB was considered during hearing on 17/03/2020 and it was observed and directed by Hon'ble NGT (**Annexure-1**), as follows:

"11. Issue of allowing operation of brick kilns may give rise to following questions:

- (i) The use of cleaner fuels or any other alternative measures to be used to prevent air pollution.***
- (ii) Siting and carrying capacity.***

12. In view of the fact that there is no carrying capacity of the air quality in NCR region to permit any further addition to PM load by permitting unconditional operation of brick kilns using fuel which adds to PM load and since it may be necessary to consider the issue of utilizing fly ash, we require an expert opinion on following issues:

- a) how brick kilns can be allowed in NCR without damage to the air quality;**
- b) conditions subject to which it may be done;**
- c) number of brick kilns to be allowed and criteria for fixing such numbers.**

13. Let CPCB look into the above issues and furnish a further report within one month for further directions in the matter. The applicants are free to put forward their viewpoint before CPCB.

Subsequent to the orders of Hon'ble NGT, viewpoints/representations were received by CPCB from Palwal Brick Kiln Association, Alwar District Brick Manufacturers' Association and other associations viz. All India Brick & Tiles Manufacturer Federation, Haryana Pradesh Brick Kilns Owners Association and Jila Ent Nirmata Samiti, Gautam Budh Nagar vide emails dated June 4, 2020, June 18, 2020 and July 3, 2020 respectively (Annexure-2, 3, 4, 5 and 6). Major points raised by above Brick Kilns' Associations are as follows:

- (a) The brick kilns are complying with the directions of CPCB w.r.t. shifting from the Old Fixed Chimney Bull Trench Kiln Technology to Zig-Zag Technology.
- (b) The brick Kilns have been established as per siting criteria.
- (c) The Hon'ble Supreme Court of India in Civil Appeal No. 1742-43 of 2020 (Diary No. 5935/2020) vide order dated 20/02/2020 requested Hon'ble NGT to decide the O.A. No. 1016/2019, in the light of the provisions of the Graded Response Action Plan (GRAP) of MoEF&CC and EPCA order dated 14/02/2020.
- (d) The brick kilns in NCR regions are required to be closed under Severe Category ($PM_{10} > 430 \text{ ug/m}^3$ or $PM_{2.5} > 250 \text{ ug/m}^3$) under GRAP.
- (e) Brick Kilns based on Zig-Zag technology are less polluting and are complying with the both existing and proposed standards for stack emissions.
- (f) PNG, CNG and industrial LPG are not available in majority of places where brick kilns are situated.
- (g) The blanket ban on operation of brick kiln industries has affected livelihood rights of approximately one million people in the national Capital region.
- (h) The brick Kiln industries are seasonal and hence only operate from January to June and indefinite closure for the want of study would cause and has already caused irreparable damage to the brick kiln industry.

- (i) Utilization of fly ash may not be treated as a true alternative unless the harmful impacts of fly ash bricks are not studied.
- (j) A report on "Source Apportionment of PM_{2.5} and PM₁₀ of Delhi NCR for identification of major sources" prepared by ARAI and TERI for Department of Heavy Industry, Ministry of Heavy Industries and Public Enterprises, New Delhi, in the year 2016, reveals that brick kiln industry contributed only about 8% to the air pollution of Delhi and NCR. It was further found that the brick kilns shifting to Zig-Zag technology would further lead to reduction of 3%, 4% and 6 % in total PM_{2.5}, PM₁₀ and SO₂ emissions. The contribution of the brick kilns is very less in Delhi and NCR after conversion to Zig-Zag technology.
- (k) The utilization of fly ash in the manufacture of bricks is not only unfeasible because of several issues involved in the transportation of fly-ash to brick-kilns. It poses several health hazards to the inhabitants residing in buildings made thereof, in addition to health hazards to laborers working at brick-kilns and on construction sites.
- (l) Various kinds of industrial and other activities contribute together to saturate the carrying capacity of the region. It is submitted that saturation of the carrying capacity of Delhi-NCR cannot be the basis for denying permission to brick kilns to operate. This is particularly because brick kilns emissions are not amongst the main contributors to air pollution in Delhi-NCR.
- (m) Any directions that prohibit brick kilns from operating in Delhi- NCR on account of saturation of the carrying capacity, without first prohibiting the other more polluting activities, would be arbitrary and violative of Article 14 and Article 19(1)(g) of the Constitution of India.
- (n) The brick kilns may be allowed to operate at par with other activities that together contribute to the carrying capacity of Delhi-NCR, subject to the conditions of the Consent to Operate and guidelines issued by the regulatory bodies so as to avoid fugitive dust emissions.
- (o) The directions issued by the EPCA from time to time are sufficient to ensure that the brick kilns operate in Delhi-NCR without any damage to the air quality.
- (p) The brick kilns that do not comply with the conditions of the Consent to Operate and other guidelines issued by the regulatory bodies from time to time may also be closed down with immediate effect.
- (q) The brick kilns, which have adopted the zig-zag technology, may be permitted to operate in Delhi-NCR.



2. Report and Opinion of CPCB

In compliance of the directions of Hon'ble NGT, and report and opinion of CPCB in the matter are as follows:

The approach followed by CPCB for arriving at conclusion in this matter involved:

- a) Determining district-wise carrying capacity of ambient air in NCR districts of Haryana, Uttar Pradesh and Rajasthan using monthly average PM_{10} concentrations of continuous ambient air quality monitoring stations (CAAQMS)
- b) The districts and the period, for which, CAAQMS data was not available, $PM_{2.5}$ concentration derived from Aerosol Optical Depth (AOD) extrapolated to PM_{10} concentration, were used.
- c) For districts where CAAQMS and AOD data were not available, PM_{10} concentrations of the districts with comparable area and population were used.
- d) In the districts, where supportive carrying capacity was found to be negative/not available, it was concluded that no brick kilns could be made operational
- e) The number of brick kilns which could be operated in the districts, where supportive carrying capacity was available, was calculated by dividing the supportive carrying capacity available by the Emission load of one brick kiln.

2.1. Determining the District-Wise Carrying Capacity:

The brick kilns are operated during the period from October – June. In order to determine the district-wise carrying capacity, data w.r.t. monthly average CAAQMS PM_{10} values in the ambient air during the months of March 2019-June, 2019 and October 2019 – February, 2020 were analyzed, for NCR districts of Haryana, Uttar Pradesh and Rajasthan (**Table 1**).

Table 1: Monthly average PM₁₀ and PM_{2.5} values in the ambient air in NCR Districts of Uttar Pradesh, Haryana and Rajasthan.

UTTAR PRADESH										
Sl.No	Name of District	Monthly Average values of PM ₁₀ (ug/M ³)								
		Mar-19	Apr-19	May-19	Jun-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20
1	Bagpat	161	263	263	294	228	305	260	96	211
2	Bulandshahr	185	223	175	248	245	290	242	231	205
3	Gautam Budh Nagar	183	243	219	255	276	333	342	227	223
4	Ghaziabad	216	307	253	328	292	344	343	229	234
5	Hapur	168	246	287	129	240	293	259	260	121
6	Muzaffarnagar	152	223	173	216	201	307	174	199	181
7	Meerut	142	142	133	125	246	263	261	206	195
8	Shamli	139	139	143	130	157	184	205	NA	NA
HARYANA										
Sl.No	Name of District	Monthly Average Value of PM (ug/m ³)								
		Mar-19	Apr-19	May-19	Jun-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20
1	Bhiwani	88	128	130	122	161	191	178	123	137
2	Faridabad (Ballabhgarh)	261	301	312	262	226	271	369	277	262
3	Gurugram	165	257	223	187	211	282	276	177	174
4	Jhajjar	112	161	170	140	150	172	145	110	123
5	Jind	129	174	191	190	183	248	175	116	127
6	Karnal	128	185	174	166	227	267	214	NA	151
7	Mahendragarh	110	167	138	133	148	143	130	134	116
8	Nuh (Mewat)	107	176	145	128	144	172	138	NA	136
9	Palwal	139	234	187	202	182	243	190	130	165
10	Panipat	104	184	237	148	300	334	382	106	250
11	Rewari	134	190	192	195	234	255	223	190	209
12	Rohtak		117	120	126	157	190	230	176	NA
13	Sonipat	111	189	195	192	180	160	165	269	169
14	Charkhi Dadri									
RAJASTHAN										
Sl.No	Name of District	Monthly Average Value of PM (ug/m ³)								
		Mar-19	Apr-19	May-19	Jun-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20
1	Alwar	137	209	190	154	155	189	186	173	152
2	Bharatpur	137	209	190	154	155	189	186	173	152

PM_{2.5} data as derived by Aerosol Optical Depth (AOD) obtained from IIT Delhi (**Table 2**) and extrapolated to PM₁₀ concentration in the ambient air for the districts and the period, for which CAAQMS data was not available.

Table 2: PM_{2.5} Concentration (ug/m³) in ambient air of NCR Districts, derived by Aerosol Optical Depth (AOD)

NCR District	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19
Baghpat	69	65.4	59.6	66.4	39.4	43.5	98.4	125	146.8
Bulandshahr	64.7	65.1	60.5	55.6	38.3	40.8	97.6	122.4	148.6
Gautam Buddh Nagar	66.8	65.4	59.1	56.2	41	42.6	101.4	127.8	152.8
Ghaziabad	74.3	66	60.4	61.6	40.5	42.8	99.3	126.8	153.5
Hapur	69.4	63	61.6	59.9	38.6	41.3	94.6	124.6	144.5
Meerut	68.1	63.9	59.9	64.3	38.5	41.1	95.5	122	140.9
Muzaffarnagar	63.7	66.1	59.9	67.6	38.3	40	96.7	113	129.6
Shamli	66.5	68.3	62.4	71.6	39.1	43	100.3	117.7	131
Bhiwani	58.4	55.7	58.7	62.5	39	43.5	94.9	117.4	147
Faridabad	65.7	64.6	58.1	55.8	41	43.2	101.9	129.5	161.3
Gurugram	65.2	60.4	57.4	55.4	39.4	44.1	98	130.7	157.7
Jhajjar	60.7	58.3	58.3	59	39.1	44.8	98.5	124.2	149.1
Jind	53.5	59	61.9	73.1	39.2	46.5	95.7	114.3	135.8
Karnal	57.6	62.8	61	74.2	39.1	45.3	95.6	107.7	129.7
Mahendragarh	58.9	53.5	56.4	53.1	37.9	41.8	81.9	114.6	145.8
Palwal	63	64.3	59.7	51	40.4	42.1	97.6	124.8	156.5
Panipat	59.4	62.2	60.7	73.1	40.4	45.1	98.2	119	136.9
Rewari	59.1	53.7	57.2	54.2	39.2	42.7	89.4	124.7	148.3
Rohtak	56.2	57.3	60.3	65.6	40.5	45.5	100.2	121.9	147.4
Sonapat	60.5	59.5	60.5	68.1	40	45.2	97.1	126.2	150.5
Alwar	59.9	56	52.4	44.4	36.7	40.8	80.9	117.8	146.9
Bharatpur	57.1	60.3	53.5	41.3	36.3	40.3	79.7	121.4	149.3

The details w.r.t total Number of Zig-Zag type brick kilns operational in the NCR districts of Haryana, Uttar Pradesh and Rajasthan, were considered, based on information made available by the respective state pollution control boards (**Table 3**).

Table 3: District-wise break-up of Zig-Zag type brick kilns in NCR Districts

Haryana		
S. No.	District Name	Total No. of Zig-zag type brick kilns
1	Bhiwani	142
2	Faridabad (Ballabgarh)	85
3	Gurugram	6
4	Jhajjar	387
5	Jind	111
6	Karnal	92
7	Mahendragarh	42
8	Nuh (Mehwat)	62
9	Palwal	110
10	Panipat	87
11	Rewari	76
12	Rohtak	49
13	Sonipat	265
14	Charkhi Dadri	29
Uttar Pradesh		
S. No.	District Name	Total No. of Zig-zag type brick kilns
1	Baghpat	340
2	Bulandshahr	200
3	Gautam Budh Nagar	65
4	Ghaziabad	79
5	Hapur	52
6	Muzaffarnagar	146
7	Meerut	70
8	Shamli	80
Rajasthan		
S. No.	District Name	Total No. of Zig-zag type brick kilns
1.	Alwar	70
2.	Bharatpur	60

Geographical area of the NCR districts of the states of Haryana, Uttar Pradesh and Rajasthan from the District Census Handbook, Census of India, 2011, for respective districts of the three states (**Table 4**) and average atmospheric mixing heights for the months of March, 2019 – June, 2019 and October 2019- February, 2020 (**Table 5**) were used for estimating air volume available in the districts for dispersion of pollutants.

Table 4: Geographical area of NCR Districts in the states of Haryana, Uttar Pradesh and Rajasthan

Haryana		
S.No	District Name	Geographical Area, Km²
1	Bhiwani	4778
2	Faridabad (Ballabgarh)	741
3	Gurugram	1258
4	Jhajjar	1834
5	Jind	2702
6	Karnal	2520
7	Mahendragarh	1899
8	Nuh (Mehwat)	1507
9	Palwal	1351
10	Panipat	1268
11	Rewari	1594
12	Rohtak	1745
13	Sonipat	2122
14	Charkhi Dadri	1381
Uttar Pradesh		
S.No	District Name	Geographical Area, Km²
1	Baghpat	1321
2	Bulandshahr	4512
3	Gautam Budh Nagar	1282
4	Ghaziabad	1179
5	Hapur	660
6	Muzaffarnagar	4008
7	Meerut	2559
8	Shamli	1168
Rajasthan		
S.No	District Name	Geographical Area, Km²
1	Alwar	8380
2	Bharatpur	5066

Table 5: Mixing heights for the months of March, 2019 – February, 2020

S. No.	Month	Mixing Height, Km
1	March, 2019	0.5
2	April, 2019	0.601
3	May, 2019	0.811
4	June, 2019	0.816
5	October, 2019	0.622
6	November, 2019	0.501
7	December, 2019	0.433
8	January, 2020	0.462
9	February, 2020	0.581

Emission Load from Brick Kiln was calculated by considering the data w.r.t average stack diameter and velocity, temperature & pressure of flue gas, as collected by CPCB during filed study in the matter of OA No. 1088/2018; Dinesh Chahal vs. Union of India & Ors, and the proposed standard of 250 mg/Nm³ at 17% O₂, since all the zig-zag type kilns were found to achieve PM of < 250 mg/Nm³ (revised standard proposed by CPCB and draft notified by MoEF&CC).

The value of emission load derived with stack emission of 250 mg/Nm³, is as follows:

Emission load from brick kilns having capacity of 30000 bricks/day, considering stack PM emission of 250 mg/Nm³ at 17% O₂: 1000 Kg/day

Since, gravity settling Chambers are provided in the brick kilns as air pollution control mechanism, wherein large particles get separated, therefore, it was assumed that the particle size of particulate emissions from the brick kiln stacks are broadly upto 10 µm.

The following components were derived in order to assess the carrying capacity of NCR Districts 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

Estimation of total existing PM₁₀ Load:

Total area of the district in **Km²: a**; Average Atmospheric Mixing Height 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 district for a particular month in **Kg/Km³: d**

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

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

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

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

Therefore, Assimilative Capacity w.r.t PM₁₀ in ambient air of a district during a particular month (**y**): **c x 100 = y Kg**

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

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

The district-wise supportive carrying capacity, as determined by using the above is summarized in **Table 6 (a-c), Table 7 (a-c) and Table 8 (a-c)** annexed with the report, for NCR Districts of Haryana, Uttar Pradesh and Rajasthan, respectively.

Table 6: Total Existing PM₁₀ Load, Assimilative Carrying Capacity and Supportive Carrying Capacity in NCR Districts of Haryana

Table 6(a):

S.No.	Name of District	Total PM10 Load, Kg (x)									
		Mar-19	Apr-19	May-19	Jun-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	
1	Bhiwani	210232	367562	503745	475659	478478	457212	368260	271515	380314	
2	Faridabad (Ballabhgarh)	96701	134048	187497	158420	104164	100606	118395	94829	112797	
3	Gurugram	103785	194307	227513	191961	165102	177733	150341	102872	127176	
4	Jhajjar	102704	177460	252854	209516	171112	158039	115148	93204	131063	
5	Jind	174279	282559	418543	418918	307558	335718	204744	144806	199372	
6	Karnal	161280	280186	355607	341349	355809	337093	233508	NA	221082	
7	Mahendragarh	104445	190597	212532	206095	174814	136050	106895	117563	127985	
8	Nuh (Mewat)	80625	159404	177216	157403	134979	129861	90049	NA	119077	
9	Palwal	93895	189997	204889	222688	152939	164475	111147	81141	129514	
10	Panipat	65936	140221	243718	153134	236609	212180	209735	62096	184177	
11	Rewari	106798	182019	248205	253637	232004	203641	153915	139921	193558	
12	Rohtak	NA	123118	169389	179357	169898	166483	173986	141889	NA	
13	Sonipat	117771	241036	335584	332458	237579	170100	151606	263718	208357	
14	Charkhi Dadri	NA	NA	NA	NA	NA	NA	NA	NA	NA	

Table 6(b):

S.No.	Name of District	Assimilative Carrying Capacity, Kg (y)									
		Mar-19	Apr-19	May-19	Jun-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	
1	Bhiwani	238900	287158	387496	389885	297192	239378	206887	220744	277602	
2	Faridabad (Ballabhgarh)	37050	44534	60095	60466	46090	37124	32085	34234	43052	
3	Gurugram	62900	75606	102024	102653	78248	63026	54471	58120	73090	
4	Jhajjar	91700	110223	148737	149654	114075	91883	79412	84731	106555	
5	Jind	135100	162390	219132	220483	168064	135370	116997	124832	156986	
6	Karnal	126000	151452	204372	205632	156744	126252	109116	116424	146412	
7	Mahendragarh	94950	114130	154009	154958	118118	95140	82227	87734	110332	
8	Nuh (Mewat)	75350	90571	122218	122971	93735	75501	65253	69623	87557	
9	Palwal	67550	81195	109566	110242	84032	67685	58498	62416	78493	
10	Panipat	63400	76207	102835	103469	78870	63527	54904	58582	73671	
11	Rewari	79700	95799	129273	130070	99147	79859	69020	73643	92611	
12	Rohtak	87250	104875	141520	142392	108539	87425	75559	80619	101385	
13	Sonipat	106100	127532	172094	173155	131988	106312	91883	98036	123288	
14	Charkhi Dadri	69050	82998	111999	112690	85898	69188	59797	63802	80236	

Table 6(c):

S.No.	Name of District	Supportive Carrying Capacity, Kg (z) i.e (y-x)									
		Mar-19	Apr-19	May-19	Jun-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	
1	Bhiwani	28668	-80404	-116249	-85775	-181287	-217834	-161372	-50771	-102713	
2	Faridabad (Ballabhgarh)	-59651	-89514	-127402	-97954	-58074	-63482	-86309	-60595	-69744	
3	Gurugram	-40885	-118701	-125489	-89308	-86855	-114707	-95870	-44752	-54086	
4	Jhajjar	-11004	-67236	-104116	-59862	-57037	-66156	-35735	-8473	-24508	
5	Jind	-39179	-120169	-199410	-198435	-139493	-200348	-87747	-19973	-42386	
6	Karnal	-35280	-128734	-151235	-135717	-199065	-210841	-124392	NA	-74670	
7	Mahendragarh	-9495	-76467	-58523	-51136	-56697	-40910	-24668	-29829	-17653	
8	Nuh (Mewat)	-5275	-68834	-54998	-34432	-41244	-54361	-24796	NA	-31520	
9	Palwal	-26345	-108801	-95323	-112446	-68906	-96790	-52648	-18725	-51021	
10	Panipat	-2536	-64014	-140884	-49665	-157739	-148653	-154830	-3515	-110506	
11	Rewari	-27098	-86219	-118932	-123567	-132857	-123782	-84895	-66279	-100946	
12	Rohtak	NA	-18244	-27870	-36965	-61359	-79059	-98428	-61270	NA	
13	Sonipat	-11671	-113504	-163489	-159303	-105591	-63787	-59724	-165682	-85069	
14	Charkhi Dadri	NA	NA	NA	NA	NA	NA	NA	NA	NA	

Table 7: Total Existing PM₁₀ Load, Assimilative Carrying Capacity and Supportive Carrying Capacity in NCR Districts of Uttar Pradesh

Table 7(a):

S.No.	Name of District	Total PM ₁₀ Load, Kg (x)									
		Mar-19	Apr-19	May-19	Jun-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	
1	Bagpat	106341	208801	281760	316913	187339	201855	148718	58589	161943	
2	Bulandshahr	417360	604712	640366	913084	687584	655548	472794	481530	537402	
3	Gautam Budh Nagar	117303	187227	227695	266759	220084	213880	189846	134448	166100	
4	Ghaziabad	127332	217534	241911	315557	214135	203194	175104	124736	160290	
5	Hapur	55440	97578	153620	69300	98525	96883	74017	79279	46399	
6	Muzaffarnagar	304608	537164	562334	706434	501088	616458	301971	368488	421485	
7	Meerut	182073	218780	277018	261278	391558	337182	289200	243545	289922	
8	Shamli	81088	97476	135096	124187	113792	107556	103462	NA	NA	

Table 7(b):

S.No.	Name of District	Assimilative Carrying Capacity, Kg (y)									
		Mar-19	Apr-19	May-19	Jun-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	
1	Bagpat	66050	79392	107133	107794	82166	66182	57199	61030	76750	
2	Bulandshahr	225600	271171	365923	368179	280646	226051	195370	208454	262147	
3	Gautam Budh Nagar	64100	77048	103970	104611	79740	64228	55511	59228	74484	
4	Ghaziabad	58950	70858	95617	96206	73334	59068	51051	54470	68500	
5	Hapur	33000	39666	53526	53856	41052	33066	28578	30492	38346	
6	Muzaffarnagar	200400	240881	325049	327053	249298	200801	173546	185170	232865	
7	Meerut	127950	153796	207535	208814	159170	128206	110805	118226	148678	
8	Shamli	58379	70172	94691	95275	72623	58496	50556	53942	67836	

Table 7(c):

S.No.	Name of District	Supportive Carrying Capacity, Kg (z) i.e (y-x)									
		Mar-19	Apr-19	May-19	Jun-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	
1	Bagpat	-40291	-129409	-174627	-209120	-105173	-135673	-91519	2441	-85193	
2	Bulandshahr	-191760	-333541	-274442	-544905	-406937	-429497	-277425	-273075	-275255	
3	Gautam Budh Nagar	-53203	-110179	-123725	-162147	-140343	-149652	-134336	-75220	-91616	
4	Ghaziabad	-68382	-146676	-146294	-219351	-140801	-144126	-124053	-70266	-91790	
5	Hapur	-22440	-57912	-100094	-15444	-57473	-63817	-45439	-48787	-8053	
6	Muzaffarnagar	-104208	-296283	-237286	-379381	-251791	-415658	-128424	-183318	-188620	
7	Meerut	-54123	-64984	-69483	-52463	-232388	-208976	-178396	-125319	-141244	
8	Sham li	-22709	-27305	-40406	-28913	-41168	-49060	-52905	NA	NA	

Table 8: Total Existing PM₁₀ Load, Assimilative Carrying Capacity and Supportive Carrying Capacity in NCR Districts of Rajasthan**Table 8(a):**

S.No.	Name of District	Total PM10 Load, Kg (x)									
		Mar-19	Apr-19	May-19	Jun-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	
1	Alwar	574030	1052603	1291274	1053064	807916	793494	674908	669780	740055	
2	Bharatpur	347021	636335	780620	636614	488413	479694	408006	404905	447389	

Table 8(b):

S.No.	Name of District	Assimilative Carrying Capacity, Kg (y)									
		Mar-19	Apr-19	May-19	Jun-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	
1	Alwar	419000	503638	679618	683808	521236	419838	362854	387156	486878	
2	Bharatpur	253300	304467	410853	413386	315105	253807	219358	234049	294335	

Table 8(c):

S.No.	Name of District	Supportive Carrying Capacity, Kg (z) i.e (y-x)									
		Mar-19	Apr-19	May-19	Jun-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	
1	Alwar	-155030	-548965	-611656	-369256	-286680	-373656	-312054	-282624	-253177	
2	Bharatpur	-93721	-331869	-369767	-223228	-173308	-225888	-188648	-170856	-153054	

It is evident from the results presented in **Table 6-8** that none of the NCR districts is having adequate supportive carrying capacity to operate brick kilns during the entire brick kiln operating season.

2.2. Number of brick kilns which can be operated:

In the districts, where the supportive carrying capacity was found to be available (Positive Supportive Carrying Capacity) in a particular month, number of Zig-Zag brick kilns that can be operated was determined as follows:

Total number of brick kilns which can be operated in a district during a particular month: Supportive Carrying Capacity of the district for a particular month/Emission load from one brick kiln.

Since, all the zig-zag type brick kilns were in operation during March-June, 2019, 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. The number of brick kilns, which can be operated in such cases was determined as follows:

No. of brick kilns which can be operated = Total number of Zig-Zag brick kilns Operational in that particular month – (Negative Supportive Carrying Capacity/ Emission Load from one brick Kiln)

The month-wise number of brick kilns which can be operated within the assimilative capacity during March-June and October-February are presented in Table 9 and Table 10 respectively for NCR districts of Haryana.

Table 9: Number of brick kilns which can be operated in NCR Districts of Haryana during March-June.

S.No.	Name of District	Load in Excess of Assimilative Carrying Capacity				Total No of Zig Zag type Brick Kilns	*No of Zig Zag type Brick Kilns, which can be operated			
		March	April	May	June		March	April	May	June
1	Bhiwani	-28668	80404	116249	85775	132	161	52	16	46
2	Faridabad (Ballabhgarh)	59651	89514	127402	97954	85	25	-5	-42	-13
3	Gurugram	40885	118701	125489	89308	6	-35	-113	-119	-83
4	Jhajjar	11004	67236	104116	59862	387	376	320	283	327
5	Jind	39179	120169	199410	198435	111	72	-9	-88	-87
6	Karnal	35280	128734	151235	135717	92	57	-37	-59	-44
7	Mahendragarh	9495	76467	58523	51136	42	33	-34	-17	-9
8	Nuh (Mewat)	5275	68834	54998	34432	62	57	-7	7	28
9	Palwal	26345	108801	95323	112446	110	84	1	15	-2
10	Panipat	2536	64014	140884	49665	87	84	23	-54	37
11	Rewari	27098	86219	118932	123567	76	49	-10	-43	-48
12	Rohtak	NA	18244	27870	36965	49	NA	31	21	12
13	Sonipat	11671	113504	163489	159303	265	253	151	102	106
14	Charkhi Dadri	NA	NA	NA	NA	29	NA	NA	NA	NA

Note: CAAQMS and AOD values for Charkhi Dadri were not available;

*Negative Values indicate that no brick kiln can be operated

Table 10: Number of brick kilns which can be operated in NCR Districts of Haryana during October- February.

S.No.	Name of District	Supportive Carrying Capacity, Kg					Total No of Zig Zag type Brick Kilns	*No of Zig Zag type Brick Kilns, which can be operated				
		October	November	December	January	February		October	November	December	January	February
1	Bhiwani	-181287	-217834	-161372	-50771	-102713	132	-181	-218	-161	-51	-103
2	Faridabad (Ballabhgarh)	-58074	-63482	-86309	-60595	-69744	85	-58	-63	-86	-61	-70
3	Gurugram	-86855	-114707	-95870	-44752	-54086	6	-87	-115	-96	-45	-54
4	Jhajjar	-57037	-66156	-35735	-8473	-24508	387	-57	-66	-36	-8	-25
5	Jind	-139493	-200348	-87747	-19973	-42386	111	-139	-200	-88	-20	-42
6	Karnal	-199065	-210841	-124392	NA	-74670	92	-199	-211	-124	NA	-75
7	Mahendragarh	-56697	-40910	-24668	-29829	-17653	42	-57	-41	-25	-30	-18
8	Nuh (Mewat)	-41244	-54361	-24796	NA	-31520	62	-41	-54	-25	NA	-32
9	Palwal	-68906	-96790	-52648	-18725	-51021	110	-69	-97	-53	-19	-51
10	Panipat	-157739	-148653	-154830	-3515	-110506	87	-158	-149	-155	-4	-111
11	Rewari	-132857	-123782	-84895	-66279	-100946	76	-133	-124	-85	-66	-101
12	Rohtak	-61359	-79059	-98428	-61270	NA	49	-61	-79	-98	-61	NA
13	Sonipat	-105591	-63787	-59724	-165682	-85069	265	-106	-64	-60	-166	-85
14	Charkhi Dadri	NA	NA	NA	NA	NA	29	NA	NA	NA	NA	NA

*Negative Values indicate that no brick kiln can be operated

The month-wise number of brick kilns which can be operated within the assimilative capacity during March-June and October- February are presented in Table 11 and Table 12 respectively, for NCR districts of Uttar Pradesh.

Table 11: Number of brick kilns which can be operated in NCR Districts of Uttar Pradesh during March-June.

S.No.	Name of District	Load in Excess of Assimilative carrying Capacity				Total No of Zig Zag type Brick Kilns	*No of Zig Zag type Brick Kilns, which can be operated			
		March	April	May	June		March	April	May	June
1	Bagpat	40291	129409	174627	209120	340	300	211	166	131
2	Bulandshahr	191760	333641	274442	644906	200	8	-134	-74	-345
3	Gautam Budh Nagar	53203	110179	123725	162147	65	12	-45	-59	-97
4	Ghaziabad	68382	146676	146294	219351	79	11	-68	-67	-140
5	Hapur	22440	67912	100094	16444	52	30	-6	-48	NA
6	Muzaffarnagar	104208	296283	237286	379381	146	42	-160	-91	-233
7	Meerut	54123	64984	69483	52463	70	16	5	1	18
8	Shamli	22709	27306	40406	28913	80	57	53	40	51

*Negative Values indicate that no brick kiln can be operated

Table 12: Number of brick kilns which can be operated in NCR Districts of Uttar Pradesh during October-February.

S.No.	Name of District	Supportive Carrying Capacity, Kg					Total No of Zig Zag type Brick Kilns	*No of Zig Zag type Brick Kilns, which can be operated				
		October	November	December	January	February		October	November	December	January	February
1	Bagpat	-105173	-135673	-91519	2441	-85193	340	-105	-136	-92	2	-85
2	Bulandshahr	-406937	-429497	-277425	-273075	-275255	200	-407	-429	-277	-273	-275
3	Gautam Budh Nagar	-140343	-149652	-134336	-75220	-91616	65	-140	-150	-134	-75	-92
4	Ghaziabad	-140801	-144126	-124053	-70266	-91790	79	-141	-144	-124	-70	-92
5	Hapur	-57473	-63817	-45439	-48787	-8053	52	-57	-64	-45	-49	-8
6	Muzaffarnagar	-251791	-415658	-128424	-183318	-188620	146	-252	-416	-128	-183	-189
7	Meerut	-232388	-208976	-178396	-125319	-141244	70	-232	-209	-178	-125	-141
8	Shamli	-41168	-49060	-52905	NA	NA	80	-41	-49	-53	NA	NA

***Negative Values indicate that no brick kiln can be operated**

The month-wise number of brick kilns which can be operated within the assimilative capacity during March-June and October- February are presented in Table 13 and Table 14 respectively, for NCR districts of Rajasthan.

Table 13: Number of brick kilns which can be operated in NCR Districts of Rajasthan during March-June.

S.No.	Name of District	Load in Excess of Assimilative Carrying Capacity				Total No of Zig Zag type Brick Kilns	*No of Zig Zag type Brick Kilns, which can be operated			
		March	April	May	June		March	April	May	June
1	Alwar	155030	548965	611656	369256	70	-85	-479	-542	-299
2	Bharatpur	93721	318168	311467	120320	60	-34	-258	-251	-60

***Negative Values indicate that no brick kiln can be operated**

Table 14: Number of brick kilns which can be operated in NCR Districts of Rajasthan during October-February.

S.No.	Name of District	Supportive Carrying Capacity, Kg					Total No of Zig Zag type Brick Kilns	*No of Zig Zag type Brick Kilns, which can be operated				
		October	November	December	January	February		October	November	December	January	February
1	Alwar	-286680	-373656	-312054	-282624	-253177	70	-2867	-3737	-3121	-2826	-2532
2	Bharatpur	-173308	-225888	-188648	-170856	-153054	60	-1733	-2259	-1886	-1709	-1531

***Negative Values indicate that no brick kiln can be operated**

2.3. CPCB's Opinion:

CPCB was directed by Hon'ble NGT to give an expert opinion on the following:

- (a) how brick kilns can be allowed in NCR without damage to the air quality;*
- (b) conditions subject to which it may be done;*
- (c) number of brick kilns to be allowed and criteria for fixing such numbers.*

Following is the submission of CPCB on the above points:

- i) Based on the evaluation of the data and estimation of the carrying capacity as explained in the previous section, there is no assimilative capacity available in the ambient air environment in the NCR districts of Haryana, Uttar Pradesh and Rajasthan for simultaneous operation of all the existing brick kilns, even after adopting Zig-zag technology. Based on the available assimilative capacity, some brick kilns may operate.
- ii) An effort was made to estimate the number of brick kilns which can be operated, within the assimilative capacity of the ambient air environment. The outcome of the month-wise and district-wise estimation w.r.t. the number of brick kilns which can be operated within the assimilative capacity without any negative effect on the ambient air is summarized in **Table 15**. In the districts, where ambient air quality data for the past is not available, due to non-availability of CAAQMS or AOD, the data of the districts having comparable population and geographical area, may be used for estimating the number of brick kilns which can be operated without affecting the ambient air quality, by the respective State Pollution Control Boards, while doing such exercise.



Table 15: Month-wise and District-wise estimation of the number of brick kilns which can be operated in NCR districts of Haryana, Uttar Pradesh and Rajasthan, without affecting ambient air quality.

S.No.	Name of District	Total No of Zig Zag type Brick Kilns	Month-wise No of Zig Zag type Brick Kilns, which can be operated without affecting the ambient air quality i.e within Assimilative Carrying Capacity									
			Mar-19	Apr-19	May-19	Jun-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	
STATE- HARYANA												
1	Bhiwani	132	161	52	16	46	0	0	0	0	0	
2	Faridabad (Ballabhgarh)	85	25	0	0	0	0	0	0	0	0	
3	Gurugram	6	0	0	0	0	0	0	0	0	0	
4	Jhajjar	387	376	320	283	327	0	0	0	0	0	
5	Jind	111	72	0	0	0	0	0	0	0	0	
6	Karnal	92	57	0	0	0	0	0	0	NA	0	
7	Mahendragarh	42	33	0	0	0	0	0	0	0	0	
8	Nuh (Mewat)	62	57	0	7	28	0	0	0	NA	0	
9	Palwal	110	84	1	15	0	0	0	0	0	0	
10	Panipat	87	84	23	0	37	0	0	0	0	0	
11	Rewari	76	49	0	0	0	0	0	0	0	0	
12	Rohtak	49	NA	31	21	12	0	0	0	0	NA	
13	Sonipat	265	253	151	102	106	0	0	0	0	0	
14	Charkhi Dadri	29	NA	NA	NA	NA	NA	NA	NA	NA	NA	
STATE- UTTAR PRADESH												
1	Bagpat	340	300	211	165	131	0	0	0	2	0	
2	Bulandshahr	200	8	0	0	0	0	0	0	0	0	
3	Gautam Budh Nagar	65	12	0	0	0	0	0	0	0	0	
4	Ghaziabad	79	11	0	0	0	0	0	0	0	0	
5	Hapur	52	30	0	0	NA	0	0	0	0	0	
6	Muzaffarnagar	146	42	0	0	0	0	0	0	0	0	
7	Meerut	70	16	5	1	18	0	0	0	0	0	
8	Shamli	80	57	53	40	51	0	0	0	NA	NA	
STATE- RAJASTHAN												
1	Alwar	70	0	0	0	0	0	0	0	0	0	
2	Bharatpur	60	0	0	0	0	0	0	0	0	0	

- iii) However, the Zig-Zag type brick kilns may be asked to comply with the proposed Particulate matter standards of 250 mg/Nm³ at 17 % O₂ w.r.t. stack emissions of Particulate Matter (PM). State Pollution Control Boards

may ensure operation of only permitted number of Zig-Zag type brick kilns and compliance of PM emission norms of 250 mg/Nm³ at 17 % O₂.

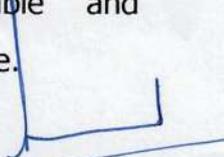
- iv) The examination of the month-wise and district-wise carrying capacity, indicates that Zig-zag type brick kilns in NCR districts should preferably be operated in summer months only, unless or until there is improvement in environmental condition through reduction in PM₁₀ emissions by various sources which contribute towards PM₁₀ emissions in Delhi NCR, leading to availability in the supportive carrying capacity.

The reduction in PM₁₀ emissions by all the contributing sources of PM₁₀ emissions in Delhi-NCR becomes more significant in view of the fact that , the findings of a study on "Source Apportionment of PM_{2.5} and PM₁₀ of Delhi NCR for identification of major sources" prepared by Automotive Research Association of India (ARAI) and The Energy and Resources Institute (TERI) for Department of Heavy Industry, Ministry of Heavy Industries and Public Enterprises, New Delhi, in the year 2016, indicates that that brick kiln industry contributed about 5 & 7% w.r.t. PM₁₀ emissions in Winter and summer respectively, in ambient air of Delhi and NCR . Further reduction of 4% in total PM₁₀ was expected after conversion to Zig-Zag technology, which has now been implemented by brick Kilns in Delhi-NCR.

- v) The selection of brick kilns which can be operated, should be made in such a manner that there is distance of 500 mtr between two operational brick kilns, so as to ensure minimum localized impact on the ambient air
- vi) In the study conducted by CPCB in the matter of O.A. No. 1088 of 2018 (I.A. No. 98/2019, 100/2019, 101/2019, 119/2019 & 266/2019); Dinesh Chahal & Ors. Vs Union of India & Ors., it was observed that stack emissions are three time higher during start-up of firing process, irrespective of firing technology, which lasts for around 7 days. Therefore, it is recommended that even if there is enough supportive carrying capacity to operate all the zig-zag type brick kilns in any district, the start-up firing may be allowed in

three batches of 33% of the total Zig-Zag type brick kilns which can be operated, with a gap of 7 days within two batches. This is to ensure that PM₁₀ emission load in the ambient air mostly remains within assimilative carrying capacity.

- vii) In view of the carrying capacity limitations simultaneous operation of all the brick kilns may not be advisable, therefore, staggered permission for operation may be given to the existing brick kilns in such a way that only estimated number of brick kilns in area operate during any given time.
- viii) However, all Zig-Zag brick kilns may be considered to perform upstream activities such as green brick manufacturing, stacking of green bricks, etc. during non-firing period.
- ix) In the districts, where ambient air quality data for the past is not available, due to non-availability of CAAQMS, the data of the districts having comparable population and geographical area, may be used for estimating the number of brick kilns which can be operated without affecting the ambient air quality.
- x) In order to control fugitive dust emissions, adequate measures such as sprinkling of water must be taken and compliance of the conditions of the Consent to Operate/guidelines issued by concerned SPCB must be ensured.
- xi) References w.r.t. use of Piped Natural Gas (PNG), as fuel in brick manufacturing are available, but in Tunnel type brick Kilns. It is, therefore, recommended that a techno-economic feasibility study may be conducted by an expert agency, for making an assessment w.r.t. use PNG and other cleaner fuels such as internal fuels, with different types of firing technologies, for making brick manufacturing sustainable and environmental friendly, at locations where such fuels are available.


S.K. Gupta
Scientist 'E', Central Pollution Control Board

Date: 06.07.2020

Item No. 03

Court No. 1

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

Original Application No. 1016/2019

Utkarsh Panwar

Applicant(s)

Versus

Central Pollution Control Board & Ors.

Respondent(s)

Date of hearing: 17.03.2020

Date of uploading of order: 23.03.2020

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

1. This order is being passed in continuation of order dated 05.03.2020. Question for consideration is permissibility of brick kilns run by 'Zig-Zag' technology in NCR till level of air pollution becomes normal. Other brick kilns are already prohibited by the order of the Environment Pollution (Prevention and Control) Authority (EPCA) vide order dated 01.11.2019 to enforce GRAP stipulating shutting of Brick kilns in NCR under severe conditions i.e. when PM2.5 and/or PM10 concentration goes beyond 250 $\mu\text{g}/\text{m}^3$ and/or 430 $\mu\text{g}/\text{m}^3$ respectively. This prohibition was not

applied to brick kilns operated by 'Zig-Zag' technology on the assumption that such brick kilns did not adversely affect the air quality. According to the applicant, even brick kilns run by 'Zig-Zag' technology add to PM 2.5 and contribute about 10% of the air pollution in the NCR and should not be allowed atleast till GRAP is applicable.

2. Vide order dated 15.11.2019, this Tribunal directed all brick kilns in NCR to be closed till scientific study was conducted or till the situation improved. CPCB was directed to carry out a study and furnish a report till 15.12.2019. The matter was further considered on 18.12.2019. In the light of report of the CPCB dated 13.12.2019 to the effect that average fugitive SPM values from FCBTK and 'Zig-Zag' kilns were identical, the Tribunal directed that brick kilns in NCR can be allowed only subject to carrying capacity, GRAP, consent conditions and background concentration of ambient air quality pending further study by CPCB.

3. The matter was then considered on 06.02.2020 in the light of further report of CPCB dated 28.01.2020 to the effect that while stack emissions were less in kilns operated by 'Zig-Zag' as against FCBTK technology using same fuel, change of fuel to agro residue had to be studied in the light of carrying capacity of an area, existing PM load

and assimilative capacity. The Tribunal directed that carrying capacity of the NCR region be undertaken and report furnished by CPCB.

4. On 05.03.2020, the Tribunal further reviewed the matter in the light of earlier orders and report filed by the CPCB to the effect that since severe conditions did not exist, EPCA had discontinued the ban on brick kilns in accordance with the GRAP. However, the Tribunal found that even if brick kilns are not to be mandatorily shut as per GRAP, the same cannot be allowed to be operated unless carrying capacity in terms of air quality permitted such operation without adversely affecting the environment. It was observed:

"4. In view of the above, a report has been filed by the CPCB on 04.03.2020 as follows:

*"As per information provided by SPCBs, there are total 3278, 2854 and 19003 brick kilns in Haryana, Punjab and Uttar Pradesh respectively, out of which 1918, 701 and 1343 brick kilns have been converted to Zig-Zag technology. With regard to NCR regions, out of 2187, 2216 and 251 brick kilns in Haryana, Uttar Pradesh and Rajasthan respectively, **1504, 1032 and 127 brick kilns have been converted to Zig-Zag technology.***

Brick Kilns based on Zig-Zag technology using agro-residues are located only in NCR districts.

*Different types of activities with potential of air pollution, including operation of brick kilns in Delhi-NCR are regulated through a Graded Response Action Plan (GRAP) by Environmental Pollution Control Authority. **As per GRAP, Brick kilns in NCR are required to be shut under severe conditions i.e. when PM_{2.5} and/or PM₁₀***

concentration goes beyond 250 $\mu\text{g}/\text{m}^3$ and/or 430 $\mu\text{g}/\text{m}^3$ respectively.

In view of the expected higher concentration of PM emissions during winter months, brick kilns in the NCR regions were kept closed during this period as per directions of EPCA. **However, now, looking into the forecast of favourable meteorological conditions and expected improvement in the air quality, Environmental Pollution Control Authority (EPCA) has directed that operation of those brick kilns in NCR districts, which have converted to Zig-zag technology, be allowed, vide letter No. EPCA-R/2020/L-09 dated February 14, 2020 (Copy enclosed as Annexure-I).**

Further, air quality data of 2019 in NCR, was examined. Analysis indicated that **PM_{2.5}** concentration in summer months (March-June) is lower (**Average 80 $\mu\text{g}/\text{m}^3$**) in comparison to winter months (Average 173 $\mu\text{g}/\text{m}^3$). Similarly, **PM₁₀** concentration in summer months (March-June) is lower (**Average 219 $\mu\text{g}/\text{m}^3$**) in comparison to winter months (Average 283 $\mu\text{g}/\text{m}^3$).

The past data of 2019 w.r.t. PM₁₀ & PM_{2.5} concentration in Delhi, is summarized in **Table 1:**

Table 1 : Monthly data of CAAQMs w.r.t. PM Concentration for 2019, in Delhi

Month	PM_{2.5}, $\mu\text{g}/\text{m}^3$	PM₁₀, $\mu\text{g}/\text{m}^3$
January	203	322
February	122	215
March	83	184
April	83	236
May	89	247
June	63	209
July	47	143
August	35	85
September	40	98
October	128	247
November	202	312
December	209	316

Therefore, in view of submission that 65 Nos brick kilns are proposed to be monitored in both NCR and Non-NCR regions, involving total 585 stack emissions' samples, in compliance of the directions of Hon'ble

NGT in the matter of O.A. No. 1016/2019 and O.A. No. 1088/2018, it is humbly prayed as under:

- I. *Brick Kilns based on Zig-Zag technology using agro-residues are located only in NCR districts and if these are to be monitored to assess the performance of brick kilns operating on agro-residues, under comparable situations, the Zig-Zag type brick kilns in NCR regions, which are presently dosed, may have to be made operational, to facilitate monitoring.*
 - II. *Atleast 04 months' time period may be granted to CPCB, for Monitoring of 65 brick kilns in NCR and Non-NCR regions and submission of report covering i) **Impact of brick kilns operation on loss/degradation of top soil, ii) study involving Carrying Capacity Assessment of brick kilns with adequate samples in terms of number of brick kilns and days for which monitoring be conducted, iii) Evaluation of the performance of brick kilns against the background concentration and carrying capacity of the area and iv) Impact on Brick Kilns operation on ambient air, in the matters of O.A. No. 1016/2019 and O.A. No. 1088/2018, after commencement of operation of brick kilns in NCR regions.***
5. *We have heard learned Counsel for the CPCB and for the brick kilns, including those who have filed applications for being implead as party in pursuance of order of Hon'ble Supreme Court dated 20.02.2020 in C.A. No. 1733-35/2020.*
 6. *Learned Counsel for the CPCB submitted that having regard to the data of air quality, even though as per GRAP brick kilns are to be mandatorily shut throughout NCR only under 'severe conditions', no polluting activity, including brick kilns, can be permitted beyond 'carrying capacity' and air quality norms under the Air (Prevention and Control of Pollution) Act, 1981. On the other hand, the stand of the brick kilns is that unless the conditions are 'severe' to attract GRAP and unless prohibited by EPCA, 'Zig-Zag' technology brick kilns have right to operate irrespective of the air quality norms. Reliance has also been placed on norms for brick kilns under Schedule-I, Sr. No. 74 of Environment (Protection), Rules 1986. Alternatively, it is submitted that at such locations where air quality is*

within norms, brick kilns may be allowed. By way of example, it is stated that the ambient air quality data at Alwar, as on 18.02.2020, is within norms.

- 7. We do not find any merit in the contention that only in 'severe' conditions brick kilns can be prohibited even if the air quality is beyond permissible norms and the area has no assimilative or supportive capacity. Emission norms of individual brick kilns is not a conclusive factor for dealing with the issue, if the carrying capacity of the area does not allow the brick kilns in question. However, we do need to consider the submission that where air quality is within the norms and there is carrying capacity, brick kiln can be allowed.***
- 8. In view of the above, it is necessary to look at the relevant data at different locations '24 hourly' and 'monthly average' during the relevant months. Since such data is maintained by the CPCB/PCBs, the CPCB may collect such data for corresponding months of March, April, May and June in the year 2019 and furnish the same before the next date. The break-up of location of the brick kilns District-wise may also be furnished to consider as to which of the brick kilns can be allowed after verification that such brick kilns are actually working on 'Zig-Zag' technology, pending further assessment of the carrying capacity by the CPCB, as already directed earlier vide order dated 06.02.2020."*
5. Accordingly, further report has been filed by the CPCB on 16.03.2020 giving District-wise breakup of locations of Zig-Zag type brick kilns in NCR Region and Ambient Air Quality data of NCR Districts with regard to PM₁₀ and PM_{2.5}. The data furnished covers all the Districts of Haryana, Uttar Pradesh and Rajasthan in NCR Region for the period March – June, 2019. The same is reproduced below:

Table-2

NCR-DISTRICTS OF STATE OF HARYANA

Month	Bhiwani		Faridabad		Gurugram		Jhajjhar		Jind		Karnal		Mahendragarh	
	PM ₁₀	PM _{2.5}	PM ₁₀	PM _{2.5}	MN	PM _{2.5}	PM ₁₀	PM _{2.5}						
March, 2019														
Range:														
Minimum	63	37	129	55	84	40	68	36	80	34	79	37	44	35
Maximum	124	77	380	152	270	99	177	94	220	95	223	79	163	92
Monthly average	88	52	261	84	165	65	112	63	129	59	128	53	110	58
April, 2019														
Range:														
Minimum	40	25	69	28	111	24	41	22	55	23	53	46	45	28
Maximum	232	124	453	167	437	155	280	133	283	112	292	149	252	129
Monthly average	128	74	301	99	257	89	161	72	174	62	185	90	167	71
May, 2019														
Range:														
Minimum	57	43	157	49	103	49	67	35	70	30	105	51	67	28
Maximum	301	157	560	279	491	230	320	153	354	189	281	155	282	116
Monthly average	130	89	312	99	223	97	170	73	191	79	174	100	138	59
June, 2019														
Range:														
Minimum	51	38	99	37	70	36	62	24	75	23	52	22	51	38
Maximum	216	136	556	145	279	200	308	95	321	82	265	166	363	144
Monthly average	122	79	262	78	187	75	140	50	190	59	166	94	133	66
Prescribed Standards:	100	60	100	60	100	60	100	60	100	60	100	60	100	60
Annual 24 hours	60	40	60	40	60	40	60	40	60	40	60	40	60	40
No. of Zig-Zag Brick Kilns	142		85		6		387		111		92		42	

Table-2 (Contd)

NCR DISTRICTS OF STATE OF HARYANA

Month	Nuh (Mehwat)		Palwal		Panipat		Rewari		Rohtak		Sonipat	
	PM ₁₀	PM _{2.5}										
March, 2019												
Range:												
Minimum	60	34	76	37	50	22	75	39	NM	27	63	36
Maximum	181	87	226	99	175	63	287	108	NM	85	202	90
Monthly average	107	54	139	67	104	40	134	68	NM	58	111	57
April, 2019												
Range:												
Minimum	73	37	50	22	88	23	114	37	NM	26	75	28
Maximum	228	87	338	188	312	63	324	96	NM	318	340	171
Monthly average	176	60	234	120	184	41	190	69	NM	80	189	74
May, 2019												
Range:												
Minimum	70	36	83	57	116	29	101	42	NM	35	77	37
Maximum	293	107	355	224	389	124	410	105	NM	357	420	186
Monthly average	145	62	187	115	237	64	192	67	NM	100	195	88
June, 2019												
Range:												
Minimum	65	36	107	32	73	21	85	30	NM	26	54	35
Maximum	255	88	372	159	249	84	364	83	NM	180	314	196
Monthly average	128	57	202	89	148	52	195	57	NM	77	192	77
Prescribed Standards:	100	60	100	60	100	60	100	60	100	60	100	60
Annual 24 hours	60	40	60	40	60	40	60	40	60	40	60	40

No. of Zig- Zag Brick Kilns	62	110	87	76	49	265
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Note: "NM" Data not monitored, "NA" Inadequate data/data not available, PM₁₀ and PM_{2.5} values are in µg/m³

Table-3												
NCR DISTRICTS OF STATE OF UTTAR PRADESH												
Month	Baghpat		Bulandshahr		Gautam Budh Nagar		Ghaziabad		Hapur		Muzaffarnagar	
	PM ₁₀	PM _{2.5}	PM ₁₀	PM _{2.5}	PM ₁₀	PM _{2.5}	PM ₁₀	PM _{2.5}	PM ₁₀	PM _{2.5}	PM ₁₀	PM _{2.5}
March, 2019												
Range:												
Minimum	103	47	119	56	124	38	135	46	79	36	103	44
Maximum	267	154	254	124	307	134	351	173	294	107	235	137
Monthly average	161	84	185	88	189	82	216	94	168	66	152	83
April, 2019												
Range:												
Minimum	101	39	54	23	58	27	87	30	75	20	79	36
Maximum	432	183	424	129	366	136	440	160	397	116	354	210
Monthly average	263	90	223	84	250	85	307	99	246	62	223	99
May, 2019												
Range:												
Minimum	118	46	132	51	132	43	153	57	136	25	127	35
Maximum	528	222	434	117	450	155	586	196	496	106	344	141
Monthly average	294	96	248	78	255	81	328	105	287	57	216	87
June, 2019												
Range:												
Minimum	104	38	82	22	77	22	80	20	NA	NA	55	29
Maximum	549	97	285	79	462	97	409	113	NA	NA	278	89

Monthly average	263	68	175	54	219	59	253	66	NA	NA	173	63
Prescribed Standards:	60	60	100	60	100	60	100	60	100	60	100	60
Annual, 24 hours	100	40	60	40	60	40	60	40	60	40	60	40
No. of Zig-Zag Brick Kilns	340		200		65		71		52		146	

Note: "NM" Data not monitored, "NA" Inadequate data/data not available, PM₁₀ and PM_{2.5} values are in pg/m³

Table - 4		
NCR DISTRICTS OF RAJASTHAN		
	PM₁₀	PM_{2.5}
March, 2019		
Range:		
Minimum	43	18
Maximum	250	100
1 Monthly average	137	66
April, 2019		
Range:		
Minimum	108	45
Maximum	382	134
Monthly average	209	85
May, 2019		
Range:		
Minimum	99	43
Maximum	303	168
Monthly average	190	81
June, 2019		
Range:		
Minimum	63	28
Maximum	235	147
Monthly average	154	67
Prescribed Standards:	100	60
Annual 24 hours	60	40
Number of Zig-Zag brick kilns	70	

Note: "NM" Data not monitored, "NA" Inadequate data/data not available, PM₁₀ and PM_{2.5} values are in pg/m³

6. We have considered the above data which shows that in the corresponding months when brick kilns were operating, standard of air quality was not as per prescribed norms. Thus, the air quality of the area is unable to take further pollution load. In this regard, it may be noted that while considering the issue of operation of brick kilns in non-NCR area, where GRAP was not applicable as such, in O.A. No. 1088/2018, *Dinesh Chahal & Ors. vs. Union of India & Ors.*, the Tribunal vide order dated 30.04.2019 observed that standards of ambient air quality are required to be maintained under Section 17(g) of the Air Act, 1981:

*"3. ... The matter was again considered on 21.02.2019 with reference to the **contention that the impugned order was only for Non-NCR to which order of CPCB or EPCA did not apply. The Tribunal held that even in Non-NCR, Standards of Ambient Air Quality laid down under Section 17 (g) of the Air Act are required to be followed. If the impugned order has been passed without undertaking any study on status of ambient air quality without any carrying capacity assessment to take the additional load at concerned areas and without any safeguards on 'Precautionary' principle, the same may not be justifiable having regard to the acknowledged adverse impact of operation of the brick kilns on the ambient air quality.** Reference was made to the Judgements of the Hon'ble Supreme Court in *M.C. Mehta v. Union of India*, (1998) 9 SCC 149, *M.C. Mehta v. Union of India* (2000) 7 SCC 422, *M.C. Mehta v. Union of India*, (2002) 4 SCC 378, *K. Guruprasad Rao v. State of Karnataka*, (2012) 12 SCC 736 wherein the Hon'ble Supreme Court directed closure or shifting of brick kiln industries and *M.C. Mehta v. Union of India*, (2001) 9 SCC 235 laying down that brick kilns may be allowed to*

operate after studying the impact on human population and vegetation.”

7. Learned Counsel for the brick kiln operators, however, submit that prohibition on operation of brick kilns be lifted as some individual brick kilns meet the air quality emission standards laid down under the Environment (Protection) Rules, 1986 and the brick kilns are not the only source of pollution. Contribution of all the brick kilns taken together, to the air pollution, was about 3%. It was also mentioned that as at present air quality norms are within limit in seven districts out of 15 districts of NCR.

8. As observed earlier, the question is not merely of an individual brick kiln not emitting pollution or the extent of contribution of the brick kilns taken separately, but of the capacity of the area being already air polluted and unable to take the load of pollution. When there is no carrying capacity in the area for further air pollution, we find it difficult to permit operation of the closed brick kilns to uphold the ‘Sustainable Development’ principle. When even without operation of the brick kilns the air quality is not within the norms, the impact of operation of the brick kilns cannot be ignored. Thus, we find it difficult to accept the submission that the individual brick kilns maintaining the prescribed standards for discharge of emissions are entitled to operate or that they be allowed to operate on the ground that pollution caused by the brick kilns is less than other pollution

from other sources irrespective of carrying capacity of the area. The fact remains that brick kilns add to the air pollution and thereby affect right of citizens to breathe fresh air.

9. We may now consider another aspect of the matter i.e. impact of the brick kilns on the top soil. As noted in order dated 05.03.2020, CPCB has undertaken to look into this aspect and has not yet completed its study. As per available study, there is huge environmental cost in using top soil for making brick making.¹ Reference may also be made to a study on “The Impact of Brick Kiln operation to the degradation of topsoil quality of Agricultural Land”.² There is further issue of unutilized fly ash adversely affecting the environment which may require barring red clay brick kilns. This is proposed in a draft notification of the MoEF&CC 25.02.2019 within 300 kms of coal or lignite based thermal power plants. No doubt the said notification is only a draft but the same is evidence of such step being necessary for sustainable development.
10. Main reason for air pollution by brick kilns is use of coal etc. as fuel. The pollution can be minimized if the fuel which is currently used is considered to be replaced by cleaner fuels like PNG by appropriate

¹ www.journals.sagepub.com/doi/abs/10.1177/0974929214521892# (Environmental Cost of using top-soil for brick making – a case study from India (MoEF, Gol project) (Published in Review of Market Integration, 2013) Vinish Kathuria, Professor, IIT Bombay – March 11, 2015.

² www.researchgate.net/publication/282431176_The_impact_of_brick_kiln_operation_to_the_degradation_of_topsoil_quality_of_agricultural_land.

modification in design not adding to the PM load. Dealing with the air pollution caused in Morby Industrial Area in Gujarat on account of coal gasifiers in tile manufacturing, the Tribunal directed closing of coal gasifier industries without prejudice to such industries switching over to non-coal gasifiers, PNG or other such technology.

It was directed³:

“25. Accordingly, we allow the applications and direct the GPCB to close all coal gasifiers industries and units operating with the help of coal gasifiers without prejudice to such units switching over to non-coal gasifiers or PNG or technology consistent with the above report. The GPCB must initiate immediate steps for prosecution of the industries which have operated in violation of law and recover compensation for causing damage to the environment and public health.”

11. Issue of allowing operation of brick kilns may give rise to following questions:

(i). The use of cleaner fuels or any other alternative measures to be used to prevent air pollution.

(ii).

(ii). Siting and carrying capacity.

12. In view of the fact that there is no carrying capacity of the air quality in NCR region to permit any further addition to PM load by

³ Order dated 06.03.2019 in O.A. No. 20/2017 (WZ), Babubhai Ramubhai Saini vs. Gujarat Pollution Control Board & Ors.

permitting unconditional operation of brick kilns using fuel which adds to PM load and since it may be necessary to consider the issue of utilizing fly ash, we require an expert opinion on following issues:

- (a) how brick kilns can be allowed in NCR without damage to the air quality;
- (b) conditions subject to which it may be done;
- (c) number of brick kilns to be allowed and criteria for fixing such numbers.

13. Let CPCB look into the above issues and furnish a further report within one month for further directions in the matter. The applicants are free to put forward their viewpoint before CPCB.

List for further consideration on April 28, 2020.

Adarsh Kumar Goel, CP

Sheo Kumar Singh, JM

Dr. Nagin Nanda, EM

March 23, 2020
Original Application No. 1016/2019
DV



THE PALWAL BRICKS KILN OWNERS ASSOCIATION

Off. Add:- Sarpanch Marroliia Niwas, Near Govt. Collage Hodal-121106

President:-
Yogesh Sorout
9992038900

Gen. Sec:-
Swatantr Goyal
9215532237

Treasurer:-
Randhir Chauhan
9813075817

Ref. No.....

Date.....

To,
The Chairman
Central Pollution Control Board
Parivesh Bhawan, CBD-CUM Office Complex,
East Arjun Nagar, Delhi – 110032

Date: June 4, 2020

Reference: -Original Application No. 1016 of 2019 titled Utkarsh Panwar vs CPCB & Ors before the Hon'ble National Green Tribunal, Principal Bench, New Delhi

Subject: Representation pursuance to the order dated 17.03.2020 (uploaded on 23.03.2020 in Original Application No. 1016 of 2019 titled Utkarsh Panwar vs CPCB & Ors before the Hon'ble National Green Tribunal, Principal Bench, New Delhi

Respected Sir,

This representation is on behalf of Palwal Bricks Kiln Owners Association(hereinafter Association) in pursuance to the order dated 17.03.2020 (uploaded on 23.03.2020) in Original Application No. 1016 of 2019 titled *Utkarsh Panwar vs CPCB & Ors* before the Hon'ble National Green Tribunal, Principal Bench, New Delhi representing hundred and twenty five (125) numbers of the brick kilns owners of District Palwal in Haryana operating on the latest Zig-Zag technology operating within the prescribed emissions standards under the Environment Protection Rules, 1986 and have requisite consents under the Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control

of Pollution) Act, 1981 from the Haryana Pollution Control Board. That although district Palwal comes under the area of National Capital Region however the distance of Palwal is more than 60 kilometers from Delhi. There are no large scale industries are established in District Palwal and only small scale industries such as Brick Kiln operators exist in this area.

On 13.11.2019 one Mr. Utkarsh Panwar filed Original Application No. 1016 of 2019 before the NGT raising the issue of air pollution in Delhi & NCR due to operation of brick kilns. The applicant prayed for immediate closure of all the brick kilns units in the National Capital Region during winter months i.e. till end of February or till the level of pollution reaches normal level. That the NGT vide order dated 15.11.2019 issued direction to the effect that all brick kilns in NCR shall be closed till a scientific study/report is submitted by CPCB or the situation improves.

The NGT also passed subsequent orders and lastly on 17.03.2020 (uploaded on 23.03.2020) held that the main reason for air pollution by brick kilns is use of coal etc. as fuel. The pollution can be minimized if the fuel which is currently used is considered to be replaced by cleaner fuels like PNG by appropriate modification in design not adding to the PM load.

The NGT observed that issue of allowing operation of brick kilns may give rise to following questions:

- (i) The use of cleaner fuels or any other alternative measures to be used to prevent air pollution.
- (ii) Siting and carrying capacity.

And in view of the fact that there is no carrying capacity of the air quality in NCR region to permit any further addition to PM load by permitting unconditional operation of brick kilns using fuel which adds to PM load and since it may be

necessary to consider the issue of utilizing fly ash, the NGT directed for an expert opinion on following issues:

- (a) how brick kilns can be allowed in NCR without damage to the air quality;
- (b) conditions subject to which it may be done;
- (c) number of brick kilns to be allowed and criteria for fixing such numbers.

The NGT directed the CPCB to file a report on the above issues and then list the matter on 28.04.2020 and granted liberty to the applicant Association who has filed Impleadment Application in the case to give points to the CPCB.

In light of the above, the Association wishes to submit the following points consideration of the CPCB: -

1. At the outset it is submitted that brick kilns of Palwal in compliance of directions of the CPCB dated 29.12.2015 and 27.06.2017 and have shifted from the old Fixed Chimney Bull's Trench Kiln technology to the latest Zig-Zag environment friendly technology, which is the best available technology.
2. That as per the CPCB report dated 22.01.2020 in O.A. No. 1088 of 2018 titled Dinesh Chahal vs UOI & Ors., Brick Kilns of Zig – Zag technology are meeting the present particulate matter standard of 750 mg/Nm³ as well proposed draft standard of 250 mg/Nm³ under the Environment Protection Rules, 1986. The relevant para of the report dated 22.01.2020 is annexed as Annexure A/1.
3. That the Brick Kilns of District Palwal are established as per the siting criteria of the Haryana Pollution Control Board mentioned in the Guidelines for Abatement of Pollution in Brick Kiln Industry, which may be examined/verified on a case to case basis.
4. It is pertinent to mention that the Automotive Research Association of India and the Energy and Resources Institute (TERI) in August, 2018 published a report titled 'Final Report 'Source Apportionment of PM2.5 &

PM10 of Delhi NCR for Identification of Major Sources' for Department of Heavy Industry, Ministry of Heavy Industries and Public Enterprises, Government of India. This reveals that in the year 2016 the Brick Kilns industry contributed only about 8% to the air pollution of Delhi & NCR. It was further found in the report that the brick kilns shifting to Zig-Zag technology would further lead to reduction of 3 %, 4%, and 6% in total PM2.5, PM10, and SO2 emissions. On the other hand, it has been stated that the Transport Sector contributed 28% and Dust contributed 17 % to the air pollution of Delhi & NCR and hence the contribution of the brick kilns in Delhi & NCR air pollution is very less especially after conversion to zig-zag technology. The relevant excerpts of the study are annexed as **Annexure A/2.**

5. That the Hon'ble Supreme Court in Writ Petition (C) No. 13029 of 1985 while hearing the issue of rising air pollution in Delhi & NCR vide order dated 10.11.2016 directed the CPCB to evolve a definitive plan of action that would make its response to different levels of pollution predicted. Further, a draft Graded Response Action Plan was submitted on 02.12.2016 and the final notification on the said GRAP was issued in a Gazette dated 12.01.2017. The said Graded Action Plan provides different category of pollution and actions required during different level of pollution. Thus in the context of brick kilns, it is stated that under Category 'Moderated to Poor' (PM 2.5 >61 ug/m³ and <120 ug/m³ or PM 10 >101 ug/m³ and <350 ug/m³) – it is established to enforce all pollution control regulations in Brick Kilns. Further, under *Category 'Severe'* (PM 10 >430 ug/m³ or PM 2.5 >250 ug/m³) (*emphasis supplied*) Brick Kilns are required to be closed.
6. It is important to emphasize that the EPCA constituted by the Hon'ble Supreme Court submitted the Report No. 71 dated 05.04.2017 titled

'Comprehensive Action Plan for air pollution with the objective to meet ambient air quality standards in the NCR, including States of Haryana, Rajasthan and Uttar Pradesh'. In the said report's action points, it was mentioned to convert all Fixed Chimney Bull Trench brick kilns to Zig-Zag technology and from natural draft kilns to induced draft kilns (zig zag technology). As mentioned above, all the brick kilns of the Palwal district have been converted into zig-zag technology.

7. In October 2019 when the air pollution of Delhi & NCR increased, the EPCA vide order dated 09.10.2019 specifically directed the Chief Secretary, State of Haryana to allow the operation of Zig-Zag technology brick kilns while directing stoppage of construction work and operation of other polluting industries. It is pertinent to mention that brick kilns of Zig-Zag technology were allowed due to the reason that it is less polluting and contribution to entire air pollution of Delhi & NCR is marginal and on 14.02.2020 EPCA vide order dated 14.02.2020 has again directed the Chief Secretary, State of Haryana to allow the operation of brick kilns running on Zig-Zag technology.
8. The Hon'ble Supreme Court of India in Civil Appeal No. 1742-43 of 2020 (Diary No. 5935/2020) vide order dated 20.02.2020 requested this Hon'ble Tribunal to decide the O.A. No. 1016 of 2019 in light of the provision of the Graded Action Plan of MoEF & CC and EPCA order dated 14.02.2020. The copy of the order dated 20.02.2020 is marked and appended as Annexure A/3
9. It is important to point out that the Hon'ble NGT in a case titled 'New Haryana Bricks and Tile Kiln, Owners Association vs EPCA & Ors' (O.A. No. 893 of 2018) dated 19.11.2018, Shailesh Singh vs EPCA & Ors (O.A. No. 47 of 2018) dated 17.12.2018 and Anil Kumar vs UOI (O.A. No. 718 of 2017) dated 22.01.2019 directed the CPCB as well as the SPCB to ensure shifting of brick kilns from Natural draft to Zig -Zag technology.

Furthermore, the Hon'ble High Court of Patna in W.P (C) No. 15962 of 2018 has also directed vide Order dated 04.12.2018 that only brick kilns of cleaner technology (zig-zag) will be allowed from the new season.

10. The Centre for Science and Environment in their studies titled '*Emissions Monitoring of Brick Kilns ZIG ZAG vs FCBTK*' and '*MAKEOVER: Conversion of brick kilns in Delhi-NCR to a cleaner technology*' stated that shifting to Zig-Zag technology will reduce pollution. The relevant excerpts of the report is marked and appended as ANNEXURE A/4

11. From the above submissions it is evident that the Brick Kilns of the zig-zag technology are less polluting and accepted as Best Available Technology in the brick industry. Further, the Brick Kilns are adhering to the standards of 750 mg/Nm³ as well as the proposed stricter draft standards of 250 mg/Nm³ under the Environment Protection Rules, 1986.

12. It is beyond doubt that brick kilns use coal as a fuel, but they are meeting the prescribed standards under the existing law and only contributing to about 3 % to the total air pollution of the Delhi & NCR as per the latest authoritative studies.

13. Furthermore, Ambient Air Quality of Palwal is totally within norms since last week of November 2019. The levels of PM2.5, PM10, NO, NO2, NOx, NH3, SO2, CO, Ozone, Benzene, Toluene, Temp, WS, WD, SR, BP, RF obtained through the CPCB online portal of the Monitoring Station at Shyam Nagar, Palwal demonstrates that the pollutions level in Palwal has remained within safe limits and brick kilns can operate not only as per the Graded Action Response Plan, but also as per the AAQ parameters in the area.

14. The NGT in its order dated 17.03.2020 observed that brick kilns may shift to cleaner fuels like PNG. At the outset it is humbly submitted that PNG, CNG as well as industrial LPG connections are not available in the

majority of places as brick kilns are scattered in various places in rural areas. Moreover, to shift to another fuel will require design changes among other things which have huge financial implications and the brick kilns are already overburdened from the cost incurred to change from FCBTK to Zig-Zag technology as directed by CPCB as well as the EPCA^{Honorable}/NGT. Further, the CPCB itself vide direction dated 02.07.2019 stated that industries for non-conversion to PNG will only be closed where PNG connections are available. The copy of the CPCB direction dated 02.07.2019 is annexed as **Annexure A/5**

15. That the Brick Kilns industries do not have any harmful impact on the top soil. Most Brick Kilns use lands which are undulating and therefore the soil is removed while land leveling. In fact huge amount of land which are saline are also used by Brick Kiln industries and after the removal of salinity the same land has been rendered fertile and agricultural worthy. Most farmers have not complained regarding soil fertility or adverse impact of Brick Kilns on their farmlands. In fact the top soil over the year has lost its natural fertility and quality due extensive use of chemical fertilizers. The Brick Kilns has also removed such contaminated soil impacted by pesticides and chemical fertilizers and regained the fertility of the soil. Be that as it may, this Tribunal may direct a comprehensive study to ascertain the impact of Brick Kilns on soil fertility in the NCR Region so that this contested issue of Brick Kilns' impact on top soil is resolved for perpetuity.

16. The blanket ban of operation of brick kilns industries has affected livelihood rights of approximately one million people in the National Capital Region. Furthermore, brick kilns Industries are season-based industries and hence only operate from January to June and indefinite closure for want of study would cause and has already caused irreparable damages to the brick kilns industry without any fault or violation of any environmental norms or prescribed standards.

17. It is common sensical to submit that for conducting any carrying capacity study, the said brick kilns are required to be in operation. That presently the brick kilns of the association are closed even without inspection.
18. As regards the compliance of fly ash notification it submitted that the Hon'ble Allahabad High Court vide order dated 07.10.2010 in Civil Misc. Writ Petition No. 61702 of 2010 held that clay brick kilns are exempted from purview of fly ash notification, 1999. That the Fly ash notification was subsequently amended on 27.08.2003 and 25.01.2016. Further the draft Fly ash Notification on the subject is yet to be finalized. In any case, such amendments as and when finalized would be prospective unless stated otherwise.
19. As regards to utilization of fly ash in brick kilns it is humbly submitted that unless the harmful impacts of fly ash bricks are not studied, and its longevity is not examined it may not be treated as a true alternative. If its longevity had been proved, then by this time most fly ash would have been utilized by entrepreneurs. The longevity of red bricks cannot be undermined as it is borne out by structures which have withstood weather impacts for over centuries and civilizations.
20. That most significantly, the Ministry of Home Affairs (MHA) imposed the lockdown in four phases i.e. 24.03.2020 to 15.04.2020, 16.04.2020 to 17.05.2020 and 18.05.2020 to 31.05.2020. That during the lockdown MHA allowed certain activities to ensure essential services and employment of migrant labourers. That the MHA allowed agricultural activities (Farming & Harvesting) vide order dated 27.03.2020 [Clause C], allowed Brick Kilns outside municipal limits vide order dated 15.04.2020 [Clause 15 (xi)] and allowed Construction activities vide order dated 01.05.2020 [Clause 7 (ii) (c)] and industrial activities among others during

Lockdown phase 4 i.e 17th May 2020 to 31st May 2020. That to ascertain the real impact on ambient air quality and source apportionment, the CPCB must look the ambient air quality data in these four phases so that the actual connect with contributors to pollution may be assessed. In particular, the period between 15th April 2020 and 4th May 2020 may specifically be looked into in order to ascertain the real impact of operating Brick Kilns on air quality, in these emergency situations as per the Order of MHA. This will perhaps be the best bench mark for contributory pollution of brick kilns on air quality.

21. That as stated above Ministry of Home Affairs has passed its order dated 15.04.2020 under Section 10(2)(i) of the Disaster Management Act 2006 to address the hardship being faced by the migrant workers due to lockdown imposed, causing impediments for their survival and livelihood. Under the said order the Ministry has accordingly passed various directions, including the following:

"3. Select permitted activities allowed with effect from 20.04.2020:

i. To mitigate hardship to the public, select additional activities have ben allowed which will come into effect from 20th April, 2020. These limited exemptions will be operationalized by the State/UTs/ district administrations based on strict compliance to the existing guidelines. Also, before allowing these select additional activities, States/ UTs/ district administrations shall ensure that all preparatory arrangements with regard to the Standard Operating Procedures (SOPs) for social distancing in offices, workplaces, factories and establishments, as also other sectoral requirements are in place.

ii. The consolidated revised guidelines incorporating these select permitted activities have ben enumerated in paras 5-20 below.

4....

5....

6....

15. Industries/ Industrial Establishments (both Government and private), as listed below, will be allowed to operate:

i... ..

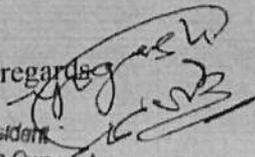
ii... ..

xi. Brick kilns in rural areas i.e., outside the limits of municipal corporations and municipalities. " (emphasis provided)

That the above direction of allowing the brick kilns by the Ministry of Home Affairs was passed also to restrict the movement of the migrant labour and contain the spread of COVID-19. That non-operational of brick kilns will result in forced migration of the labour. The said order dated 15.04.2020 of the Ministry of Home Affairs is annexed as ANNEXURE A/6.

In the light of the above submission it is prayed before you, that the brick kilns which have converted into zig-zag technology may be ordered to continue to operate in view of the Order of the MHA as stated above and till alternative better and proven technology is put in place.

Thanks and regards


President
The Palwal Brick Kiln Owners Association
Palwal (Haryana)

(For Palwal Bricks Kiln Owners Association)

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI
I.A.NO. 98 OF 2019, 100/2019, 101/2019, 119/2019 & 266/2019
IN
ORIGINAL APPLICATION NO.1088 OF 2018

IN THE MATTER OF:

DINESH CHAHAL & ORS.

APPLICANT(S)

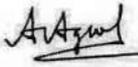
VERSUS

UNION OF INDIA & ORS.

RESPONDENT(S)

INDEX

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1.	REPORT IN COMPLIANCE OF HON'BLE NGT ORDER DATED 30.07.2019.	
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5.	ANNEXURE-IV DIRECTIONS ISSUED BY CPCB TO SPCBs AND PCCs DATED 27.06.2017.	
6.	ANNEXURE-V PHOTOGRAPHS TAKEN DURING STUDY CONDUCTED FOR ASSESSMENT & MONITORING OF BRICK KILNS.	
7.	ANNEXURE-VI MECHANISM PROPOSED BY CPCB AND SUBMITTED TO MoEF & CC, TO ENSURE USE OF ONLY AGRO RESIDUE IN FCBTK BRICK KILNS (LETTER DATED 01.03.2019).	


(AJAY AGGARWAL)
SCIENTIST 'E'
CENTRAL POLLUTION CONTROL BOARD
PARIVESH BHAWAN, EAST ARJUN NAGAR
DELHI- 110032

PLACE: - DELHI
DATED: 22.01.2020

6. Performance evaluation of Brick Kilns w.r.t existing applicable standard of particulate matter i.e. 750 mg/Nm³ normalized at 4% CO₂:

The particulate matter source emissions from the stack in the brick kilns based on Zig-Zag Technology using various types of pulverized coal from various sources varied between 121 mg/Nm³ to 599 mg/Nm³.

The particulate matter source emissions from the stack in the brick kilns based on Fixed Chimney Bull Trench Kiln (FCBTK) Technology using various types of agro-residues varied between 199 mg/Nm³ to 705 mg/Nm³.

Based on the above findings, it may be concluded that both types of brick kilns i.e FCBTK using agro-residues as fuel and Zig-Zag using coal as fuel, monitored during this study were found to be complying with the existing standard of PM (750 mg/Nm³ normalized at 4% CO₂) during initial firing as well as mid firing monitoring.

7. Performance evaluation of Brick Kilns w.r.t. revised draft notified standards of particulate matter i.e. 250 mg/Nm³ at 17% O₂:

The particulate matter source emissions from the stack in the brick kilns based on Zig-Zag Technology using coal from various sources varied between 282 mg/Nm³ to 541 mg/Nm³ during initial firing monitoring and between 107 mg/Nm³ to 240 mg/Nm³ during mid firing monitoring.

The particulate matter source emissions from the stack in the brick kilns based on Fixed Chimney Bull Trench Kiln (FCBTK) Technology using various types of agro-residues varied between 345 mg/Nm³ to 703 mg/Nm³ during initial firing monitoring and between 199 mg/Nm³ to 259 mg/Nm³ during mid firing monitoring.

Based on the above data, it may be concluded that both types of brick kilns i.e Zig-Zag using coal as fuel and FCBTK using agro-residues as fuel, were found to be meeting the revised draft notified standards of particulate matter i.e 250 mg/Nm³ normalized at 17% O₂, during mid firing monitoring barring one exception wherein emission level was found to be marginally higher than proposed limit (259 mg/Nm³ > 250 mg/Nm³) in FCBTK type kiln using ago-residues. However, emission levels in both types of kilns (FCBTK & Zig-

Zag) were found to be exceeding the revised draft notified limits of 250 mg/Nm³ during initial firing monitoring.

The comparatively higher level of emissions during initial firing which lasts for around a week during start-up of brick kiln may be attributed to the fact that during start-up, besides using regular fuel in excess of the required quantity, supplementary fuels such as cow dung, wood etc. having entirely different size and burning properties than regular fuel, are used to stabilize the combustion.

The impact of higher PM concentration during initial firing may not be significant when overall operation of any brick kiln for a particular season is considered, but knowing the fact that emissions during startup of brick kiln is on the higher side, this may help the concerned authorities, to decide the startup timing of brick kilns, looking into the ambient air quality of their respective areas.

8. Estimated Specific Energy Consumption (SEC) of brick kilns monitored during study.

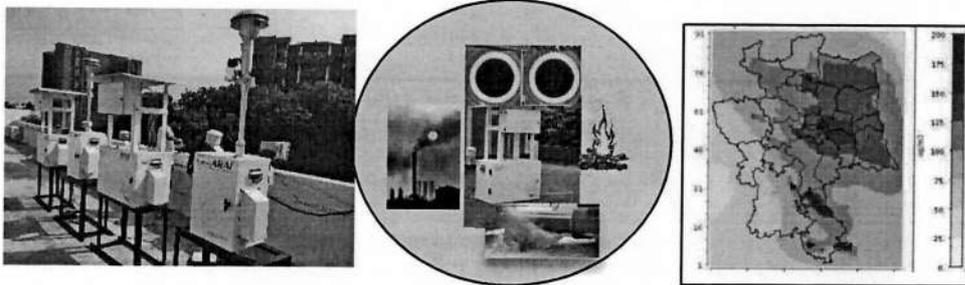
Further, in order to ensure that the emission data collected in the study is truly representative and close to the actual values, an assessment was also made w.r.t specific energy consumption (SEC) of individual brick kilns monitored in this study, and also to see the variation in fuel feeding during monitoring either knowingly or unknowingly. Therefore, comparison was made only w.r.t. Specific Energy Consumption i.e energy consumed MJ per Kg of fired brick, amongst the kilns from a particular area using similar type of clay. The reported gross calorific values (GCV) of various fuels used by brick kilns covered in the study, weight of the fuel used for a specified period, production rate and average weight of bricks, were used for estimating the specific energy consumption.

Since, the energy requirements may be affected by the type of clay used for brick manufacturing besides other factors, the SEC data estimated in this study was not used for concluding the performance of the technologies evaluated in this study. The specific energy consumption estimated for various brick kilns monitored during the study is presented in the following **Table 5**.

Per
21/1/2020
47
12

Final Report

Source Apportionment of PM_{2.5} & PM₁₀ of Delhi NCR for Identification of Major Sources



Prepared for

Department of Heavy Industry
Ministry of Heavy Industries and Public Enterprises,
New Delhi

Prepared by



The Automotive Research Association of India
Survey No. 102, Vetal Hill, Off Paud Road,
Kothrud, Pune-411 038, India
www.araiindia.com



The Energy and Resources Institute
Darbari Seth Block, IHC Complex,
Lodhi Road, New Delhi – 110 003, India
www.teriin.org

August 2018

Chapter 5: Emission Inventory, Dispersion Modelling and Source Apportionment

highest share of 8%, followed by two-wheelers (7%), and three-wheelers (5%). This is due to their higher shares in either or both PM_{2.5} and NO_x emissions.

In PM₁₀, the shares for different sub-sectors almost remain the same as PM_{2.5}. However, the shares of dust increase considerably, with road dust and construction contributing to 8% and 6%, respectively in Delhi's PM₁₀ concentrations.

Table 5.3 : Sub-sectoral contribution to PM_{2.5} in Delhi in winter 2016

Sectors	Sub-sectors	Delhi
Residential		10%
	Biomass	9%
	Kerosene	1%
	LPG	0.1%
Agricultural burning	Biomass	4%
Industry		30%
	Power plant	6%
	Bricks	8%
	Stone crushers	2%
	Other industries	14%
Others		11%
	DG sets	5%
	Refuse burning	3%
	Crematoria	0.2%
	Restaurant	1%
	Airport	1%
	Waste incinerators	1%
	Landfill fires	0.4%
Dust		17%
	Road dust	4%
	Construction	1%
	Others	12%
Transport		28%
	Truck	8%
	Tractor	1%
	Bus	3%
	Cars	3%
	2 wheelers	7%
	3 wheelers	5%
	LCVs	1%

Table 5.4 : Sub-sectoral contribution to PM₁₀ in Delhi in winter 2016

Sectors	Sub-sectors	Delhi
Residential		9%
	Biomass burning in kitchen	8%
	Kerosene	1%
	LPG	0%
Agricultural burning	Biomass	4%
Industry		27%
	Power plant	5%
	Bricks	7%
	Stone crushers	3%
	Other industries	12%
Others		10%
	DG sets	4%
	Refuse burning	4%
	Crematoria	0.3%
	Restaurant	0.6%
	Airport	0.4%
	Waste incinerators	0.6%
	Landfill fires	0.4%
Dust		25%
	Road dust	8%
	Construction	6%
	Others	11%
Transport		24%
	Truck	7%
	Tractor	1%
	Bus	2%
	Cars	3%
	2 wheelers	6%
	3 wheelers	4%
	LCVs	1%

5.7.2 Summers

During summers, contribution of different sectors varies due to increased wind speeds and increased natural dust contributions (Table 5.5 and Table 5.6). Within the sectors, biomass fuel use in residential sector is the dominant factor contributing to PM_{2.5} and PM₁₀ concentrations. It contributes to 7-8% in PM_{2.5} and PM₁₀ concentrations in summers. Within the industrial sector, contribution of about 22% in PM_{2.5} concentrations in Delhi, 5% is contributed by the brick kiln sector, 7% by power stations, 1% by stone crushers and other industries using coal, biomass, pet-coke, and FO contributed to about 8%. In the others category, the share of DG sets falls to 2% due to reduced nitrate formation in summers. Refuse burning contributes significantly (4%), and rest other sources contribute to less than 1% each, towards PM_{2.5} concentrations. In the dust category, road dusts contribute to 3%, and construction 2% to the PM_{2.5} concentrations. Within the transport sector in Delhi, trucks have the highest share of 5%, followed by two-wheelers (4%), and three-wheelers (3%). This is due to their higher shares in either or both PM_{2.5} and NO_x emissions. The share of cars remains at 2% in PM_{2.5} concentrations in Delhi during summers.

Chapter 5: Emission Inventory, Dispersion Modelling and Source Apportionment

In PM₁₀, the shares for different sub-sectors almost remain same as PM_{2.5}. However, the shares of dust increase considerably, with road dust and construction contributing to 10% and 4% in PM₁₀ concentrations in Delhi.

Table 5.5 : Sub-sectoral contribution to PM_{2.5} in Delhi in summers 2016

Sectors	Sub-sectors	Delhi
Residential		8%
	Biomass burning in kitchen	7%
	Kerosene	1%
	LPG	0.1%
Agricultural biomass burning	Biomass	7%
Industry		22%
	Power plant	7%
	Bricks	5%
	Stone crushers	1%
	Other industries	8%
Others		8%
	DG sets	2%
	Refuse burning	4%
	Crematoria	0.2%
	Restaurant	0.4%
	Airport	0.2%
	Waste incinerators	0.3%
	Landfill fires	0.5%
Dust		38%
	Road dust	3%
	Construction	2%
	Others	33%
Transport		17%
	Truck	5%
	Tractor	1%
	Bus	1%
	Cars	2%
	2 wheelers	4%
	3 wheelers	3%
	LCVs	1%

Table 5.6 : Sub-sectoral contribution to PM₁₀ in Delhi in summers 2016

Sectors	Sub-sectors	Delhi
Residential		8%
	Biomass	8%
	Kerosene	0.5%
	LPG	0.1%
Agri. Burning	Biomass	7%
Industry		22%
	Power plant	7%
	Bricks	5%
	Stone crushers	2%
	Other industries	8%
Others		7%
	DG sets	2%
	Refuse burning	4%
	Crematoria	0.3%
	Restaurant	0.5%
	Airport	0.1%
	Waste incinerators	0.3%
	Landfill fires	0.4%
Dust		43%
	Road dust	10%
	Construction	4%
	Others	28%
Transport		15%
	Truck	5%
	Tractor	1%
	Bus	1%
	Cars	2%
	2 wheelers	4%
	3 wheelers	3%
	LCVs	0.5%

5.8 Sub-category-wise contribution of different vehicles in PM_{2.5} concentrations

The share of cars in winter and summer PM_{2.5} concentrations is about 3.4% and 2%, respectively (Table 5.7). However, within this, the share of older cars on road is much higher than the newer ones. The table shows the category-wise distribution of the share of cars to PM_{2.5} concentrations, which shows that older cars (BS-II and before) contribute about 31%-50%, while BS-III cars contribute about 19%-22%. BS-IV cars contribute to 50% and 28% in the overall car contribution to PM_{2.5} in Delhi and NCR,

Chapter 6: Future Projections

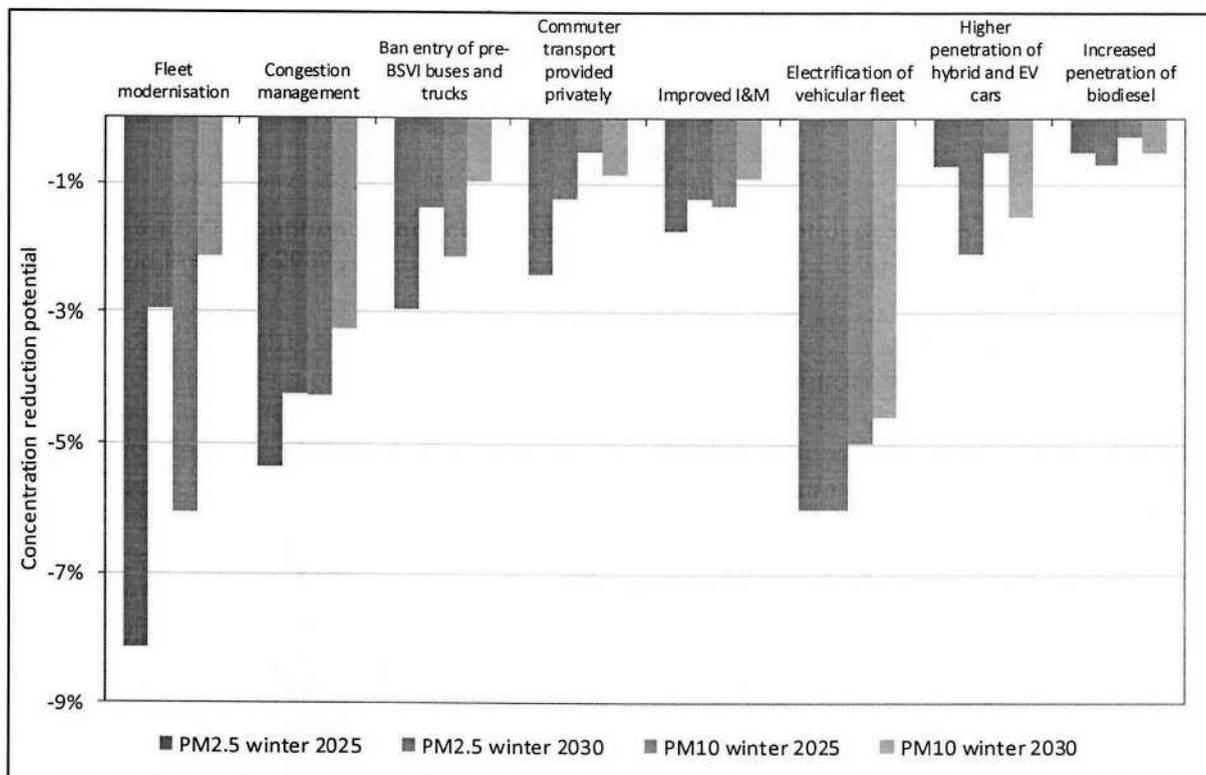


Figure 6.12: Concentration reduction potential of various control strategies in transport sector in the year 2030

5.12.6.3 Industries

Industries contributed around 25%-27% in $PM_{2.5}$ and PM_{10} concentrations in the year 2016, and even higher (34%-37%) in 2030. Evidently, the sector has higher potential for control of emissions and PM concentrations. The emission reduction potential of various strategies is analysed for the industrial sector and results are presented in **Figure 6.13** and **Figure 6.14**. The strategies considered for reducing emissions from industries include stringent gaseous pollutant norms for power plant, industries, improving the enforcement through continuous monitoring, switching to cleaner gaseous fuels, shifting brick kilns from conventional to Zig-Zag technology and introducing stringent stack emission standards for $PM_{2.5}$ and PM_{10} in industries. Details of these strategies are given in **Table 6.4**.

It has been realised that the maximum reduction in emissions of $PM_{2.5}$ and PM_{10} can be achieved by switching solid fuel to gaseous fuel in industries. Implementing stringent NO_x and SO_2 standards may reduce total SO_2 emissions in NCR drastically, although mainly from power plants. The reduction potential of the stringent NO_x and SO_2 standards becomes still lower as pet-coke and FO (high sulphur fuels) are already banned in the region (Figure 73). Presently, only suspended particulate matter (SPM) standard exists for industrial stack and introducing new stringent stack emission standards for $PM_{2.5}$ and PM_{10} in industries can lead to more than 10% reduction in PM_{10} and $PM_{2.5}$ emissions. Enhanced penetration of Zig-Zag technology in the brick kiln sector may lead to reduction of 3%, 4%, and 6% in total $PM_{2.5}$, PM_{10} , and SO_2 emissions,

IN THE SUPREME COURT OF INDIA
CIVIL APPELLATE JURISDICTION

CIVIL APPEAL NO. 1733-35 OF 2020
[DIARY NO. 5783 OF 2020]

HARYANA PRADESH BRICK KILN OWNERS
ASSOCIATION (REGD) & ANR.

Appellant (s)

VERSUS

UTKARSH PANWAR & ORS.

Respondent(s)

WITH

CIVIL APPEAL NO. 1742-43 OF 2020
Diary No. 5935 of 2020

O R D E R

Permission to file the appeal(s) is granted.

Heard the learned counsel appearing for the parties at some length.

Mr. Mukul Rohtagi, learned senior counsel, has relied upon the report of EPCA dated 14.02.2020 and the Action Plan. These documents were not before the National Green Tribunal (NGT) when the impugned orders were passed.

It is for the appellants to file an appropriate application for impleadment/intervention in the pending matter and to place their point of view before the NGT. We request the NGT to hear the applicants and consider their prayer.

Hence, we do not find any ground to interfere with the impugned order(s) at this stage. The appeals are, accordingly, disposed of.

.....J.
[ARUN MISHRA]

.....J.
[M. R. SHAH]

New Delhi;
FEBRUARY 20, 2020.

ITEM NO.30 + 46

COURT NO.3

SECTION XVII

S U P R E M E C O U R T O F I N D I A
R E C O R D O F P R O C E E D I N G S

CIVIL APPEAL Diary No(s). 5783/2020

(Arising out of impugned final judgment and order dated 18-12-2019 in OA No. 1016/2019 06-02-2020 in OA No. 1016/2019 20-01-2020 in RA No. 4/2020 passed by the National Green Tribunal)

HARYANA PRADESH BRICK KILN OWNERS
ASSOCIATION (REGD) & ANR.

Appellant (s)

VERSUS

UTKARSH PANWAR & ORS.

Respondent(s)

(IA No.29620/2020-GRANT OF INTERIM RELIEF and IA No.29617/2020-EXEMPTION FROM FILING C/C OF THE IMPUGNED JUDGMENT and IA No.29618/2020-PERMISSION TO FILE APPEAL and IA No.29623/2020-PERMISSION TO FILE ADDITIONAL DOCUMENTS/FACTS/ANNEXURES)

with

Diary No. 5935 of 2020

(Exemption from filing c/c of the impugned Judgment and stay application and permission to file appeal and permission to file Additional documents/facts/annexures)

Date : 20-02-2020 These appeals were called on for hearing today.

CORAM : HON'BLE MR. JUSTICE ARUN MISHRA
HON'BLE MR. JUSTICE M.R. SHAH

Counsel for the
parties

Mr. Mukul Rohtagi, Sr. Adv.
Mr. Rohit Sharma, Adv.
Mr. Rounak Nayak, Adv.
Mr. Atul Agarwal, Adv.
Mr. Kumar Dushyant Singh, AOR

Mr. Sanjay Upadhyay, Adv.
Mr. Salik Shafique, Adv.
Ms. Mayuri Raghuvanshi, Adv.
Mr. Saumitra Jaiswal, Adv.
Mr. Vyom Raghuvanshi, Adv.

Mr. Rohan Thawani, Adv.
Ms. Pooja Dhar, AOR

UPON hearing the counsel the Court made the following
O R D E R

The appeals are disposed of in terms of the signed order.
Pending interlocutory application(s), if any, is/are disposed
of.

(JAYANT KUMAR ARORA)
COURT MASTER

(JAGDISH CHANDER)
BRANCH OFFICER

(Signed order is placed on the file)



EMISSIONS MONITORING OF BRICK KILNS

ZIGZAG vs FCBTK



RECOMMENDATIONS

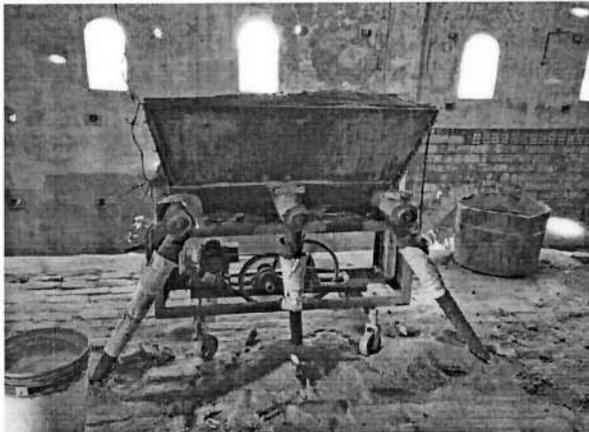
In context to the background of this report, any directive from CPCB that allows FCBTKs that use agricultural waste will have serious repercussions. In case CPCB gives such a directive which allows the brick kiln entrepreneurs to use agricultural waste in loose form, a possibility may arise that all the brick kiln owners who have not converted their kilns to cleaner technology would file an affidavit to use agricultural waste. In such a scenario, it will be very difficult for SPCBs with their limited manpower to monitor fifty thousand odd kilns across the country to understand the impact of such a step.

Based on the conclusions and the observations made on ground during monitoring and surveying of the brick kilns in various regions, there are certain recommendations which could be made to help the clay brick industry to move towards cleaner and environment-friendly technologies and practices. Some of the key recommendations are as follows:

Technical:

- Use of agricultural waste in the form of pellet/briquette as fuel in FCBTKs.
- Quality control of pellet/briquette: Sometimes, kiln owners mix soil which reduces the calorific value of briquettes. A quality control procedure is required for manufacturers of pellets/briquettes to avoid such issues.
- Monitoring to understand emissions from FCBTKs run with briquettes should be conducted by CPCB to formulate further policy regarding the same.
- In case the CPCB or the MoEF&CC wants to promote agricultural waste in loose form, then proper feeding practices such as using a funnel which feeds directly into the kiln will help in eliminating surface emissions. The impact on stack emissions has to be monitored.

Funnel feeding system in a Hoffman's Kiln



GREENTECH KNOWLEDGE SOLUTIONS PVT LTD, NEW DELHI

GREENTECH KNOWLEDGE SOLUTIONS PVT LTD, NEW DELHI

General:

- In case the CPCB or the MoEF&CC wants to promote agricultural waste in loose form, a closed storage yard for agricultural waste should be arranged at every kiln which uses such waste to avoid any mishap due to fire. Fire extinguishers should also be made available at the kilns.
- Portholes, platforms and safe staircases should be built in all kilns; a majority of the kilns do not have adequate facilities for monitoring.
- Proper storage yards should be built for pellet/briquette to avoid moisture arrest.
- Due to the fluctuation in the demand sector of briquettes there is a continuous fluctuation in their rates, therefore a price control mechanism for pellet/briquettes in every state is required.
- Laborers cannot be allowed to work in such hazardous conditions where surface emissions are so high, especially in kilns which use agricultural waste as fuel in loose form.

No. 40-3/2020-DM-I(A)
Government of India
Ministry of Home Affairs

North Block, New Delhi-110001
Dated 15th April, 2020

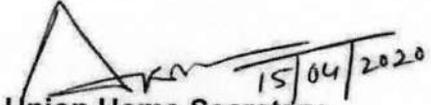
ORDER

Whereas, in exercise of the powers, conferred under Section 10(2)(l) of the Disaster Management Act 2005, the undersigned, in his capacity as Chairperson, National Executive Committee, has issued an Order dated 14th April, 2020 that the lockdown measures stipulated in the Consolidated Guidelines of Ministry of Home Affairs (MHA) for containment of COVID-19 epidemic in the country, will continue to remain in force upto 3rd May, 2020 to contain the spread of COVID-19 in the country;

Whereas, to mitigate hardship to the public, select additional activities will be allowed, which will come into effect from 20th April, 2020. However, these additional activities will be operationalized by States/ Union Territories (UTs)/ District Administrations based on strict compliance to the existing guidelines on lockdown measures. Before operating these relaxations, States/ UTs/ District Administrations shall ensure that all preparatory arrangements with regard to social distancing in offices, workplaces, factories and establishments, as also other sectoral requirements are in place. The consolidated revised guidelines incorporating these relaxations are enclosed;

Whereas, the consolidated revised guidelines will not apply in containment zones, as demarcated by States/ UTs/ District administrations. If any new area is included in the category of a containment zone, the activities allowed in that area till the time of its categorization as a containment zone, will be suspended except for those activities as are specifically permitted under the guidelines of Ministry of Health and Family Welfare (MoHFW), Government of India;

Whereas, in exercise of the powers, conferred under Section 10(2)(l) of the Disaster Management Act, 2005, the undersigned, in his capacity as Chairperson, National Executive Committee, hereby issues directions to all the all Ministries/ Departments of Government of India, State/Union Territory Governments and State/Union Territory Authorities for the strict implementation of enclosed consolidated revised guidelines.


15/04/2020
Union Home Secretary

To:

1. The Secretaries of Ministries/ Departments of Government of India
2. The Chief Secretaries/Administrators of States/Union Territories
(As per list attached)

Copy to:

- i. All members of the National Executive Committee.
- ii. Member Secretary, National Disaster Management Authority.

Consolidated Revised Guidelines on the measures to be taken by Ministries/ Departments of Government of India, State/ UT Governments and State/ UT authorities for containment of COVID-19 in the country

[As per Ministry of Home Affairs (MHA) Order No. 40-3/2020-DM-I (A) dated 15th April, 2020]

1. With the extension of the lockdown period, the following activities will continue to remain prohibited across the country until 3rd May, 2020:

- i. All domestic and international air travel of passengers, except for purposes enumerated in para 4 (ix), and for security purposes.
- ii. All passenger movement by trains, except for security purposes.
- iii. Buses for public transport.
- iv. Metro rail services.
- v. Inter-district and inter-State movement of individuals except for medical reasons or for activities permitted under these guidelines.
- vi. All educational, training, coaching institutions etc. shall remain closed.
- vii. All industrial and commercial activities other than those specifically permitted under these guidelines.
- viii. Hospitality services other than those specifically permitted under these guidelines.
- ix. Taxis (including auto rickshaws and cycle rickshaws) and services of cab aggregators.
- x. All cinema halls, malls, shopping complexes, gymnasiums, sports complexes, swimming pools, entertainment parks, theatres, bars and auditoriums, assembly halls and similar places.
- xi. All social/ political/ sports/ entertainment/ academic/ cultural/ religious functions/ other gatherings.
- xii. All religious places/ places of worship shall be closed for public. Religious congregations are strictly prohibited.
- xiii. In case of funerals, congregation of more than twenty persons will not be permitted.

2. Operation of guidelines in Hotspots and containment zones

- i. 'Hotspots', i.e., areas of large COVID-19 outbreaks, or clusters with significant spread of COVID-19, will be determined as per the guidelines issued by Ministry of Health and Family Welfare (MoHFW), Government of India (GoI).
- ii. In these hotspots, containment zones will be demarcated by States/ UTs/ District administrations as per the guidelines of MoHFW.
- iii. In these containment zones, the activities allowed under these guidelines will not be permitted. There shall be strict perimeter control in the area of the containment zones to ensure that there is no unchecked inward/ outward movement of population from these zones except for maintaining essential services (including medical emergencies and law and order related duties) and Government business continuity. The guidelines issued in this regard by MoHFW will be strictly implemented by State/ UT Governments and the local district authorities.

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3. Select permitted activities allowed with effect from 20th April, 2020:

- i. To mitigate hardship to the public, select additional activities have been allowed which will come into effect from 20th April, 2020. These limited exemptions will be operationalized by States/ UTs/ district administrations based on strict compliance to the existing guidelines. Also, before allowing these select additional activities, States/ UTs/ district administrations shall ensure that all preparatory arrangements with regard to the Standard Operating Procedures (SOPs) for social distancing in offices, workplaces, factories and establishments, as also other sectoral requirements are in place.
- ii. The consolidated revised guidelines incorporating these select permitted activities have been enumerated in paras 5-20 below.

4. Strict enforcement of the lockdown guidelines

- i. State/ UT Governments shall not dilute these guidelines issued under the Disaster Management Act, 2005, in any manner, and shall strictly enforce the same.
- ii. State/ UT Governments, may, however, impose stricter measures than these guidelines as per requirement of the local areas.

5. All health services (including AYUSH) to remain functional, such as:

- i. Hospitals, nursing homes, clinics, telemedicine facilities.
- ii. Dispensaries, chemists, pharmacies, all kinds of medicine shops including *Jan Aushadhi Kendras* and medical equipment shops.
- iii. Medical laboratories and collection centres.
- iv. Pharmaceutical and medical research labs, institutions carrying out COVID-19 related research.
- v. Veterinary Hospitals, dispensaries, clinics, pathology labs, sale and supply of vaccine and medicine.
- vi. Authorised private establishments, which support the provisioning of essential services, or efforts for containment of COVID-19, including home care providers, diagnostics, supply chain firms serving hospitals.
- vii. Manufacturing units of drugs, pharmaceuticals, medical devices, medical oxygen, their packaging material, raw material and intermediates.
- viii. Construction of medical/ health infrastructure including manufacture of ambulances.
- ix. Movement (inter and intra State, including by air) of all medical and veterinary personnel, scientists, nurses, para-medical staff, lab technicians, mid-wives and other hospital support services, including ambulances.

6. Agricultural and related activities:

A. All agricultural and horticultural activities to remain fully functional, such as:

- i. Farming operations by farmers and farm workers in field.
- ii. Agencies engaged in procurement of agriculture products, including MSP operations.
- iii. '*Mandis*' operated by the Agriculture Produce Market Committee (APMC) or as notified by the State/ UT Government (e.g., satellite *mandis*). Direct marketing operations by the State/ UT Government or by industry, directly



from farmers/ group of farmers, FPOs' co-operatives etc. States/ UTs may promote decentralized marketing and procurement at village level.

- iv. Shops of agriculture machinery, its spare parts (including its supply chain) and repairs to remain open.
 - v. 'Custom Hiring Centres (CHC)' related to farm machinery.
 - vi. Manufacturing, distribution and retail of fertilizers, pesticides and seeds.
 - vii. Movement (inter and intra State) of harvesting and sowing related machines like combined harvester and other agriculture/ horticulture implements.
- B. Fisheries - the following activities will be functional:**
- i. Operations of the fishing (**marine and inland**)/ aquaculture industry, including feeding & maintenance, harvesting, processing, packaging, cold chain, sale and marketing.
 - ii. Hatcheries, feed plants, commercial aquaria.
 - iii. Movement of fish/ shrimp and fish products, fish seed/ feed and workers for all these activities.
- C. Plantations- the following activities will be functional:**
- i. Operations of tea, coffee and rubber plantations, with maximum of 50% workers.
 - ii. Processing, packaging, sale and marketing of tea, coffee, rubber and cashew, with maximum of 50% workers.
- D. Animal husbandry – the following activities will be functional:**
- i. Collection, processing, distribution and sale of milk and milk products by milk processing plants, including transport and supply chain.
 - ii. Operation of animal husbandry farms including poultry farms & hatcheries and livestock farming activity.
 - iii. Animal feed manufacturing and feed plants, including supply of raw material, such as maize and soya.
 - iv. Operation of animal shelter homes, including *Gaushalas*.
- 7. Financial sector: following to remain functional:**
- i. Reserve Bank of India (RBI) and RBI regulated financial markets and entities like NPCI, CCIL, payment system operators and standalone primary dealers.
 - ii. Bank branches and ATMs, IT vendors for banking operations, Banking Correspondents (BCs), ATM operation and cash management agencies.
 - a. Bank branches be allowed to work as per normal working hours till disbursal of DBT cash transfers is complete.
 - b. Local administration to provide adequate security personnel at bank branches and BCs to maintain social distancing, law and order and staggering of account holders.
 - iii. SEBI, and capital and debt market services as notified by the Securities and Exchange Board of India (SEBI).
 - iv. IRDAI and Insurance companies.



8. Social sector: following to remain functional:

- i. Operation of homes for children/ disabled/ mentally challenged/ senior citizens/ destitutes/ women/ widows.
- ii. Observation homes, after care homes and places of safety for juveniles.
- iii. Disbursement of social security pensions, e.g., old age/ widow/ freedom fighter pensions; pension and provident fund services provided by Employees Provident Fund Organisation (EPFO).
- iv. Operation of *Anganwadis* – distribution of food items and nutrition once in 15 days at the doorsteps of beneficiaries, e.g., children, women and lactating mothers. Beneficiaries will not attend the *Anganwadis*.

9. Online teaching/ distance learning to be encouraged:

- i. All educational, training, coaching institutions etc. shall remain closed.
- ii. However, these establishments are expected to maintain the academic schedule through online teaching.
- iii. Maximum use of Doordarshan (DD) and other educational channels may be made for teaching purposes.

10. MNREGA works to be allowed:

- i. MNREGA works are allowed with strict implementation of social distancing and face mask.
- ii. Priority to be given under MNREGA to irrigation and water conservation works.
- iii. Other Central and State sector schemes in irrigation and water conservation sectors may also be allowed to be implemented and suitably dovetailed with MNREGA works.

11. Public utilities: following to remain functional:

- i. Operations of Oil and Gas sector, including refining, transportation, distribution, storage and retail of products, e.g., petrol, diesel, kerosene, CNG, LPG, PNG etc.
- ii. Generation, transmission and distribution of power at Central and State/ UT levels.
- iii. Postal services, including post offices.
- iv. Operations of utilities in water, sanitation and waste management sectors, at municipal/ local body levels in States and UTs.
- v. Operation of utilities providing telecommunications and internet services.

12. Movement, loading/ unloading of goods/ cargo (inter and intra State) is allowed, as under:

- i. All goods traffic will be allowed to ply.
- ii. Operations of Railways: Transportation of goods and parcel trains.
- iii. Operations of Airports and related facilities for air transport for cargo movement, relief and evacuation.
- iv. Operations of Seaports and Inland Container Depots (ICDs) for cargo transport, including authorized custom clearing and forwarding agents.



- v. Operations of Land Ports for cross land border transportation of essential goods, including petroleum products and LPG, food products, medical supplies.
- vi. Movement of all trucks and other goods/ carrier vehicles with two drivers and one helper subject to the driver carrying a valid driving license; an empty truck/ vehicle will be allowed to ply after the delivery of goods, or for pick up of goods.
- vii. Shops for truck repairs and dhabas on highways, with a stipulated minimum distance as prescribed by the State/ UT authorities.
- viii. Movement of staff and contractual labour for operations of railways, airports/ air carriers, seaports/ ships/ vessels, landports and ICDs is allowed on passes being issued by the local authority on the basis of authorizations issued by the respective designated authority of the railways, airports, seaports, landports and ICDs.

13. Supply of essential goods is allowed, as under:

- i. All facilities in the supply chain of essential goods, whether involved in manufacturing, wholesale or retail of such goods through local stores, large brick and mortar stores or e-Commerce companies should be allowed to operate, ensuring strict social distancing without any restriction on their timing of opening and closure.
- ii. Shops (including *Kirana* and single shops selling essential goods) and carts, including ration shops (under PDS), dealing with food and groceries (**for daily use**), hygiene items, fruits and vegetables, dairy and milk booths, poultry, meat and fish, animal feed and fodder etc, should be allowed to operate, ensuring strict social distancing without any restriction on their timing of opening and closure.
- iii. District authorities may encourage and facilitate home delivery to minimize the movement of individuals outside their homes.

14. Commercial and private establishments, as listed below, will be allowed to operate:

- i. Print and electronic media including broadcasting, DTH and cable services.
- ii. IT and IT enabled Services, with upto 50% strength.
- iii. Data and call centres for Government activities only.
- iv. Government approved Common Service Centres (CSCs) at Gram Panchayat level.
- v. E-commerce companies. Vehicles used by e-commerce operators will be allowed to ply with necessary permissions.
- vi. Courier services.
- vii. Cold storage and warehousing services, including at ports, airports, railway stations, container Depots, individual units and other links in the logistics chain.
- viii. Private security services and facilities management services for maintenance and upkeep of office and residential complexes.



- ix. Hotels, homestays, lodges and motels, which are accommodating tourists and persons stranded due to lockdown, medical and emergency staff, air and sea crew.
 - x. Establishments used/ earmarked for quarantine facilities.
 - xi. Services provided by self-employed persons, e.g., electrician, IT repairs, plumbers, motor mechanics, and carpenters.
- 15. Industries/ Industrial Establishments (both Government and private), as listed below, will be allowed to operate:**
- i. Industries operating in rural areas, i.e., outside the limits of municipal corporations and municipalities.
 - ii. Manufacturing and other industrial establishments with access control in Special Economic Zones (SEZs) and Export Oriented Units (EoUs), industrial estates, and industrial townships. These establishments shall make arrangements for stay of workers within their premises as far as possible and/ or adjacent buildings and for implementation of the Standard operating protocol (SOP) as referred to in para 21 (ii) below. The transportation of workers to work place shall be arranged by the employers in dedicated transport by ensuring social distancing.
 - iii. Manufacturing units of essential goods, including drugs, pharmaceuticals, medical devices, their raw material and intermediates.
 - iv. Food processing industries in rural areas, i.e., outside the limits of municipal corporations and municipalities.
 - v. Production units, which require continuous process, and their supply chain.
 - vi. Manufacturing of IT hardware.
 - vii. Coal production, mines and mineral production, their transportation, supply of explosives and activities incidental to mining operations.
 - viii. Manufacturing units of packaging material.
 - ix. Jute industries with staggered shifts and social distancing.
 - x. Oil and gas exploration/ refinery.
 - xi. Brick kilns in rural areas i.e., outside the limits of municipal corporations and municipalities.
- 16. Construction activities, listed as below, will be allowed to operate:**
- i. Construction of roads, irrigation projects, buildings and all kinds of industrial projects, including MSMEs, in rural areas, i.e., outside the limits of municipal corporations and municipalities; and all kinds of projects in industrial estates.
 - ii. Construction of renewable energy projects.
 - iii. Continuation of works in construction projects, within the limits of municipal corporations and municipalities, where workers are available on site and no workers are required to be brought in from outside (in situ construction).
- 17. Movement of persons is allowed in the following cases:**
- i. Private vehicles for emergency services, including medical and veterinary care, and for procuring essential commodities. In such cases, one passenger besides the private vehicle driver can be permitted in the backseat, in case of



four-wheelers; however, in case of two-wheelers, only the driver of the vehicle is to be permitted.

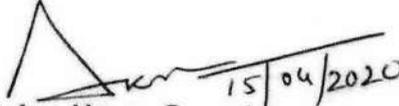
- ii. All personnel travelling to place of work and back in the exempted categories, as per the instructions of the State/ UT local authority.
- 18. Offices of the Government of India, its Autonomous/ Subordinate Offices will remain open, as mentioned below:**
- i. Defence, Central Armed Police Forces, Health and Family Welfare, Disaster management and Early Warning Agencies (IMD, INCOIS, SASE and National Centre of Seismology, CWC), National Informatics Centre (NIC), Food Corporation of India (FCI), NCC, Nehru Yuva Kendras (NYKs) and Customs to function without any restriction.
 - ii. Other Ministries and Departments, and offices under their control, are to function with 100% attendance of Deputy Secretary and levels above that. Remaining officers and staff to attend upto 33% as per requirement.
- 19. Offices of the State/ Union Territory Governments, their Autonomous Bodies and Local Governments will remain open, as mentioned below:**
- i. Police, home guards, civil defence, fire and emergency services, disaster management, prisons and municipal services will function without any restrictions.
 - ii. All other Departments of State/ UT Governments to work with restricted staff. Group 'A' and 'B' officers may attend as required. Group 'C' and levels below that may attend upto 33% of strength, as per requirement to ensure social distancing. However, delivery of public services shall be ensured, and necessary staff will be deployed for such purpose.
 - iii. District administration and Treasury (including field offices of the Accountant General) will function with restricted staff. However, delivery of public services shall be ensured, and necessary staff will be deployed for such purpose.
 - iv. Resident Commissioner of States/ UTs, in New Delhi, only to the extent of coordinating COVID-19 related activities and internal kitchen operations.
 - v. Forest offices: staff/ workers required to operate and maintain zoo, nurseries, wildlife, fire-fighting in forests, watering plantations, patrolling and their necessary transport movement.
- 20. Persons to remain under mandatory quarantine, as under:**
- i. All such persons who have been directed by health care personnel to remain under strict home/ institutional quarantine for a period as decided by local Health Authorities.
 - ii. Persons violating quarantine will be liable to legal action under Section 188 of the IPC, 1860.
 - iii. Quarantined persons, who have arrived in India after 15.2.2020, after expiry of their quarantine period and being tested Covid-19 negative, will be released following the protocol prescribed in the SOP issued by MHA.
- 21. Instructions for enforcement of above lockdown measures:**
- i. All the district magistrates shall strictly enforce the National COVID 19 directives as specified in **Annexure I**. Penalties prescribed shall be levied and collected from all persons and entities violating these directives.



- ii. All industrial and commercial establishments, work places, offices etc. shall put in place arrangements for implementation of SOP as in **Annexure II** before starting their functioning.
- iii. In order to implement these containment measures, the District Magistrate will deploy Executive Magistrates as Incident Commanders in the respective local jurisdictions. The Incident Commander will be responsible for the overall implementation of these measures in their respective jurisdictions. All other line department officials in the specified area will work under the directions of such incident commander. The Incident Commander will issue passes for enabling essential movements as explained.
- iv. The Incident Commanders will in particular ensure that all efforts for mobilization of resources, workers and material for augmentation and expansion of hospital infrastructure shall continue without any hindrance.
- v. **Additional activities permitted in these guidelines shall be implemented in a phased manner, after making all arrangements necessary for strict implementation of the guidelines. These will come into force with effect from 20th April, 2020.**

22. Penal provisions

Any person violating these lockdown measures will be liable to be proceeded against as per the provisions of Section 51 to 60 of the Disaster Management Act, 2005, besides legal action under Sec. 188 of the IPC, and other legal provisions as applicable. Extracts of these penal provisions are at **Annexure III**.


15/04/2020
Union Home Secretary

National Directives for COVID-19 Management

The National Directives shall be enforced by the District Magistrate through fines and penal action as prescribed in the Disaster Management Act 2005.

PUBLIC SPACES

1. Wearing of face cover is compulsory in all public places, work places.
2. All persons in charge of public places, work places and transport shall ensure social distancing as per the guidelines issued by Ministry of Health and Family Welfare.
3. No organization /manager of public place shall allow gathering of 5 or more persons
4. Gatherings such as marriages and funerals shall remain regulated by the District Magistrate.
5. Spitting in public spaces shall be punishable with fine.
6. There should be strict ban on sale of liquor, gutka, tobacco etc. and spitting should be strictly prohibited.

WORK SPACES

7. All work places shall have adequate arrangements for temperature screening and provide sanitizers at convenient places.
8. Work places shall have a gap of one hour between shifts and will stagger the lunch breaks of staff, to ensure social distancing.
9. Persons above 65 years of age and persons with co-morbidities and parents of children below the age of 5 may be encouraged to work from home.
10. Use of Arogya setu will be encouraged for all employees both private and public.
11. All organizations shall sanitize their work places between shifts.
12. Large meetings to be prohibited.

MANUFACTURING ESTABLISHMENTS

13. Frequent cleaning of common surfaces and mandatory hand washing shall be mandated.
14. No overlap of shifts and staggered lunch with social distancing in canteens shall be ensured.
15. Intensive communication and training on good hygiene practices shall be taken up.



Annexure II

Standard Operating Procedure for Social Distancing for Offices, Workplace, Factories and Establishments

The following measures shall be implemented by all offices, factories and other establishments:

1. All areas in the premises including the following shall be disinfected completely using user friendly disinfectant mediums:
 - a. Entrance Gate of building, office etc.
 - b. Cafeteria and canteens.
 - c. Meeting room, Conference halls/ open areas available/ verandah/ entrance gate of site, bunkers, porta cabins, building etc.
 - d. Equipment and lifts.
 - e. Washroom, toilet, sink; water points etc.
 - f. Walls/ all other surfaces
2. For workers coming from outside, special transportation facility will be arranged without any dependency on the public transport system. These vehicles should be allowed to work only with 30-40% passenger capacity.
3. All vehicles and machinery entering the premise should be disinfected by spray mandatorily.
4. Mandatory thermal scanning of everyone entering and exiting the work place to be done.
5. Medical insurance for the workers to be made mandatory.
6. Provision for hand wash & sanitizer preferably with touch free mechanism will be made at all entry and exit points and common areas. Sufficient quantities of all the items should be available.
7. Work places shall have a gap of one hour between shifts and will stagger the lunch breaks of staff, to ensure social distancing.
8. Large gatherings or meetings of 10 or more people to be discouraged. Seating at least 6 feet away from others on job sites and in gatherings, meetings and training sessions.
9. Not more than 2/4 persons (depending on size) will be allowed to travel in lifts or hoists.
10. Use of staircase for climbing should be encouraged.
11. There should be strict ban of gutka, tobacco etc. and spitting should be strictly prohibited.
12. There should be total ban on non-essential visitors at sites.
13. Hospitals/clinics in the nearby areas, which are authorized to treat COVID-19 patients, should be identified and list should be available at work place all the times.



Offences and Penalties for Violation of Lockdown Measures

A. Section 51 to 60 of the Disaster Management Act, 2005

51. Punishment for obstruction, etc.—Whoever, without reasonable cause —

(a) obstructs any officer or employee of the Central Government or the State Government, or a person authorised by the National Authority or State Authority or District Authority in the discharge of his functions under this Act; or

(b) refuses to comply with any direction given by or on behalf of the Central Government or the State Government or the National Executive Committee or the State Executive Committee or the District Authority under this Act,

shall on conviction be punishable with imprisonment for a term which may extend to one year or with fine, or with both, and if such obstruction or refusal to comply with directions results in loss of lives or imminent danger thereof, shall on conviction be punishable with imprisonment for a term which may extend to two years.

52. Punishment for false claim.—Whoever knowingly makes a claim which he knows or has reason to believe to be false for obtaining any relief, assistance, repair, reconstruction or other benefits consequent to disaster from any officer of the Central Government, the State Government, the National Authority, the State Authority or the District Authority, shall, on conviction be punishable with imprisonment for a term which may extend to two years, and also with fine.

53. Punishment for misappropriation of money or materials, etc.—Whoever, being entrusted with any money or materials, or otherwise being, in custody of, or dominion over, any money or goods, meant for providing relief in any threatening disaster situation or disaster, misappropriates or appropriates for his own use or disposes of such money or materials or any part thereof or wilfully compels any other person so to do, shall on conviction be punishable with imprisonment for a term which may extend to two years, and also with fine.

54. Punishment for false warning.—Whoever makes or circulates a false alarm or warning as to disaster or its severity or magnitude, leading to panic, shall on conviction, be punishable with imprisonment which may extend to one year or with fine.

55. Offences by Departments of the Government.—(1) Where an offence under this Act has been committed by any Department of the Government, the head of the Department shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly unless he proves that the offence was committed without his knowledge or that he exercised all due diligence to prevent the commission of such offence.



(2) Notwithstanding anything contained in sub-section (1), where an offence under this Act has been committed by a Department of the Government and it is proved that the offence has been committed with the consent or connivance of, or is attributable to any neglect on the part of, any officer, other than the head of the Department, such officer shall be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly.

56. Failure of officer in duty or his connivance at the contravention of the provisions of this Act.—Any officer, on whom any duty has been imposed by or under this Act and who ceases or refuses to perform or withdraws himself from the duties of his office shall, unless he has obtained the express written permission of his official superior or has other lawful excuse for so doing, be punishable with imprisonment for a term which may extend to one year or with fine.

57. Penalty for contravention of any order regarding requisitioning.—If any person contravenes any order made under section 65, he shall be punishable with imprisonment for a term which may extend to one year or with fine or with both.

58. Offence by companies.—(1) Where an offence under this Act has been committed by a company or body corporate, every person who at the time the offence was committed, was in charge of, and was responsible to, the company, for the conduct of the business of the company, as well as the company, shall be deemed to be guilty of the contravention and shall be liable to be proceeded against and punished accordingly: Provided that nothing in this sub-section shall render any such person liable to any punishment provided in this Act, if he proves that the offence was committed without his knowledge or that he exercised due diligence to prevent the commission of such offence. (2) Notwithstanding anything contained in sub-section (1), where an offence under this Act has been committed by a company, and it is proved that the offence was committed with the consent or connivance of or is attributable to any neglect on the part of any director, manager, secretary or other officer of the company, such director, manager, secretary or other officer shall also, be deemed to be guilty of that offence and shall be liable to be proceeded against and punished accordingly.

Explanation.—For the purpose of this section— (a) "company" means any body corporate and includes a firm or other association of individuals; and (b) "director", in relation to a firm, means a partner in the firm.

59. Previous sanction for prosecution.—No prosecution for offences punishable under sections 55 and 56 shall be instituted except with the previous sanction of the Central Government or the State Government, as the case may be, or of any officer authorised in this behalf, by general or special order, by such Government.

60. Cognizance of offences.—No court shall take cognizance of an offence under this Act except on a complaint made by— (a) the National Authority, the State Authority, the Central Government, the State Government, the District Authority or any other authority or officer authorised in this behalf by that Authority or Government, as the case may be; or (b) any person who has given notice of not less than thirty days in the manner prescribed, of the alleged offence and his intention to make a complaint to the National Authority, the State Authority, the Central Government, the State Government, the District Authority or any other authority or officer authorised as aforesaid.



B. Section 188 in the Indian Penal Code, 1860

188. Disobedience to order duly promulgated by public servant.—Whoever, knowing that, by an order promulgated by a public servant lawfully empowered to promulgate such order, he is directed to abstain from a certain act, or to take certain order with certain property in his possession or under his management, disobeys such direction, shall, if such disobedience causes or tends to cause obstruction, annoyance or injury, or risk of obstruction, annoyance or injury, to any person lawfully employed, be punished with simple imprisonment for a term which may extend to one month or with fine which may extend to two hundred rupees, or with both; and if such disobedience causes or tends to cause danger to human life, health or safety, or causes or tends to cause a riot or affray, shall be punished with imprisonment of either description for a term which may extend to six months, or with fine which may extend to one thousand rupees, or with both.

Explanation.—It is not necessary that the offender should intend to produce harm, or contemplate his disobedience as likely to produce harm. It is sufficient that he knows of the order which he disobeys, and that his disobedience produces, or is likely to produce, harm.

Illustration

An order is promulgated by a public servant lawfully empowered to promulgate such order, directing that a religious procession shall not pass down a certain street. A knowingly disobeys the order, and thereby causes danger of riot. A has committed the offence defined in this section.



SPEED POST

B-29012/IPCI-VI/2019-20

July 02nd, 2019

To

3657-60
**The Chairman
Delhi, UP, Rajasthan, Haryana SPCB/PCC**

SUB: DIRECTIONS UNDER SECTION 18(1)(b) OF THE AIR (PREVENTION & CONTROL OF POLLUTION) ACT, 1981 IN THE MATTER OF CONVERSION OF UNITS IN NCR DELHI INTO PNG AS FUEL-REG.

WHEREAS, under Section 17 of the Air (Prevention & Control of Pollution) Act, 1981, one of the function of the State Pollution Control Boards (SPCBs)/Pollution Control Committees (PCCs) is to plan a comprehensive programme for the prevention, control or abatement of air pollution in the State/Union territory and to secure the execution thereof; and

WHEREAS, under Section 16 of the Air (Prevention & Control of Pollution) Act, 1981, one of the functions of the Central Pollution Control Board (CPCB), constituted under Water (Prevention and Control of Pollution) Act, 1974 is to coordinate activities of the State Pollution Control Boards and Pollution Control Committees and to provide technical assistance and guidance to SPCBs / PCCs; and

WHEREAS, the SPCBs and PCCs are empowered to stipulate standards for discharge of environmental pollutants for various categories of industries even more stringent than those notified by the Central Government, under the Environmental (Protection) Act, 1986 and rules framed there under; and

WHEREAS, industries located in 23 Districts of UP, Haryana, Rajasthan and Delhi have been discharging environmental pollutants directly or indirectly into the ambient air, which pose constant threat to cause adverse effect on the air quality in Delhi and National Capital Region; and

WHEREAS, Hon'ble National Green Tribunal vide its order dated December 18, 2017 in the matter of O.A.No.21/2014, Vardhaman Kaushik Vs. Union of India, noted

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that "This statistics clearly shows that all the time, the ambient air quality of NCT of Delhi is polluted and for most of the period of the month it is severe and above. This is the quality of air that we are providing to the people living in NCR-Delhi and NCT of Delhi. It is clear violation of their fundamental rights". The Hon'ble Court also noted that Industrial and Thermal Power House emissions including fly ash is one of the seven major contributors of air pollution; and

WHEREAS, the matter has also come up to the discussion in a meeting of the task force constituted at PMO to review air quality of NCR Delhi and to suggest action points, wherein, it was felt that effective measures to check air pollution including control of air emissions from industries and their regular monitoring through online systems (for red category-air polluting) in NCR Delhi should be ensured; and

WHEREAS, during the meeting of the task Force held on 18.12.2018, it was decided that all industries in NCR Delhi wherever gas supply is available must shift to PNG by 31st March, 2019. However, the target date was further extended to 30.04.2019 in the meeting held on 04.04.2019;

WHEREAS, CPCB has conducted review meetings with SPCBs/PCC of NCR Delhi on, 07.01.2019 and 15.05.2019 to review the status of conversion of industries into PNG as fuel in NCR Delhi (wherever gas supply is available); and

WHEREAS, CPCB through letter dated 22.02.2019, 02.04.2019, 23.04.2019 and 31.05.2019 asked SPCBs/PCC of NCR Delhi to submit the status of conversion of industries into PNG as fuel in NCR Delhi (wherever gas supply is available); and

WHEREAS, based on the status of conversion of industries into PNG submitted by the SPCBs/PCC of NCR Delhi, it is observed that in spite of availability of PNG supply in the area, still a large number of industries have not switched their operations on PNG; and

Now therefore, in a view of the above and in exercise of the powers conferred under section 18(1)(b) of Air (Prevention and Control of Pollution) Act, 1981, you are

hereby directed to issue closure directions to all such industrial units in NCR Delhi, where PNG supply is available and industry has not shifted to PNG.

Actions taken report shall be submitted to CPCB within 15 days from the receipt of these directions in the enclosed format. In case, action taken report is not provided correctly within time, CPCB shall be completed to prosecute the SPCB/PCC.

(S P Singh Parihar)
Chairman

Copy to:

1. The Joint Secretary (CP Division)
Ministry of Environment, Forests
And Climate Change
Indira Paryavaran Bhawan
Aliganj, Jor Bagh Road,
New Delhi - 110 003
2. The Regional Director
Central Pollution Control Board
PICUP Bhawan, Vibhuti Khand
Gomti Nagar, Lucknow
Uttar Pradesh
3. The Regional Director
Central Pollution Control Board
3rd Floor, Sahkar Bhawan,
North TT Nagar, Bhopal-462003
Madhya Pradesh

4. DH, AQM, CPCB

✓ 5. DH, IT, CPCB :

With the request to upload the direction on
CPCB web site

(B. Vinod Babu)
I/c Member Secretary

PR

Format for submission of Action Taken Report

Status of conversion of industries into PNG as fuel in NCR (Wherever gas supply is available)

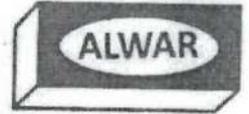
S. No.	Industrial Area	District	Regional Office	Availability of PNG Supply in the industrial area (Yes/No)	If Yes, then the status of industrie shifting to PNG			
					Total No. of industries (irrespective of fuel)	No. of industries converted into PNG	No. of industries in the process of conversion into PNG	No. of industries to whom closure directions are issued for not converting into PNG
TOTAL								

President
MANOHARLAL ROGHA
Mobile : 9413685247

Secretary
ANIL AGARWAL
Mobile : 9414017018

ALWAR

DISTRICT BRICK MANUFACTURER'S ASSOCIATION
RAMGARH, ALWAR (RAJ.) 301001



Ref. No.

Dated

Date: June 11, 2020

To,
Chairman
Central Pollution Control Board
Parivesh Bhawan, CBD-CUM Office Complex,
East Arjun Nagar, Delhi – 110032

Reference:- Original Application No. 1016 of 2019 titled Utkarsh Panwar vs
CPCB & Ors before the Hon'ble National Green Tribunal, Principal
Bench, New Delhi

Subject : Representation pursuant to the order dated 17.03.2020 (uploaded on
23.03.2020 in Original Application No. 1016 of 2019 titled Utkarsh
Panwar vs CPCB & Ors before the Hon'ble National Green Tribunal,
Principal Bench, New Delhi

Respected Sir,

This representation is on behalf of Alwar District Brick Manufacturer
Association (hereinafter Association) in pursuance to the order dated 17.03.2020
(uploaded on 23.03.2020) in Original Application No. 1016 of 2019 titled
Utkarsh Panwar vs CPCB & Ors before the Hon'ble National Green Tribunal,

Principal Bench, New Delhi representing eighty numbers of the brick kilns owners of District Alwar in Rajasthan operating on the latest Zig-Zag technology operating within the prescribed emissions standards under the Environment Protection Rules, 1986 and have requisite consents under the Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 from the Rajasthan Pollution Control Board. Although district Alwar comes under the area of National Capital Region (NCR) however the distance of Alwar is more than 200 kms from Delhi. Further due to the close proximity of Taj Trapezium Zone (TTZ) and Keoladeo National Park from Bharatpur no large-scale industries are established in Alwar district and only small-scale industries such as Brick Kilns exist in this area.

On 13.11.2019 one Mr. Utkarsh Panwar filed Original Application No. 1016 of 2019 before the NGT raising the issue of air pollution in Delhi & NCR due to operation of brick kilns. The applicant prayed for immediate closure of all the brick kilns units in the National Capital Region during winter months i.e. till end of February or till the level of pollution reaches normal level. That the NGT vide order dated 15.11.2019 issued direction to the effect that all brick kilns in NCR shall be closed till a scientific study/report is submitted by CPCB or the situation improves.

The NGT also passed subsequent orders and lastly on 17.03.2020 (uploaded on 23.03.2020) held that the main reason for air pollution by brick kilns is use of coal etc. as fuel. The pollution can be minimized if the fuel which is currently used

is considered to be replaced by cleaner fuels like PNG by appropriate modification in design not adding to the PM load.

The NGT observed that issue of allowing operation of brick kilns may give rise to following questions:

- (i) The use of cleaner fuels or any other alternative measures to be used to prevent air pollution.
- (ii) Siting and carrying capacity.

And in view of the fact that there is no carrying capacity of the air quality in NCR region to permit any further addition to PM load by permitting unconditional operation of brick kilns using fuel which adds to PM load and since it may be necessary to consider the issue of utilizing fly ash, the NGT directed for an expert opinion on following issues:

- (a) how brick kilns can be allowed in NCR without damage to the air quality;
- (b) conditions subject to which it may be done;
- (c) number of brick kilns to be allowed and criteria for fixing such numbers.

The NGT directed the CPCB to file a report on the above issues and then list the matter on 28.04.2020 and granted liberty to the applicant Association who has filed Impleadment Application in the case to give points to the CPCB.

In light of the above, the Association wishes to submit the following points
consideration of the CPCB: -

1. At the outset it is submitted that brick kilns of Alwar in compliance of directions of the CPCB dated 29.12.2015 and 27.06.2017 and have shifted from the old Fixed Chimney Bull's Trench Kiln technology to the latest Zig-Zag environment friendly technology, which is the best available technology.
2. That as per the CPCB report dated 22.01.2020 in O.A. No. 1088 of 2018 titled Dinesh Chahal vs UOI & Ors., Brick Kilns of Zig - Zag technology are meeting the present particulate matter standard of 750 mg/Nm^3 as well proposed draft standard of 250 mg/Nm^3 under the Environment Protection Rules, 1986. The relevant para of the report dated 22.01.2020 is annexed as **Annexure A/1**.
3. That the Brick Kilns of District Alwar are established as per the siting criteria of the Rajasthan Pollution Control Board mentioned in the Guidelines for Abatement of Pollution in Brick Kiln Industry, which may be examined/verified on a case to case basis.
4. It is pertinent to mention that the Automotive Research Association of India and the Energy and Resources Institute (TERI) in August, 2018 published a report titled 'Final Report 'Source Apportionment of PM_{2.5} & PM₁₀ of Delhi NCR for Identification of Major Sources' for Department of Heavy Industry, Ministry of Heavy Industries and Public Enterprises, Government of India. This reveals that in the year 2016 the Brick Kilns industry

contributed only about 8% to the air pollution of Delhi & NCR. It was further found in the report that the brick kilns shifting to Zig-Zag technology would further lead to reduction of 3 %, 4%, and 6% in total PM2.5, PM10, and SO2 emissions. On the other hand, it has been stated that the Transport Sector contributed 28% and Dust contributed 17 % to the air pollution of Delhi & NCR and hence the contribution of the brick kilns in Delhi & NCR air pollution is very less especially after conversion to zig-zag technology. The relevant excerpts of the study are annexed as **Annexure A/2**.

5. That the Hon'ble Supreme Court in Writ Petition (C) No. 13029 of 1985 while hearing the issue of rising air pollution in Delhi & NCR vide order dated 10.11.2016 directed the CPCB to evolve a definitive plan of action that would make its response to different levels of pollution predicted. Further, a draft Graded Response Action Plan was submitted on 02.12.2016 and the final notification on the said GRAP was issued in a Gazette dated 12.01.2017. The said Graded Action Plan provides different category of pollution and actions required during different level of pollution.

Thus in the context of brick kilns, it is stated that under Category 'Moderated to Poor' (PM 2.5 >61 ug/m3 and < 120 ug/m3 or PM 10 >101 ug/m3 and < 350 ug/m3) – it is established to enforce all pollution control regulations in Brick Kilns.

Further, under *Category 'Severe' (PM 10 > 430 ug/m3 or PM 2.5 > 250 ug/m3) (emphasis supplied)* Brick Kilns are required to be closed.

6. It is important to emphasize that the EPCA constituted by the Hon'ble Supreme Court submitted the Report No. 71 dated 05.04.2017 titled 'Comprehensive Action Plan for air pollution with the objective to meet ambient air quality standards in the NCR, including States of Haryana, Rajasthan and Uttar Pradesh'. In the said report's action points, it was mentioned to convert all Fixed Chimney Bull Trench brick kilns to Zig-Zag technology and from natural draft kilns to induced draft kilns (zig zag technology). As mentioned above, all the brick kilns of the Alwar district have been converted into zig-zag technology.
7. In October 2019 when the air pollution of Delhi & NCR increased, the EPCA vide order dated 09.10.2019 specifically directed the Chief Secretary, State of Rajasthan to allow the operation of Zig-Zag technology brick kilns while directing stoppage of construction work and operation of other polluting industries. It is pertinent to mention that brick kilns of Zig-Zag technology were allowed due to the reason that it is less polluting and contribution to entire air pollution of Delhi & NCR is marginal and on 14.02.2020 EPCA vide order dated 14.02.2020 has again directed the Chief Secretary, State of Rajasthan to allow the operation of brick kilns running on Zig-Zag technology.
8. The Hon'ble Supreme Court of India in Civil Appeal No. 1742-43 of 2020 (Diary No. 5935/2020). vide order dated 20.02.2020 requested this Hon'ble Tribunal to decide the O.A. No. 1016 of 2019 in light of the provision of the

Graded Action Plan of MoEF& CC and EPCA order dated 14.02.2020. The copy of the order dated 20.02.2020 is marked and appended as **Annexure A/3**

9. It is important to point out that the Hon'ble NGT in a case titled 'New Haryana Bricks and Tile Kiln, Owners Association vs EPCA &Ors' (O.A. No. 893 of 2018) dated 19.11.2018, Shailesh Singh vs EPCA &Ors (O.A. No. 47 of 2018) dated 17.12.2018 and Anil Kumar vs UOI (O.A. No. 718 of 2017) dated 22.01.2019 directed the CPCB as well as the SPCB to ensure shifting of brick kilns from Natural draft to Zig -Zag technology. Furthermore, the Hon'ble High Court of Patna in W.P (C) No. 15962 of 2018 has also directed vide Order dated 04.12.2018 that only brick kilns of cleaner technology (zig-zag) will be allowed from the new season.
10. The Centre for Science and Environment in their studies titled '*Emissions Monitoring of Brick Kilns ZIG ZAG vs FCBTK*' and '*MAKEOVER: Conversion of brick kilns in Delhi-NCR to a cleaner technology*' stated that shifting to Zig-Zag technology will reduce pollution. The relevant excerpts of the report is marked and appended as **ANNEXURE A/4**
11. From the above submissions it is evident that the Brick Kilns of the zig-zag technology are less polluting and accepted as Best Available Technology in the brick industry. Further, the Brick Kilns are adhering to the standards of 750 mg/Nm³ as well as the proposed stricter draft standards of 250 mg/Nm³ under the Environment Protection Rules, 1986.

12. It is beyond doubt that brick kilns use coal as a fuel, but they are meeting the prescribed standards under the existing law and only contributing to about 3 % to the total air pollution of the Delhi & NCR as per the latest authoritative studies.

13. Furthermore, Ambient Air Quality of Alwar is totally within norms since last week of November 2019. The levels of PM2.5, PM10, NO, NO2, NOx, NH3, SO2, CO, Ozone, Benzene, Toluene, Temp, WS, WD, SR, BP, RF obtained through the CPCB online portal of the Monitoring Station at Moti Doongri, Alwar demonstrates that the pollution level in Alwar has remained within safe limits and brick kilns can operate not only as per the Graded Action Response Plan, but also as per the AAQ parameters in the area.

14. The NGT in its order dated 17.03.2020 observed that brick kilns may shift to cleaner fuels like PNG. At the outset it is humbly submitted that PNG, CNG as well as industrial LPG connections are not available in the majority of places as brick kilns are scattered in various places in rural areas. Moreover, to shift to another fuel will require design changes among other things which have huge financial implications and the brick kilns are already overburdened from the cost incurred to change from FCBTK to Zig-Zag technology as directed by CPCB as well as the EPCA NGT. Further, the CPCB itself vide direction dated 02.07.2019 stated that industries for non-conversion to PNG will only be closed where PNG connections are

available. The copy of the CPCB direction dated 02.07.2019 is annexed as

Annexure A/5

15. That the Brick Kilns industries do not have any harmful impact on the top soil. Most Brick Kilns use lands which are undulating and therefore the soil is removed while land leveling. In fact huge amount of land which are saline are also used by Brick Kiln industries and after the removal of salinity the same land has been rendered fertile and agricultural worthy. Most farmers have not complained regarding soil fertility or adverse impact of Brick Kilns on their farmlands. In fact the top soil over the year has lost its natural fertility and quality due extensive use of chemical fertilizers. The Brick Kilns has also removed such contaminated soil impacted by pesticides and chemical fertilizers and regained the fertility of the soil. Be that as it may, this Tribunal may direct a comprehensive study to ascertain the impact of Brick Kilns on soil fertility in the NCR Region so that this contested issue of Brick Kilns' impact on top soil is resolved for perpetuity.

16. The blanket ban of operation of brick kilns industries has affected livelihood rights of approximately one million people in the National Capital Region. Furthermore, brick kilns Industries are season-based industries and hence only operate from January to June and indefinite closure for want of study would cause and has already caused irreparable damages to the brick kilns industry without any fault or violation of any environmental norms or prescribed standards.

17. It is common sensical to submit that for conducting any carrying capacity study, the said brick kilns are required to be in operation. That presently the brick kilns of the association are closed even without inspection.

18. As regards the compliance of fly ash notification it submitted that the Hon'ble Allahabad High Court vide order dated 07.10.2010 in Civil Misc. Writ Petition No. 61702 of 2010 held that clay brick kilns are exempted from purview of fly ash notification, 1999. That the Fly ash notification was subsequently amended on 27.08.2003 and 25.01.2016. Further the draft Fly ash Notification on the subject is yet to be finalized. In any case, such amendments as and when finalized would be prospective unless stated otherwise.

19. As regards to utilization of fly ash in brick kilns it is humbly submitted that unless the harmful impacts of fly ash bricks are not studied, and its longevity is not examined it may not be treated as a true alternative. If its longevity had been proved, then by this time most fly ash would have been utilized by entrepreneurs. The longevity of red bricks cannot be undermined as it is borne out by structures which have withstood weather impacts for over centuries and civilizations.

20. That most significantly, the Ministry of Home Affairs (MHA) imposed the lockdown in four phases i.e. 24.03.2020 to 15.04.2020, 16.04.2020 to 17.05.2020 and 18.05.2020 to 31.05.2020. That during the lockdown MHA allowed certain activities to ensure essential services and employment of

migrant labourers, That the MHA allowed agricultural activities (Farming & Harvesting) vide order dated 27.03.2020 [Clause C], allowed Brick Kilns outside municipal limits vide order dated 15.04.2020 [Clause 15 (xi)] and allowed Construction activities vide order dated 01.05.2020 [Clause 7 (ii) (c)] and industrial activities among others during Lockdown phase 4 i.e 17th May 2020 to 31st May 2020. That to ascertain the real impact on ambient air quality and source apportionment, the CPCB must look the ambient air quality data in these four phases so that the actual connect with contributors to pollution may be assessed. In particular, the period between 15th April 2020 and 4th May 2020 may specifically be looked into in order to ascertain the real impact of operating Brick Kilns on air quality, in these emergency situations as per the Order of MHA. This will perhaps be the best benchmark for contributory pollution of brick kilns on air quality.

21. That as stated above Ministry of Home Affairs has passed its order dated 15.04.2020 under Section 10(2)(i) of the Disaster Management Act 2006 to address the hardship being faced by the migrant workers due to lockdown imposed, causing impediments for their survival and livelihood. Under the said order the Ministry has accordingly passed various directions, including the following:

"3. Select permitted activities allowed with effect from 20.04.2020:

i. To mitigate hardship to the public, select additional activities have been allowed which will come into effect from 20th April, 2020. These limited exemptions will be operationalized by the State/UTs/ district administrations based on strict compliance to the existing guidelines. Also, before allowing

these select additional activities, States/ UTs/ district administrations shall ensure that all preparatory arrangements with regard to the Standard Operating Procedures (SOPs) for social distancing in offices, workplaces, factories and establishments, as also other sectoral requirements are in place.

ii. The consolidated revised guidelines incorporating these select permitted activities have been enumerated in paras 5-20 below.

4.....

5.....

6....

15. Industries/ Industrial Establishments (both Government and private), as listed below, will be allowed to operate:

i.....

ii.....

xi. Brick kilns in rural areas i.e., outside the limits of municipal corporations and municipalities." (emphasis provided)

That the above direction of allowing the brick kilns by the Ministry of Home Affairs was passed also to restrict the movement of the migrant labour and contain the spread of COVID-19. That non-operational of brick kilns will result in forced migration of the labour. The said order dated 15.04.2020 of the Ministry of Home Affairs is annexed as ANNEXURE A/6.

In the light of the above submission it is prayed before you, that the brick kilns which have converted into zig-zag technology may be ordered to continue to operate in view of the Order of the MHA as stated above and till alternative better and proven technology is put in place.

For Alwar District Brick Manufacturer's
Association


President/Secretary

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July 3, 2020.

To

THE CHAIRMAN
CENTRAL POLLUTION CONTROL BOARD
PARIVESH BHAWAN, EAST ARJUN NAGAR
NEW DELHI - 110032.

SUBJECT : REPRESENTATION ON BEHALF OF ALL INDIA BRICK & TILE MANUFACTURER FEDERATION IN PURSUANCE OF THE ORDER DATED 23.03.2020 PASSED BY THE HON'BLE NGT IN O.A. No. 1016/2019.

Dear Sir,

All India Brick & Tile Manufacturer Federation represents the clay brick manufacturers of all over India.

We are writing to you in pursuance of the Order dated 23.03.2020 passed by the Hon'ble NGT in O.A. No. 1016/2019 titled 'Utkarsh Panwar v. Cenral Pollution Control Board & Ors', which granted liberty to us to put forth our view point on the following issues before CPCB :

- (i) The use of cleaner fuels or any other alternative measures to be used to prevent air pollution.
- (ii) Siting and carrying capacity.

In addition to the aforesaid issues, the Hon'ble NGT also sought your expert opinion on utilizing flyash and the following issues:

- (a) How brick kilns can be allowed in NCR without damage to the air quality;
- (b) Conditions subject to which it may be done;

- (c) Number of brick kilns to be allowed and criteria for fixing such numbers.

Even on the aforesaid issues, the Hon'ble NGT has allowed us to put forth our view point before CPCB.

In view of the above, we hereby submit the present representation as follows:

1. THE USE OF CLEANER FUELS OR ANY OTHER ALTERNATIVE MEASURES TO BE USED TO PREVENT AIR POLLUTION.

- 1.1. In its order dated 23/03/2020, The Hon'ble NGT sought the advise of CPCB on the advisability of using PNG or non-coal gasifiers as fuel in Zig-Zag brick kilns. In this respect it is submitted that the use of PNG or other similar fuels in the brick making process is unknown and unprecedented in this country. Any such use of PNG will require the development of an absolutely new technology and will render the entirety of the brick-making infrastructure redundant.
- 1.2. This proposal is not like the earlier proposals for adoption of zig-zag technology from FCBTK technology. That change was possible through modifications of existing brick-kilns. However, the proposal for use of PNG cannot be implemented by changing existing infrastructure. In addition to the development of new technology, it will require the setting up of a completely new infrastructure as well.
- 1.3. As you are aware, the brick-making industry has throughout cooperated in the endeavour to reduce emissions. As a result, we have in the past, on the basis of various directions and notifications, shifted from use of agricultural residue/waste as in FCBTK kilns, to use of cleaner fuels like coal in zig-zag kilns.
- 1.4. These investments and improvements were made successively, in a short of period of time, in the recent past, that too at great cost. The benefits of these changes are known to you, and include,

- (a) Improved heat transfer and greater efficiency, due to zig-zag setting of bricks.
- (b) Better mixing of air and fuel allowing complete combustion, reducing coal consumption to about 20 percent.
- (c) uniform distribution of heat, increasing the share of Class I bricks to about 90 per cent, which reduces emissions considerably,

resulting in major reductions in emissions and improvements in air quality. These improvements far exceed the improvements required by brick-kilns under the existing regulatory regime.

- 1.5. Numerous scientific studies are testament to this fact.^{1 & 2}
- 1.6. Furthermore, even the EPCA, in its Special Report No. 92 on NCR Air Pollution, published on 25.10.2018, specifically mentioned that conversion of the existing brick kilns to an alternative technology, called zig-zag technology, is widely understood as the most cost-effective and feasible method to reduce pollution in this sector. It was also stated that the range of the particulate emission from the zig-zag brick kiln is less than 250 mg/Nm³ while that of FCBTK is 250-1250/Nm³. Furthermore, it was also mentioned that at the meeting of EPCA held on 14.09.2018, EPCA noted that the advantage with zigzag converted kilns is that the quality of combustion material is better - including the use of crushed or briquettes of agricultural residues - and this reduces pollution substantially.
- 1.7. Even the EPCA, while issuing directions dated 01.11.2019 for dealing with hazardous level of pollution in Delhi NCR this

¹ Study conducted by Pollution Control Research Institute, BHEL, Haridwar from December, 2015 to March, 2016. This report concluded that particulate emissions from zig-zag brick kilns was found low as compared to FCBTK kilns. Furthermore, the gas emissions from zig-zag brick kilns were also found to be much lower.

² Centre of Science and Environment (CSE) conducted independent stack monitoring of brick kilns across northern India. Based on the monitoring results and analysis, CSE concluded that the particulate matter concentrations in the emissions from all types of FCBTKs were higher than that from all types of zigzag brick kilns that were monitored. CSE also mentioned that the average PM concentrations in the emissions from all types of zig-zag kilns were less than 250 mg/Nm³ while the same from all types of FCBTKs exceeded the limit. In view of its monitoring and analysis, the CSE concluded that the overall emissions performance of the monitored zigzag kilns was better than that of the monitored FCBTKs.

year, had permitted brick kilns that have converted to zig-zag technology to operate.

- 1.8. Therefore,
any imposition of alternative fuels that render existing brick-kilns useless, is respectfully opposed.

2. UTILIZATION OF FLY ASH BY THE BRICK KILN INDUSTRY - NOT A FEASIBLE OPTION.

- 2.1. With regard to the utilization of fly ash in bricks, the Ministry of Environment, Forest and Climate Change, through a notification dated 25.02.2019 has proposed amendments in the existing regulation (S.O 763 (E)) dated 14.09.1999 to promote utilization of flyash in the country.
- 2.2. The aforesaid draft notification intends to shift the entire red/burnt clay production to fly ash bricks and blocks in 300 km radius of thermal power plants.
- 2.3. You are humbly requested to consider the following major issues with such proposal -
- 2.4. *Firstly*, fly ash is a fine powder that is a by-product of burning pulverized coal in thermal power plants. Several studies conducted, in India as well as abroad, suggest that utilization of fly ash in bricks and other building material would cause excessive radiation risks to inhabitants and thus, they are not suitable to use as building material. In fact, as on date, there is no conclusive research/study which suggests that the use of fly ash in bricks and other building material is safe for human habitation.
- 2.5. A paper titled '*Natural Radioactivity, Radon Exhalation Rate and Radiation Dose of Fly Ash Used as Building Materials in Xiangyang, China*' written by Tingting Feng and Xinwei Lu highlights the dangers of using fly ash in building materials.

- 2.6. Further, a paper titled '*Measurement of Alpha Radioactive Air Pollutants in Fly Ash Brick Dwellings*' by R.P. Chauhan, K. Kant, S.K. Sharma and S.K. Chakravarti recommends that the use of fly ash as building construction material should be discouraged as radon levels are found to be higher in fly ash brick dwellings in comparison to cemented and mud dwellings, and exposure to radon for a long period can lead to pathological effects like respiratory functional changes and the occurrence of lung cancer.
- 2.7. Another paper titled '*Radon Activity and Exhalation Rates in Indian Fly Ash Samples*' published in the *Indian Journal of Pure & applied Physics* Vol. 48, July 2010, pp.457-462 also throws light upon how the use of fly ash as building material may affect indoor doses from external irradiation and that the inhalation of radon decay products may increase significantly, posing health hazards.
- 2.8. Secondly, it is pertinent to note that the quantity of fly ash that could be made available for the units manufacturing bricks will be sufficient only to replace a fraction (6 to 20%) of the current burnt/red clay brick production in the country. Furthermore, the constant increase in the demand for bricks and stagnation in coal based thermal power generation in the near future may make meeting these replacement levels even more challenging.
- 2.9. From the above, it becomes clear that the utilization of fly ash in the manufacture of bricks is not only unfeasible because of several issues involved in the transportation of fly-ash to brick-kilns. It poses several health hazards to the inhabitants residing in buildings made thereof, in addition to health hazards to labourers working at brick-kilns and on construction sites.
- 2.10. Thirdly, since this is a fine-powder, there is much greater probability of fugitive particulate pollution in the handling of this fly-ash, which will also cause severe health risks to the public at large and the labourers.
3. SITING AND CARRYING CAPACITY.

- 3.1. As regards carrying capacity of Delhi-NCR, it is respectfully submitted that various kinds of industrial and other activities contribute together to saturate the carrying capacity of the region. It is submitted that saturation of the carrying capacity of Delhi-NCR cannot be the basis for denying permission to brick kilns to operate. This is particularly because brick kilns emissions are not amongst the main contributors to air pollution in Delhi-NCR.
- 3.2. Any directions that prohibit brick kilns from operating in Delhi-NCR on account of saturation of the carrying capacity, without first prohibiting the other more polluting activities, would be arbitrary and violative of Article 14 and Article 19(1)(g) of the Constitution of India.
- 3.3. It is pertinent to note that brick kilns are normally located in rural areas and provide employment to a number of migrant workers and other labourers. Brick kilns also support the demand arising from construction activities in areas around which they are located. If brick kilns are prohibited from operating on account of saturation of carrying capacity, the same would not solve anything because the demand for bricks in construction activities would then be met from far of region entailing pollution from movement of trucks and other transportation vehicles over much larger distances.
- 3.4. In view of the above, it is respectfully submitted that brick kilns may be allowed to operate at par with other activities that together contribute to the carrying capacity of Delhi-NCR, subject to the conditions of the Consent to Operate and guidelines issued by the regulatory bodies so as to avoid fugitive dust emissions.

4. HOW BRICK KILNS CAN BE ALLOWED IN NCR WITHOUT DAMAGE TO THE AIR QUALITY.

- 4.1. It is respectfully submitted that different types of activities which have the potential of causing air pollution, including operation of brick kilns, in Delhi-NCR are regulated through a Graded Response Action Plan (GRAP) by Environmental Pollution Control Authority, a body constituted in terms of the order passed by the Hon'ble Supreme Court.
- 4.2. As per GRAP, a plan approved by the Hon'ble Supreme Court, brick kilns in NCR are required to be shut under severe conditions i.e. when PM 2.5 and/or PM 10 concentration goes beyond 250 ug/m³ and/or 430 ug/m³ respectively.
- 4.3. Thus, as mentioned above, the EPCA has been issuing urgent directions to implement GRAP as and when required, depending on the level of the pollution in Delhi-NCR.
- 4.4. It is respectfully submitted that the directions issued by the EPCA from time to time are sufficient to ensure that the brick kilns operate in Delhi-NCR without any damage to the air quality.

5. CONDITIONS SUBJECT TO WHICH IT MAY BE DONE.

- 5.1. It is respectfully submitted that the air quality data of 2019 in NCR was examined by you, the analysis of which indicated that PM 2.5 concentration in summer months (March-June) is lower (Average 89 ug/m³) in comparison to winter months (Average 173 ug/m³). Similarly, PM 10 concentration in summer months (March-June) is lower (Average 219 ug/m³) in comparison to winter months (Average 283 ug/m³).
- 5.2. Apart from the above, the issuance of new licenses for opening/operations of brick kilns in Delhi-NCR can be stopped.
- 5.3. In addition to the above, those brick kilns which have not converted to zig-zag brick kilns in terms of the orders and

directions issued by you, respective SPCBs and the EPCA may be closed down with immediate effect.

5.4. Moreover, even the brick kilns that do not comply with the conditions of the Consent to Operate and other guidelines issued by the regulatory bodies from time to time may also be closed down with immediate effect.

5.5. Thus, the aforesaid conditions may be imposed while permitting the operations of brick kilns in Delhi-NCR.

6. **NUMBER OF BRICK KILNS TO BE ALLOWED AND CRITERIA FOR FIXING SUCH NUMBERS.**

6.1. As per the Report filed by you in O.A. No. 1016 of 2019 pending before the Hon'ble NGT on 04.03.2020, it is clear that with regard to Delhi-NCR, out of 2187, 2216 and 251 brick kilns in Haryana, Uttar Pradesh and Rajasthan respectively, 1504, 1032 and 127 brick kilns have been converted to Zig-Zag technology.

6.2. From the above, it becomes clear that the number of brick kilns from Harayna, Uttar Pradesh and Rajasthan in Delhi-NCR, which are compliant with the directions and guidelines issued by you, respective SPCBs and EPCA as well as the orders passed by the Hon'ble NGT from time to time are only 2663, as against the total number of brick kilns, which is 4654.

6.3. Thus, if the brick kilns that have been converted to Zig-zag brick kilns are permitted to operate as against all the brick kilns situated in Delhi-NCR, as per the earlier directions issued by you, respective SPCBs and the EPCA, then there will be a huge reduction in the number of brick kilns, and consequently in the air pollution in Delhi-NCR.

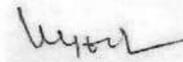
6.4. Therefore, in so far as the brick kilns from Haryana in Delhi-NCR is concerned, it is suggested that the aforesaid 1504 brick kilns, which have adopted the zig-zag technology, may be permitted to operate in Delhi-NCR.

7. IN VIEW OF THE ABOVE, WE SUGGEST THE FOLLOWING STEPS:

- (a) Issuance of new licenses for opening/operations of brick kilns in Delhi-NCR can be regulated.
- (b) In addition to the above, those brick kilns which have not converted to zig-zag brick kilns in terms of the orders and directions issued by you, respective SPCBs and the EPCA may be closed down with immediate effect.
- (c) Ensure compliance with the conditions of the Consent to Operate and other guidelines, as issued from time to time.
- (d) Quantify the impact of enforcement and compliance of directions and orders of EPCA and respective SPCBs, so as to determine the sufficiency of these steps, before further steps are taken, so as to ensure that the pollution is within the permissible limits, as prescribed by GRAP.

Submitted by and on behalf of:

All India Brick & Tile Manufacturer Federation



GENERAL SECRETARY

(M) 9412221600

July 3, 2020.

To

THE CHAIRMAN
CENTRAL POLLUTION CONTROL BOARD
PARIVESH BHAWAN, EAST ARJUN NAGAR
NEW DELHI - 110032.

SUBJECT: REPRESENTATION ON BEHALF OF HARYANA PRADESH BRICK KILN OWNERS' ASSOCIATION IN PURSUANCE OF THE ORDER DATED 23.03.2020 PASSED BY THE HON'BLE NGT IN O.A. NO. 1016/2019.

Dear Sir

We are writing to you on behalf of Haryana Pradesh Brick Kiln Owners' Association (impleadment applicant in IA no. 60 of 2020) in pursuance of the Order dated 23.03.2020 passed by the Hon'ble NGT in O.A. No. 1016/2019 titled 'Utkarsh Panwar v. Cenral Pollution Control Board & Ors', which granted liberty to us to put forth our view point on the following issues before CPCB :

- (i) The use of cleaner fuels or any other alternative measures to be used to prevent air pollution.
- (ii) Siting and carrying capacity.

In addition to the aforesaid issues, the Hon'ble NGT also sought your expert opinion on utilizing flyash and the following issues:

- (a) How brick kilns can be allowed in NCR without damage to the air quality;
- (b) Conditions subject to which it may be done;
- (c) Number of brick kilns to be allowed and criteria for fixing such numbers.

Even on the aforesaid issues, the Hon'ble NGT has allowed us to put forth our view point before CPCB.

In view of the above, we hereby submit the present representation as follows:

1. THE USE OF CLEANER FUELS OR ANY OTHER ALTERNATIVE MEASURES TO BE USED TO PREVENT AIR POLLUTION.

- 1.1. In its order dated 23/03/2020, The Hon'ble NGT sought the advise of CPCB on the advisability of using PNG or non-coal gasifiers as fuel in Zig-Zag brick kilns. In this respect it is submitted that the use of PNG or other similar fuels in the brick making process is unknown and unprecedented in this country. Any such use of PNG will require the development of an absolutely new technology and will render the entirety of the brick-making infrastructure redundant.
- 1.2. This proposal is not like the earlier proposals for adoption of zig-zag technology from FCBTK technology. That change was possible through modifications of existing brick-kilns. However, the proposal for use of PNG cannot be implemented by changing existing infrastructure. In addition to the development of new technology, it will require the setting up of a completely new infrastructure as well.
- 1.3. As you are aware, the brick-making industry has throughout cooperated in the endeavour to reduce emissions. As a result, we have in the past, on the basis of various directions and notifications, shifted from use of agricultural residue/waste as in FCBTK kilns, to use of cleaner fuels like coal in zig-zag kilns.
- 1.4. These investments and improvements were made successively, in a short of period of time, in the recent past, that too at great cost. The benefits of these changes are known to you, and include,
 - (a) Improved heat transfer and greater efficiency, due to zig-zag setting of bricks.
 - (b) Better mixing of air and fuel allowing complete combustion, reducing coal consumption to about 20 percent.

(c) uniform distribution of heat, increasing the share of Class I bricks to about 90 per cent, which reduces emissions considerably,

resulting in major reductions in emissions and improvements in air quality. These improvements far exceed the improvements required by brick-kilns under the existing regulatory regime.

1.5. Numerous scientific studies are testament to this fact.^{1 & 2}

1.6. Furthermore, even the EPCA, in its Special Report No. 92 on NCR Air Pollution, published on 25.10.2018, specifically mentioned that conversion of the existing brick kilns to an alternative technology, called zig-zag technology, is widely understood as the most cost-effective and feasible method to reduce pollution in this sector. It was also stated that the range of the particulate emission from the zig-zag brick kiln is less than 250 mg/Nm³ while that of FCBTK is 250-1250/Nm³. Furthermore, it was also mentioned that at the meeting of EPCA held on 14.09.2018, EPCA noted that the advantage with zigzag converted kilns is that the quality of combustion material is better - including the use of crushed or briquettes of agricultural residues - and this reduces pollution substantially.

1.7. Even the EPCA, while issuing directions dated 01.11.2019 for dealing with hazardous level of pollution in Delhi NCR this year, had permitted brick kilns that have converted to zig-zag technology to operate.

¹ Study conducted by Pollution Control Research Institute, BHEL, Haridwar from December, 2015 to March, 2016. This report concluded that particulate emissions from zig-zag brick kilns was found low as compared to FCBTK kilns. Furthermore, the gas emissions from zig-zag brick kilns were also found to be much lower.

² Centre of Science and Environment (CSE) conducted independent stack monitoring of brick kilns across northern India. Based on the monitoring results and analysis, CSE concluded that the particulate matter concentrations in the emissions from all types of FCBTKs were higher than that from all types of zigzag brick kilns that were monitored. CSE also mentioned that the average PM concentrations in the emissions from all types of zig-zag kilns were less than 250 mg/Nm³ while the same from all types of FCBTKs exceeded the limit. In view of its monitoring and analysis, the CSE concluded that the overall emissions performance of the monitored zigzag kilns was better than that of the monitored FCBTKs.

Therefore,

- 1.8. any imposition of alternative fuels that render existing brick-kilns useless, is respectfully opposed.

2. UTILIZATION OF FLY ASH BY THE BRICK KILN INDUSTRY - NOT A FEASIBLE OPTION.

- 2.1. With regard to the utilization of fly ash in bricks, the Ministry of Environment, Forest and Climate Change, through a notification dated 25.02.2019 has proposed amendments in the existing regulation (S.O 763 (E)) dated 14.09.1999 to promote utilization of flyash in the country.
- 2.2. The aforesaid draft notification intends to shift the entire red/burnt clay production to fly ash bricks and blocks in 300 km radius of thermal power plants.
- 2.3. You are humbly requested to consider the following major issues with such proposal -
- 2.4. Firstly, fly ash is a fine powder that is a by-product of burning pulverized coal in thermal power plants. Several studies conducted, in India as well as abroad, suggest that utilization of fly ash in bricks and other building material would cause excessive radiation risks to inhabitants and thus, they are not suitable to use as building material. In fact, as on date, there is no conclusive research/study which suggests that the use of fly ash in bricks and other building material is safe for human habitation.
- 2.5. A paper titled '*Natural Radioactivity, Radon Exhalation Rate and Radiation Dose of Fly Ash Used as Building Materials in Xiangyang, China*' written by Tingting Feng and Xinwei Lu highlights the dangers of using fly ash in building materials.

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- 2.6. Further, a paper titled 'Measurement of Alpha Radioactive Air Pollutants in Fly Ash Brick Dwellings' by R.P. Chauhan, K. Kant, S.K. Sharma and S.K. Chakravarti recommends that the use of fly ash as building construction material should be discouraged as radon levels are found to be higher in fly ash brick dwellings in comparison to cemented and mud dwellings, and exposure to radon for a long period can lead to pathological effects like respiratory functional changes and the occurrence of lung cancer.
 - 2.7. Another paper titled 'Radon Activity and Exhalation Rates in Indian Fly Ash Samples' published in the *Indian Journal of Pure & Applied Physics* Vol. 48, July 2010, pp.457-462 also throws light upon how the use of fly ash as building material may affect indoor doses from external irradiation and that the inhalation of radon decay products may increase significantly, posing health hazards.
 - 2.8. Secondly, it is pertinent to note that the quantity of fly ash that could be made available for the units manufacturing bricks will be sufficient only to replace a fraction (6 to 20%) of the current burnt/red clay brick production in the country. Furthermore, the constant increase in the demand for bricks and stagnation in coal based thermal power generation in the near future may make meeting these replacement levels even more challenging.
 - 2.9. From the above, it becomes clear that the utilization of fly ash in the manufacture of bricks is not only unfeasible because of several issues involved in the transportation of fly-ash to brick-kilns. It poses several health hazards to the inhabitants residing in buildings made thereof, in addition to health hazards to labourers working at brick-kilns and on construction sites.
 - 2.10. Thirdly, since this is a fine-powder, there is much greater probability of fugitive particulate pollution in the handling of this fly-ash, which will also cause severe health risks to the public at large and the labourers.

3. SITING AND CARRYING CAPACITY.

- 3.1. As regards carrying capacity of Delhi-NCR, it is respectfully submitted that various kinds of industrial and other activities contribute together to saturate the carrying capacity of the region. It is submitted that saturation of the carrying capacity of Delhi-NCR cannot be the basis for denying permission to brick kilns to operate. This is particularly because brick kilns emissions are not amongst the main contributors to air pollution in Delhi-NCR.
- 3.2. Any directions that prohibit brick kilns from operating in Delhi-NCR on account of saturation of the carrying capacity, without first prohibiting the other more polluting activities, would be arbitrary and violative of Article 14 and Article 19(1)(g) of the Constitution of India.
- 3.3. It is pertinent to note that brick kilns are normally located in rural areas and provide employment to a number of migrant workers and other labourers. Brick kilns also support the demand arising from construction activities in areas around which they are located. If brick kilns are prohibited from operating on account of saturation of carrying capacity, the same would not solve anything because the demand for bricks in construction activities would then be met from far of region entailing pollution from movement of trucks and other transportation vehicles over much larger distances.
- 3.4. In view of the above, it is respectfully submitted that brick kilns may be allowed to operate at par with other activities that together contribute to the carrying capacity of Delhi-NCR, subject to the conditions of the Consent to Operate and guidelines issued by the regulatory bodies so as to avoid fugitive dust emissions.

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4. HOW BRICK KILNS CAN BE ALLOWED IN NCR WITHOUT DAMAGE TO THE AIR QUALITY.

- 4.1. It is respectfully submitted that different types of activities which have the potential of causing air pollution, including operation of brick kilns, in Delhi-NCR are regulated through a Graded Response Action Plan (GRAP) by Environmental Pollution Control Authority, a body constituted in terms of the order passed by the Hon'ble Supreme Court.
- 4.2. As per GRAP, a plan approved by the Hon'ble Supreme Court, brick kilns in NCR are required to be shut under severe conditions i.e. when PM 2.5 and/or PM 10 concentration goes beyond 250 ug/m³ and/or 430 ug/m³ respectively.
- 4.3. Thus, as mentioned above, the EPCA has been issuing urgent directions to implement GRAP as and when required, depending on the level of the pollution in Delhi-NCR.
- 4.4. It is respectfully submitted that the directions issued by the EPCA from time to time are sufficient to ensure that the brick kilns operate in Delhi-NCR without any damage to the air quality.

5. CONDITIONS SUBJECT TO WHICH IT MAY BE DONE.

- 5.1. It is respectfully submitted that the air quality data of 2019 in NCR was examined by you, the analysis of which indicated that PM 2.5 concentration in summer months (March-June) is lower (Average 89 ug/m³) in comparison to winter months (Average 173 ug/m³). Similarly, PM 10 concentration in summer months (March-June) is lower (Average 219 ug/m³) in comparison to winter months (Average 283 ug/m³).

- 5.2. Apart from the above, the issuance of new licenses for opening/operations of brick kilns in Delhi-NCR can be stopped.
- 5.3. In addition to the above, those brick kilns which have not converted to zig-zag brick kilns in terms of the orders and directions issued by you, respective SPCBs and the EPCA may be closed down with immediate effect.
- 5.4. Moreover, even the brick kilns that do not comply with the conditions of the Consent to Operate and other guidelines issued by the regulatory bodies from time to time may also be closed down with immediate effect.
- 5.5. Thus, the aforesaid conditions may be imposed while permitting the operations of brick kilns in Delhi-NCR.

6. NUMBER OF BRICK KILNS TO BE ALLOWED AND CRITERIA FOR FIXING SUCH NUMBERS.

- 6.1. As per the Report filed by you in O.A. No. 1016 of 2019 pending before the Hon'ble NGT on 04.03.2020, it is clear that with regard to Delhi-NCR, out of 2187, 2216 and 251 brick kilns in Haryana, Uttar Pradesh and Rajasthan respectively, 1504, 1032 and 127 brick kilns have been converted to Zig-Zag technology.
- 6.2. From the above, it becomes clear that the number of brick kilns from Harayna, Uttar Pradesh and Rajasthan in Delhi-NCR, which are compliant with the directions and guidelines issued by you, respective SPCBs and EPCA as well as the orders passed by the Hon'ble NGT from time to time are only 2663, as against the total number of brick kilns, which is 4654.
- 6.3. Thus, if the brick kilns that have been converted to Zig-zag brick kilns are permitted to operate as against all the brick kilns situated in Delhi-NCR, as per the earlier directions issued by you, respective SPCBs and the EPCA, then there will be a huge

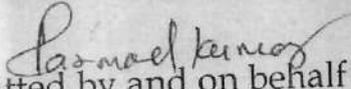
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reduction in the number of brick kilns, and consequently in the air pollution in Delhi-NCR.

- 6.4. Therefore, in so far as the brick kilns from Haryana in Delhi-NCR is concerned, it is suggested that the aforesaid 1504 brick kilns, which have adopted the zig-zag technology, may be permitted to operate in Delhi-NCR.

7. IN VIEW OF THE ABOVE, WE SUGGEST THE FOLLOWING STEPS:

- (a) Issuance of new licenses for opening/operations of brick kilns in Delhi-NCR can be regulated.
- (b) In addition to the above, those brick kilns which have not converted to zig-zag brick kilns in terms of the orders and directions issued by you, respective SPCBs and the EPCA may be closed down with immediate effect.
- (c) Ensure compliance with the conditions of the Consent to Operate and other guidelines, as issued from time to time.
- (d) Quantify the impact of enforcement and compliance of directions and orders of EPCA and respective SPCBs, so as to determine the sufficiency of these steps, before further steps are taken, so as to ensure that the pollution is within the permissible limits, as prescribed by GRAP.


Submitted by and on behalf of:

Haryana Pradesh Brick Kiln Owners' Association
(GENERAL SECRETARY)

July 3, 2020.

TO

THE CHAIRMAN
CENTRAL POLLUTION CONTROL BOARD
PARIVESH BHAWAN, EAST ARJUN NAGAR
NEW DELHI - 110032.

SUBJECT : REPRESENTATION ON BEHALF OF JILA ENT NIRMATA SAMITI,
GAUTAM BUDH NAGAR IN PURSUANCE OF THE ORDER DATED
23.03.2020 PASSED BY THE HON'BLE NGT IN O.A. NO.
1016/2019.

Dear Sir

We are writing to you on behalf of Jila Ent Nirmata Samiti, Gautam Budh Nagar (impleadment applicant in IA no. 60 of 2020) in pursuance of the Order dated 23.03.2020 passed by the Hon'ble NGT in O.A. No. 1016/2019 titled 'Utkarsh Panwar v. Cenral Pollution Control Board & Ors', which granted liberty to us to put forth our view point on the following issues before CPCB :

- (i) The use of cleaner fuels or any other alternative measures to be used to prevent air pollution.
- (ii) Siting and carrying capacity.

In addition to the aforesaid issues, the Hon'ble NGT also sought your expert opinion on utilizing flyash and the following issues:

- (a) How brick kilns can be allowed in NCR without damage to the air quality;
- (b) Conditions subject to which it may be done;
- (c) Number of brick kilns to be allowed and criteria for fixing such numbers.

Even on the aforesaid issues, the Hon'ble NGT has allowed us to put forth our view point before CPCB.

In view of the above, we hereby submit the present representation as follows:

1. THE USE OF CLEANER FUELS OR ANY OTHER ALTERNATIVE MEASURES TO BE USED TO PREVENT AIR POLLUTION.

- 1.1. In its order dated 23/03/2020, The Hon'ble NGT sought the advise of CPCB on the advisability of using PNG or non-coal gasifiers as fuel in Zig-Zag brick kilns. In this respect it is submitted that the use of PNG or other similar fuels in the brick making process is unknown and unprecedented in this country. Any such use of PNG will require the development of an absolutely new technology and will render the entirety of the brick-making infrastructure redundant.
- 1.2. This proposal is not like the earlier proposals for adoption of zig-zag technology from FCBTK technology. That change was possible through modifications of existing brick-kilns. However, the proposal for use of PNG cannot be implemented by changing existing infrastructure. In addition to the development of new technology, it will require the setting up of a completely new infrastructure as well.
- 1.3. As you are aware, the brick-making industry has throughout cooperated in the endeavour to reduce emissions. As a result, we have in the past, on the basis of various directions and notifications, shifted from use of agricultural residue/waste as in FCBTK kilns, to use of cleaner fuels like coal in zig-zag kilns.
- 1.4. These investments and improvements were made successively, in a short of period of time, in the recent past, that too at great cost. The benefits of these changes are known to you, and include,
 - (a) Improved heat transfer and greater efficiency, due to zig-zag setting of bricks.
 - (b) Better mixing of air and fuel allowing complete combustion, reducing coal consumption to about 20 percent.

(c) uniform distribution of heat, increasing the share of Class I bricks to about 90 per cent, which reduces emissions considerably,

resulting in major reductions in emissions and improvements in air quality. These improvements far exceed the improvements required by brick-kilns under the existing regulatory regime.

1.5. Numerous scientific studies are testament to this fact.^{1 & 2}

1.6. Furthermore, even the EPCA, in its Special Report No. 92 on NCR Air Pollution, published on 25.10.2018, specifically mentioned that conversion of the existing brick kilns to an alternative technology, called zig-zag technology, is widely understood as the most cost-effective and feasible method to reduce pollution in this sector. It was also stated that the range of the particulate emission from the zig-zag brick kiln is less than 250 mg/Nm³ while that of FCBTK is 250-1250/Nm³. Furthermore, it was also mentioned that at the meeting of EPCA held on 14.09.2018, EPCA noted that the advantage with zigzag converted kilns is that the quality of combustion material is better - including the use of crushed or briquettes of agricultural residues - and this reduces pollution substantially.

1.7. Even the EPCA, while issuing directions dated 01.11.2019 for dealing with hazardous level of pollution in Delhi NCR this year, had permitted brick kilns that have converted to zig-zag technology to operate.

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² Centre of Science and Environment (CSE) conducted independent stack monitoring of brick kilns across northern India. Based on the monitoring results and analysis, CSE concluded that the particulate matter concentrations in the emissions from all types of FCBTKs were higher than that from all types of zigzag brick kilns that were monitored. CSE also mentioned that the average PM concentrations in the emissions from all types of zig-zag kilns were less than 250 mg/Nm³ while the same from all types of FCBTKs exceeded the limit. In view of its monitoring and analysis, the CSE concluded that the overall emissions performance of the monitored zigzag kilns was better than that of the monitored FCBTKs.

1.8. Therefore, any imposition of alternative fuels that render existing brick-kilns useless, is respectfully opposed.

2. UTILIZATION OF FLY ASH BY THE BRICK KILN INDUSTRY - NOT A FEASIBLE OPTION.

2.1. With regard to the utilization of fly ash in bricks, the Ministry of Environment, Forest and Climate Change, through a notification dated 25.02.2019 has proposed amendments in the existing regulation (S.O 763 (E)) dated 14.09.1999 to promote utilization of flyash in the country.

2.2. The aforesaid draft notification intends to shift the entire red/burnt clay production to fly ash bricks and blocks in 300 km radius of thermal power plants.

2.3. You are humbly requested to consider the following major issues with such proposal -

2.4. *Firstly*, fly ash is a fine powder that is a by-product of burning pulverized coal in thermal power plants. Several studies conducted, in India as well as abroad, suggest that utilization of fly ash in bricks and other building material would cause excessive radiation risks to inhabitants and thus, they are not suitable to use as building material. In fact, as on date, there is no conclusive research/study which suggests that the use of fly ash in bricks and other building material is safe for human habitation.

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- 2.8. Secondly, it is pertinent to note that the quantity of fly ash that could be made available for the units manufacturing bricks will be sufficient only to replace a fraction (6 to 20%) of the current burnt/red clay brick production in the country. Furthermore, the constant increase in the demand for bricks and stagnation in coal based thermal power generation in the near future may make meeting these replacement levels even more challenging.
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3. SITING AND CARRYING CAPACITY.

- 3.1. As regards carrying capacity of Delhi-NCR, it is respectfully submitted that various kinds of industrial and other activities contribute together to saturate the carrying capacity of the region. It is submitted that saturation of the carrying capacity of Delhi-NCR cannot be the basis for denying permission to brick kilns to operate. This is particularly because brick kilns emissions are not amongst the main contributors to air pollution in Delhi-NCR.
- 3.2. Any directions that prohibit brick kilns from operating in Delhi-NCR on account of saturation of the carrying capacity, without first prohibiting the other more polluting activities, would be arbitrary and violative of Article 14 and Article 19(1)(g) of the Constitution of India.
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- 3.4. In view of the above, it is respectfully submitted that brick kilns may be allowed to operate at par with other activities that together contribute to the carrying capacity of Delhi-NCR, subject to the conditions of the Consent to Operate and guidelines issued by the regulatory bodies so as to avoid fugitive dust emissions.

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reduction in the number of brick kilns, and consequently in the air pollution in Delhi-NCR.

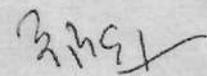
- 6.4. Therefore, in so far as the brick kilns from Haryana in Delhi-NCR is concerned, it is suggested that the aforesaid 1504 brick kilns, which have adopted the zig-zag technology, may be permitted to operate in Delhi-NCR.

7. IN VIEW OF THE ABOVE, WE SUGGEST THE FOLLOWING STEPS:

- (a) Issuance of new licenses for opening/operations of brick kilns in Delhi-NCR can be regulated.
- (b) In addition to the above, those brick kilns which have not converted to zig-zag brick kilns in terms of the orders and directions issued by you, respective SPCBs and the EPCA may be closed down with immediate effect.
- (c) Ensure compliance with the conditions of the Consent to Operate and other guidelines, as issued from time to time.
- (d) Quantify the impact of enforcement and compliance of directions and orders of EPCA and respective SPCBs, so as to determine the sufficiency of these steps, before further steps are taken, so as to ensure that the pollution is within the permissible limits, as prescribed by GRAP.

Submitted by and on behalf of:

JILA ENT NIRMATA SAMITI, GAUTAM BUDH NAGAR



PRESIDENT

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