

## **AGENDA ITEM NO. 192.04**

**PREPARATION OF EXHAUSTIVE  
EMISSION INVENTORY OF PM10 FROM  
VARIOUS SOURCES OF DISTRICT  
MAHENDRAGARH IN THE MATTER OF  
OA NO. 667/2018 TITLED  
"MAHENDRA SINGH VS STATE OF  
HARYANA AND ORS.", OA NO.  
679/2018 TITLED " TEJPAL VS.  
STATE OF HARYANA AND ORS." AND  
OA NO. 599/2019 TITLED "  
BISHAMBER SINGH VS STATE OF  
HARYANA AND ORS."**

Agenda Item No. 192.4

Regarding preparation of exhaustive emission inventory of PM10 from various sources of District Mahendragarh in the matter of OA no. 667/2018 titled as Mahendra Singh Vs State of Haryana and Ors., OA No. 679/2018 titled as Tejpal Vs State of Haryana and Ors. & OA No. 599/2019 titled as Bishamber Singh Vs State of Haryana and Ors.

The Regional officer, Dharuhera vide his letter no. I/79466/2021 dated 02.12.2021 (Annexure-I) has submitted that Hon'ble NGT vide order dated 15.11.2021 in OA No. 667/2018 titled as Mahendra Singh Vs State of Haryana and Ors., OA No. 679/2018 titled as Tejpal Vs State of Haryana and Ors. & OA No. 599/2019 titled as Bishamber Singh Vs State of Haryana and Ors. has directed at para No. 16 whose relevant portion is reproduced as:-

"Let a six-member joint Committee of CPCB, State PCB, District Magistrate, Mohindragarh, jurisdictional Conservator of Forest, nominee of IIT Delhi with expertise on the subject of air pollution and a Pulmonologist, nominated by DG Health, Haryana meet within two weeks and ponder over the issue. The CPCB and the State PCB will be nodal agency for coordination and compliance. They may interact with the stake holders, including the representatives of the stone crushers, who may be informed about proceedings before this Tribunal by the State PCB, in coordination with any other concerned authorities, in an appropriate manner by e-mail or otherwise. Any expenses to be incurred will be borne by the State PCB, subject to further orders. The District Magistrate may provide logistics for execution of the order. The Committee may give a report about the number of stone crushers and mineral grinding units which can be allowed and subject to what conditions, having regard to air pollution load and adverse impact on public health. The report may be furnished within three months by e-mail at [judicialngt@gov.in](mailto:judicialngt@gov.in) preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF which may also be uploaded on the website of the State PCB for information of all the affected stone crushers who will be at liberty to file their comments, if any, to the report before this Tribunal within 15 days of uploading of the report."

In compliance of Hon'ble NGT order dated 15.11.2021, Joint Committee meeting was held on 30.11.2021 in the Camp office of Deputy Commissioner, Mahendergarh

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at Narnaul. In the meeting, Dr. Sri Harsha Kota, Associate Professor, IIT, Delhi informed that there is need to develop emission inventory for the area to understand the contribution of different sources of PM10 concentrations so that the necessary action can be taken.

The Regional Officer, Dharuhera proposed to meet the main objective through the following sub-objectives column:-

1. Preparation of an exhaustive emission inventory of PM10 from various sources for the selected villages in the Mahendragarh District of Haryana.
2. Preparation of action plans for these villages of Mahendragarh District.

The Regional Officer, Dharuhera has submitted the proposal received from Dr. Sri Harsha Kota, Associate Professor, IIT, Delhi (**Annexure-II**) regarding preparation of exhaustive emission inventory of PM10 from various sources of District Mahendragarh in the matter OA No. 667/2018 titled as Mahendra Singh Vs State of Haryana and Ors., OA No. 679/2018 titled as Tejpal Vs State of Haryana and Ors. & OA No. 599/2019 titled as Bishamber Singh Vs State of Haryana and Ors.

As per the above proposal, duration of the study will be 03 months and zero date of project will be the date on which funds are received from HSPCB. The total budget of this study as proposed by Dr. Sri Harsha Kota, Associate Professor, IIT, Delhi will be 12 Lakhs INR (Exclusive of applicable GST).

Sanction is already accorded by the Board vide letter no. I/99859/2022 dated 04.03.2022 for Rs. 12 Lakhs (Twelve Lakhs only) (exclusive of applicable GST) in favour of Dr. Sri Harsha Kota, Associate Professor, IIT Delhi regarding Study on Development of Emission Inventory for Eighteen Villages of Mahendragarh District in Haryana in compliance of Hon'ble NGT order dated 15.11.2021 in the matter of OA no. 667/2018 titled as Mahendra Singh Vs State of Haryana and others and OA no. 679/2018 titled as Tejpal Vs State of Haryana and others subject to all financial provisions and procedures, as applicable.

The proposal is placed before the Board for consideration and ex-post facto approval, please.

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Annexure - I

## Haryana State Pollution Control Board

REGIONAL OFFICE, LALA NEMI CHAND SINGHAL ENCLAVE, SOHNA ROAD  
NEAR PUNJAB NATIONAL BANK, DHARUHERA

Tele Fax: 01274-244241

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To,

The Chairman  
Haryana State Pollution Control Board,  
Panchkula

Sub.- Request to accord proposal for preparation of exhaustive emission inventory of PM10 from various sources of District Mohindergarh in the matter OA No. 667/2018 titled as Mahendra Singh Vs State of Haryana and Ors., OA No. 679/2018 titled as Tejpal Vs State of Haryana and Ors. & OA No. 599/2019 titled as Bishamber Singh Vs State of Haryana and Ors.- reg.

Ref.- Hon'ble NGT order dated 15.11.2021 and Proposal received from Dr. Sri Harsha Kota, Associate Professor, IIT, Delhi.

In this connection, it is submitted that Hon'ble NGT vide order dated 15.11.2021 in OA No. 667/2018 titled as Mahendra Singh Vs State of Haryana and Ors., OA No. 679/2018 titled as Tejpal Vs State of Haryana and Ors. & OA No. 599/2019 titled as Bishamber Singh Vs State of Haryana and Ors. has directed at para No. 16 whose relevant portion is reproduced as:-

*"Let a six-member joint Committee of CPCB, State PCB, District Magistrate, Mohindragarh, jurisdictional Conservator of Forest, nominee of IIT Delhi with expertise on the subject of air pollution and a Pulmonologist, nominated by DG Health, Haryana meet within two weeks and ponder over the issue. The CPCB and the State PCB will be nodal agency for coordination and compliance. They may interact with the stake holders, including the representatives of the stone crushers, who may be informed about proceedings before this Tribunal by the State PCB, in coordination with any other concerned authorities, in an appropriate manner by e-mail or otherwise. Any expenses to be incurred will be borne by the State PCB, subject to further orders. The District Magistrate may provide logistics for execution of the order. The Committee may give a report about the number of stone crushers and mineral grinding units which can be allowed and subject to what conditions, having regard to air pollution load and adverse impact on public health. The report may be furnished within three months by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF which may also be uploaded on the website of the State PCB for information of all the affected stone crushers who will be at liberty to file their comments, if any, to the report before this Tribunal within 15 days of uploading of the report."*

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In compliance of Hon'ble NGT order dated 15.11.2021, Joint Committee meeting was held on 30.11.2021 in the Camp office of Deputy Commissioner, Mohindergarh at Narnaul. In the meeting, Dr. Sri Harsha Kota, Associate Professor, IIT, Delhi informed that there is need to develop emission an inventory for the area to understand the contribution of different sources of PM<sub>10</sub> concentrations so that the necessary action can be taken. It is proposed to meet the main objective through the following sub-objectives column:-

1. Preparation of an exhaustive emission inventory of PM10 from various sources for the selected villages in the Mahendragarh District of Haryana
2. Preparation of action plans for these villages of Mahendragarh District

As per the proposal, duration of the study will be 03 months and zero date of project will be the date on which funds are received from HSPCB. The total budget of this study as proposed by Dr. Sri Harsha Kota, Associate Professor, IIT, Delhi will be 12 Lakhs INR (Exclusive of applicable GST).

As per the order of Hon'ble NGT dated 15.11.2021 in the above OAs, "any expenses to be incurred will be borne by the State PCB, subject to further orders."

Keeping in the view of above, It is requested to kindly consider/accord the proposal (Rs. 12 Lakhs INR Exclusive of applicable GST) in regards to carry out preparation of an exhaustive emission inventory of PM10 from various sources in the District Mahendragarh so that action taken report in compliance of the Hon'ble NGT order dated 15.11.2021 in the matter of OA No. 667/2018 titled as Mahendra Singh Vs State of Haryana and Ors.; & OA No. 679/2018 titled as Tejpal Vs State of Haryana and Ors. and OA No. 599/2019 titled as Bishamber Singh Vs State of Haryana and Ors. may be submitted to Hon'ble NGT within stipulated time period, accordingly.

- DA/-
1. Copy of Hon'ble NGT order dated 15.11.2021
  2. Copy of proposal received from Dr. Sri Harsha Kota, Associate Professor, IIT, Delhi

Signed by Mohit Moudgil

Date: 02-12-2021 15:10:34

Regional Officer  
Dharuhera Region

Item Nos. 01 to 03

(Court No. 1)

**BEFORE THE NATIONAL GREEN TRIBUNAL**

(By Video Conferencing)

Original Application No. 667/2018

Mahendra Singh

Applicant

Versus

State of Haryana & Ors.

Respondent(s)

With

Original Application No. 679/2018

Tejpal

Applicant

Versus

State of Haryana & Ors.

Respondent(s)

With

Original Application No. 599/2019

Bishamber Singh

Applicant

Versus

State of Haryana & Ors.

Respondent(s)

Date of completion of hearing and reserving of order: 26.10.2021

Date of uploading of order on the website: 15.11.2021

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

Applicant: Mr. Raj Kumar, Advocate

Respondent: Mr. Anil Grover Senior AAG with Mr. Rahul Khurana, Advocate for HSPCB

Mr. Tarun Gupta, Advocate for Shree Vinayak Stone Crusher

**ORDER**

1. This order will deal with Original Application Nos. 667/2018, 679/2018 and 599/2019. O.A Nos. 667/2018 and 679/2018 were earlier

also being dealt with by a common order as shown by order dated 03.12.2020. O.A. No. 599/2019 was dealt with by a separate order earlier but vide order date 3.12.2020, it was made clear that directions in O.A. No. 667/2018 will also apply to O.A. No. 599/2019. All the three issues are interconnected in terms of air and noise pollution due to crushing of stone or other such minerals in same area, in violation of air quality norms and extraction of ground water in the water deficient area of District Mahendragarh, Haryana (dark zone), to the detriment of environment. In first two matters, crushing of stones is involved while in OA No. 599/2019, polluting activity is of grinding of minerals, which may be other than stones.

2. Order dated 03.12.2020 in O.A Nos. 667/2018 and 679/2018 deals with the facts and the background, including the order of the Hon'ble Supreme Court dated 02.11.2020 in *Civil Appeal No. 6368 of 2019* directing this Tribunal to dispose of the matter, preferably within four weeks and leaving open for all the parties to argue all points before this Tribunal. The order also contains substantial discussion on the issue. The Tribunal considered the Notification of the State of Haryana laying down siting criteria for the stone crushing activities and environmental norms and proceedings before the Punjab and Haryana High Court on the subject of distance criteria for location of such units. The Tribunal also considered the status of air pollution in the NCR region and its adverse health impact so as to consider prohibition/regulation of activities adding to pollution load to the detriment of public health. Reference was made to the earlier order of the Tribunal dealing with the closing/restricting coal fired brick kilns, having regard to the data of air pollution. It will be appropriate to reproduce certain parts of the said order.

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3. We may first reproduce the charts about the laid down air quality standards and nature of health impact of the increased air pollution, which have been extracted from the judgement of the Hon'ble Supreme Court in *Arjun Gopal & Ors. v. UOI & Ors*<sup>1</sup>:

"Table 1

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

Table 2

AQI Category, Pollutants and Health Breakpoints								
AQI category [Range]	PM <sub>10</sub> 24-hr	PM <sub>2.5</sub> 24-hr	NO <sub>2</sub> 24-hr	O <sub>3</sub> 8-hr	CO 8-hr [mg/m <sup>3</sup> ]	SO <sub>2</sub> 24-hr	NH <sub>3</sub> 24-hr	Pb 24-hr
Good (0-50)	0-50	0-30	0-40	0-50	0-1.0	0-40	0-200	0-0.5
Satisfactory (51-100)	51-100	31-60	41-80	51-100	1.1-2.0	41-80	201-400	0.5-1.0
Moderately polluted (101-200)	101-250	61-90	81-180	101-168	2.1-10	81-380	401-800	1.1-2.0
Poor (201-300)	251-350	91-120	181-280	169-208	10-17	381-800	801-1200	2.1-3.0
Very poor (301-400)	351-430	121-250	281-400	209-748*	17-34	801-1600	1200-1800	3.1-3.5
Severe (401-500)	430+	250+	400+	748**	34+	1600+	1800+	3.5+

4. The factual background of the grievance of the applicant was noticed as follows:

*"1. The issue for consideration is illegal operation of stone crushers in District Mahendergarh, Haryana. Objections of the applicant are that the stone crushers are operating in violation of the environmental norms. They are located close to the plantations, reserved forest, educational institutions and in clusters. The area*

<sup>1</sup>(2017) 1 SCC 412



is critical/over exploited in terms of the ground water but ground water is being illegally extracted. There is scarcity of water even for drinking purposes. There is no proper disclosure and evaluation of the source of water for operation of the stone crushers and no steps are taken to mitigate dust and air pollution. The air quality of the area, which is part of NCR, is unsatisfactory and cannot sustain addition of dust pollution generated by the stone crushers."

5. Report dated 23.07.2019 filed by the joint Committee of the Deputy Commissioner, the District Town and Country Planning department, the Divisional Forest Officer Mahendergarh and the Haryana Pollution Control Board considered in the earlier order is reproduced below for ready reference:-

**a. Siting criteria**

1. There are total 158 Nos. of stone crushers; out of these 118 Nos. are installed/operational and remaining 40 Nos. of stone crushers are under installation at various stages after obtaining CTE from HSPCB on the basis of siting norms reports submitted by the Tehsildar and DFO as per Notification 11.05.2016. Out of 118 Nos. of installed/operational stone crushers, **46 Nos. of stone crusher are not meeting the siting criteria**, as mentioned in Table-2 (Sr. no. 1 to 46). Out of 40 Nos. of stone crushers which are under installation at various stages, **26 Nos. of stone crushers are not meeting the siting criteria as per notification dated 11.05.2016 & Notification dated 04.04.2019 as mentioned in Table-2 (Sr. No. 47 to 72)**. Brief details of total 72 Nos. non complying stone crushers is described as below in Table-4:-

Table-4

Sr. No.	Remarks	Nos.
1.	Total Non-Complying stone crushers as per siting criteria	72
2.	Action already taken CTE Revoked Closed by Board due non compliances under Air Act, 1981 CTE Revocation under process Closure and CTO Revocation under process	31
3.	Show cause notices issued non complying units identified after DGPS measurement	29
4.	No Action required at this stage Operational stone crushers granted time for shifting (Annexure II & III)	12

	<p><i>*Already closed by Board described above at Sr. No. 2 =04+01*</i></p> <p>Under process stone crusher shifting policy w.r.t. notification 07.11.2017 = 08</p>	
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2. **HSPCB has already revoked consent to establish of following 03 Nos. (as mentioned in Table-2, at Sr. No. 70 to 72) stone crushers which are also individual respondents in OA No. 667 of 2018 titled as Mahendra Singh Vs. State of Haryana and Ors. and OA No. 679 of 2018 titled as Tejpal Vs. State of Haryana and Ors. filed before Hon'ble National Green Tribunal respectively:-**
  - i) *M/s. DEV SHRI KRISHNA STONE CRUSHER Khewat No. 45, Khatoni No. 53, M.No. 12, Kila No. 25/2 (3-13) M. No. 15, Kila No. 5 min East (7-0) Total 10 Kanal 13 Marla, Village-Karota, Tehsil-Narnaoul, Distt. Mahendragarh.*
  - ii) *M/s. Unique Stone Crusher, Khewat No. 15, Khatoni No. 15, M. No. 11, Kila no. 11/2(2-15), 20(7-12) & 21/1 (6-9) Total 16 Kanal 16 Marla, Vill-Karota, Narnaoul, Distt. Mahendragarh.*
  - iii) *M/s. KSY BUILDCON, Khewat No. 47, Khatoni No. 68, M. No. 9, Kila no. 15/2(3-16), 16(7-19), 24/1/1(0-16), 25/1/1(0-18) Total 13 Kanal, 09 Marla at Vill- Khatoli Jat, Nangal Chaudhary, Distt. Mahendragarh. Copies of CTEs revocation order is attached as Annexure-XIII to XV.*
3. **HSPCB has initiated action for closure and revocation of CTE/CTO as applicable against all those 29 stone crushers (s mentioned in Table -2, at Sr. No. 1 to 24 & 68 to 72) whose parameters were not accordance with measurement done earlier through Shazra & also are not meeting siting criteria as per the fresh measurement report with DGPS.**
4. **HSPCB has also issued show cause notices for closure and revocation of CTE/CTO on 23.07.2019 as applicable under provisions of sub section 4 of section 21 of Air (Prevention and Control of Pollution) Act, 1981 against all other 29 stone crushing units (as mentioned in Table-2, at Sr. No. 31 to 42 & 51 to 67) which were found non-complying with the report (submitted by Tehsildar on 27.07.2019) after DGPS measurement and further action shall be taken accordingly.**
5. **Two stone crushers (as mentioned in Table-2, at Sr. No. 29 to 30) have already been closed & sealed by Board due to non-compliance under Air Act, 1981.**
6. **Five stone crushers (as mentioned in Table-2, at Sr. No. 25 to 29) have already been granted time for shifting/relocation as per notification 11.05.2016 and Govt. Order 11.06.2019, out of these one stone crusher mentioned in Table -2 at Sr. No. 29 has already been**

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closed & sealed by Board due to non-compliance under Air Act, 1981.

7. Eight stone crushers (as mentioned in Table-2, at Sr. No. 43 to 50) are not meeting siting criteria only by the municipal limits notification dated 07.11.2017 of Urban Local Bodies. If draft Urban Local Bodies Notification, dated 08.03.2019 will be finalised as such, then all these 8 stone crushers will fulfil the siting criteria. Further, decision of Govt. of Haryana regarding policy for shifting such stone crushing units as proposed by HSPCB is yet to be finalised by the Govt. of Haryana.

**b. Mechanism for drawl of Water**

1. Twenty Nos. of operating stone crushers are not taking treated water from STP of PHED as per detailed list provided by PHED (Annexure-XVI). HSPCB had issued show cause notices to submit the source of water being used and permission from any other permitted source. Only five units have submitted reply which was not found satisfactory. HSPCB has initiated action for closure and revocation of CTO against all these twenty stone crushers.
  2. Eighteen Nos. of stone crushers falling in dark zone have installed illegal bore-well/tube-well in their premises without any permission from the GWC and illegal bore-well/tube-well has been sealed by the GWC, Narnaul as mentioned in Table-3.
  3. Joint Committee in coordination with CGWA shall make an assessment of environmental compensation for illegal extraction of ground water by these stone crushers, in accordance with order of this Hon'ble Tribunal dated 30.11.2018 in Harinder Singh & Ors. Vs. Prateek Buildtech (India) Pvt. Ltd. & Ors and order dated 30.04.2019 in Ramkmar Vs. State of Haryana & Ors. (OA No. 1032/2018).<sup>2</sup>
6. The discussion in the said order is as follows:-

**\*8. Substance of the submissions is that the joint Committee report with regard to violation of siting norms is against the order of the High Court and further decisions of the State. Though this Tribunal has repeatedly held that even subsequently laid down norms and safeguards will bind already established units to give effect to the principle of sustainable development and there is no vested right of a unit established against any future laying down of safeguards to give effect to the Constitutionally guaranteed citizens right to clean environment<sup>2</sup> However, to avoid conflicting orders and assuming the argument to be correct, compliance of environmental norms in terms of ambient air quality, health impact on the inhabitants and the carrying capacity of the area cannot be wished**

<sup>2</sup> Order dt 14.8.2019 OA 53/2019, Tej Pal v state of UP, paras 5 to 8

*GRAP.* The only issue which is said to be pending consideration before the High Court is the siting criteria and not the issues of other pollution norms, background concentration of air quality and the carrying capacity in terms of the air quality which is being considered in the present matter by this Tribunal in terms of order dated 24.7.2019 noted earlier. The carrying capacity is a facet of sustainable development which, among others, will require consideration of air quality, inter-se distance and additive impact of operation of the stone crushers on the air quality and water in the light of the 'Precautionary' principle of environmental law to be enforced by this Tribunal under sections 20 and 15 of the NGT Act, 2010.

9. It is well known that NCR is facing air pollution issues and, in winter months, the problem is further aggravated. Polluting activities, even if otherwise legitimate, are required to be stopped/regulated to avoid adverse health impact on account of air pollution. **Stone crushers add to air pollution.** On that account-as per Graded Response Action Plan for Delhi & NCR (GRAP), the stone crushers in NCR have to be automatically closed when the air quality is 'severe'. Relevant portion of the Graded Response Action Plan is as follows:-

Severe (ambient PM10 concentration value is more than 250 ug/m <sup>3</sup> or 430ug/m <sup>3</sup> respectively)	Agency responsible/Implementing Agency
Close brick kilns, Hot Mix plants, <b>Stone Crushers</b>	Chairpersons Delhi Pollution Control Committee, State Pollution Control Boards of Haryana, Rajasthan, and Uttar Pradesh Superintendent of Police and Deputy Commissioner of respective districts

10. GRAP is self-operating but does not exclude assessment-based restrictions. **Permissibility of stone crushers depends on the available air quality and impact of operation of such stone crushers on the environment and public health in a particular area.** In this regard, we may notice the observations of the Hon'ble Supreme Court in some matters. In *M.C. Mehta v. Union of India*, (1992) 3 SCC 256, at page 257, it was observed:

"...Utter disregard to environment has placed Delhi in an unenviable position of being the world's third grubbier, most polluted and unhealthy city as per a study conducted by the World Health Organisation. **Needless to say that every citizen has a right to fresh air and to live in pollution-free environments.**

3. For the reasons to be recorded and pronounced at a later stage we order and direct as under:

(1) **The mechanical stone crushers established/operating in Lal Kuan, Anand Parbat, Rajokri, Tughlakabad and**

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*in any other area of the Union territory of Delhi shall stop operating/functioning with effect from August 15, 1992. No stone crusher shall operate in the Union territory of Delhi from August 15, 1992 onward.*

*(2) The mechanical stone crushers established/operating in Suraj Kund, Lakhapur, Lakkarpur, Kattan, Gurukul, Badkhal, Pallinangla, Saraikhaja, Anangpur and Bailabgarh areas of Haryana shall stop operating/functioning with effect from August 15, 1992. No stone crusher shall operate in the above-said area from August 15, 1992 onward.*

11. *Again, in M.C. Mehta v. Union of India, (2006) 11 SCC 582, at page 586, it was observed :*

*"While conducting a study of environmental problems of the Aravalli hills and preparation of action plan for restoration of environmental quality in Gurgaon district, the Central Mine Planning and Design Institute Limited (CMPDI), had inter alia noted that in the Aravalli hills, large number of activities, operations of stone crushers and deforestation besides other activities are causing environmental degradation. These mines are usually located in clusters in remote mineral-rich districts/areas where living standards are lower and understanding of people towards environmental impact is also poor. In the past, the mine operators took no note of environmental damage. In fact, they were not even conscious about it. The attitude of the mining community is to ignore the environmental concerns. In the majority of the cases, the environmental concerns are ignored for making quick profits. The small mines (less than 5 hectares) and the mining of minor minerals which are no doubt small individually but have damaging characteristics when in clusters e.g. the mines of granite, marble, slates, quartzite, etc. (falling under minor minerals) are no less damaging than the others, especially when the processing is taken into consideration. The mining activities result in disturbance of land surface, altering drainage pattern and land use, besides the pollution problems, which may lead to the environmental problems of air, water and noise pollution and solid waste pollution."*

12. *In People Right and Social Responsibility Centre v UoI, (2010) 14 SCC 769, it was noted that persons at and close to stone crushers suffer from Silicosis disease against which safeguards are to be adopted.*

13. *In Arjun Gopal & Ors. v. UOI & Ors.<sup>3</sup>, the Hon'ble Supreme Court noted the adverse impact of unsatisfactory air quality on health and air quality grading as follows:*

<sup>3</sup>(2017) 1 SCC 412

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"5. In India, air quality standards are measured in terms of the Air Quality Index (hereinafter "AQI"). The AQI was launched in India on 17-10-2014 by the Ministry of Environment and Forests. According to the press release of the Press Information Bureau of the same date, it consists of a comprehensive set of parameters to monitor and assess the air quality. The AQI considers eight pollutants (PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>2</sub>, SO<sub>2</sub>, CO, O<sub>3</sub>, NH<sub>3</sub>, and Pb), and based on the levels of these pollutants six categories of AQI ranging from "Good" to "Severe" have been prescribed. The index also suggests the health effects of the pollution category wise. The gradation of AQI and its health impact is extracted below:

\*\*\*.....Table 1 and 2 already reproduced above.

14. After noting the above, the Hon'ble Supreme Court first banned the sale and use of fire crackers and then restricted their use with the observations that finally the same may have to be banned.

15. This Tribunal recently considered the issue in the context of closing/restricting the brick kilns in absence of carrying capacity of the air quality in the NCR\*. Relevant observations are as follows:-

10. It was concluded from the above data that there was no supporting carrying capacity to operate brick kilns during the entire brick kilns operating season. However, with regard to Districts where supporting carrying capacity was available in particular months such number was worked out for Haryana, UP and Rajasthan as follows:-

\*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 Assessed 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	-2668	2748	11629	65779	133	161	52	16	45
2	Faridkot	59651	59519	127403	59551	85	35	-5	-40	-13
3	Gurgaon	40893	128701	129199	59004	6	-75	-113	-119	-83
4	Haryana	11004	87036	104114	38662	597	376	300	203	327
5	Jind	35179	130169	199410	158435	111	73	-9	-86	-87
6	Karnal	38290	128751	151235	135717	90	57	-37	-89	-14
7	Mahendragarh	9486	76467	88628	56126	43	33	-34	-17	-9
8	Rohtak (Mewat)	5375	86839	34990	34432	62	57	-7	7	28
9	Palwal	26148	149593	95720	112461	110	84	1	19	-2
10	Faridkot	2735	54014	149364	42668	27	54	23	-54	37
11	Faridkot	27065	54019	119932	127597	76	49	-10	-43	-18
12	Rohtak	NA	18364	27870	34965	49	NA	-81	21	19
13	Faridkot	11571	113504	163699	150093	261	203	151	100	106
14	Chandigarh Distt	NA	NA	NA	NA	20	NA	11 NA	NA	NA

\* Vide order dated 15.10.2020 in G.A No. 1016 of 2019, Utkarsh Panwar v. CPCB

From CAMDDB and AQD values for Char/Slit Ducts 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	Rohini	-181287	-217824	-141332	-30771	-102713	133	-181	-218	-161	-81	-103
2	Ferozabad	-5074	-63483	-75300	-60908	-69744	86	-58	-63	-86	-61	-70
3	Gurgaon	-24855	-114707	-15870	-44752	-51085	4	-87	-115	-95	-45	-51
4	Jhajar	-37037	-68158	-35725	-8473	-24208	387	-87	-66	-36	-8	-25
5	Jind	-139493	-300345	-57747	-19973	-42396	111	-125	-200	-89	-20	-62
6	Karnal	-129065	-210891	-124352	NA	-74670	92	-129	-211	-124	NA	-75
7	Mahendragarh	-86097	-46910	-24946	-29829	-17683	48	-87	-41	-28	-30	-18
8	Mir (Meerut)	-41344	-84361	-34758	NA	-21820	62	-41	-51	-25	NA	-32
9	Palwal	-58906	-95790	-13648	-18728	-61021	110	-49	-97	-83	-19	-51
10	Paritpat	-159739	-148652	-154830	-3515	-114526	82	-158	-149	-135	-4	-113
11	Rewari	-57287	-123782	-34855	-66279	-109948	75	-133	-124	-65	-66	-101
12	Sahjra	-61259	-79059	-58428	-61070	NA	49	-61	-79	-59	-61	NA
13	Sonapat	-805291	-87787	-59729	-165482	-89069	265	-166	-64	-60	-156	-85
14	Charkhi Dada	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.**

11. Finally, it has been concluded:-

XXX

XXX

XXX

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.

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12 to 14 xxx.....xxx.....xxx

15. We are unable to find any substance in the objections. CPCB has duly explained that the Carrying Capacity is based on monthly average data on  $PM_{10}$  generated from CAAQMS and where no such data was available, Aerosol Optical Depths were extrapolated to PM. Further, carrying capacity has been assessed by taking mixing heights into consideration and comparing with identical air shed of districts geographical area and dispersion air volume conditions. With regard to emission load, the load is based on actually monitored values taking stack diameter, velocity, temperature and pressure of flue gases and standard of  $250 \text{ mg/Nm}^3$  at 17%  $O_2$ . Overall fact is that entire NCR has no carrying capacity to take load of the pollution of the brick kilns as already levels of  $PM_{10}$  and  $PM_{2.5}$  are exceeding daily/annual standards. As per Table 15 of the Report, no brick kiln has scope to operate except, some may, during March to June.

16. xxx.....xxx.....xxx

17. In *Arjun Gopal & Ors. v. UOI & Ors.*<sup>5</sup>, it was observed that the residents of NCR faced severe air quality standards which were worst in the World. It had serious adverse health impact. Life of citizens in NCR had been brought to virtual standstill. The Capital was smoked into an environmental emergency of unseen proportions. It will be appropriate to extract some observations from the judgment:-

"4. The onset of winter and the festival/marriage season this year, presented to the residents of NCR severe concerns regarding the air quality standards. According to reports, the air quality standards in early November of this year were the worst in the world. It is reported that the  $PM_{2.5}$  levels recorded were "beyond scale" values (see *India's Air Quality Among World's Worst Over Diwali Weekend: Report. 4-11-2016, Hindustan Times*). The report indicates that 24-hour average of  $PM_{2.5}$  levels in South Delhi in 2016 were 38% higher than on the Diwali night of 2015. The day after Diwali, these levels were twice as high as the day after Diwali in 2015, crossing  $650 \mu\text{g}/\text{m}^3$ , which is 26 times above the WHO's standards or levels considered safe. Shockingly, on the morning of 1-11-2016, Delhi woke up to an average  $PM_{2.5}$  level of over  $700 \mu\text{g}/\text{m}^3$  — some of the highest levels recorded the world over and 29 times above WHO standards. The report further states that the WHO guideline for 24-

<sup>5</sup>[2017] 1 SCC 412



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hour average  $PM_{2.5}$  levels is  $25 \mu\text{g}/\text{m}^3$  and with an annual average  $PM_{2.5}$  level of  $122 \mu\text{g}/\text{m}^3$ , Delhi's air is the worst among global megacities with dense populations. We have particularly referred to the  $PM_{2.5}$  levels because of the extreme effects and near invisibility of this type of particulate matter.  $PM_{2.5}$  or particulate matter 2.5 ( $PM_{2.5}$ ), refers to tiny particles or droplets in the air that are two-and-one-half microns or less in width. It may be noted that the widths of the larger particles in the  $PM_{2.5}$  size range would be about thirty times smaller than that of a human hair. These particles primarily emanate from vehicle exhausts and other operations that involve the burning of fuels such as wood, heating oil or coal, and of course, use of fire crackers.

5. ....

6. Reports indicate that AQI in Delhi was much above the severe standard, shooting off the AQI 500 mark on many days this November. On the day after Diwali, it was more than 14 times the safe limits (see Delhi's Pollution Levels Peaks at 14-16 Times Safe Limits, 31-10-2016, The Hindu). The adverse health effects of these hazardous levels of pollution are only too evident from the table given above. We do not intend to refer to the multiplicity of reports and data on this front.
7. The hazardous levels of air pollution in the last few weeks has spared very few from its ill effects. The life of the citizens of NCR was brought to a virtual standstill, not to speak about the plight of the thousands of mute flora and fauna in NCR. Schools were declared shut, denizens of the city advised to stay indoors, construction activities stopped, power stations shut and ban imposed on burning of garbage and agricultural waste. The fall in air quality has had a significant impact on people's lifestyle as well. The rising costs to protect against air pollution are substantial. It has come to our notice that people are queuing up to purchase protective masks and air purification systems in the wake of dense smog all over the NCR. In short, the capital was "smogged" into an environmental emergency of unseen proportions.
8. The adverse effects of these extreme levels of air pollution spare no one — the young, the old, the infirm and even the future generations. A study of the data of the Global Health Depository of the

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World Health Organisation reveals that India has the world's highest death rate from chronic respiratory diseases and that about 1.5 million people in India die annually due to indoor and outdoor pollution (see Delhi Wakes up to an Air Pollution Problem it cannot Ignore, 15-2-2015, The New York Times). The Kolkata-based Chittaranjan National Cancer Institute (CNCI), in a study commissioned and handed over to the Central Pollution Control Board, found that key indicators of respiratory health, lung function to palpitation, vision to blood pressure, of children in Delhi, between four and 17 years of age, were worse off than their counterparts elsewhere. It also found that more than 40% of the school children suffer from lung damage (see Landmark Study Lies Buried, 2-4-2015, The Indian Express). We note with apprehension that there are nascent studies that suggest that pollution can lower children's IQ, hurt their test scores and increase the risks of autism, epilepsy, diabetes and even adult-onset diseases like multiple sclerosis (see Holding Your Breath in India, 29-5-2015, The New York Times).

9. It has been brought to our notice that the severe air pollution in the NCR is leading to multiple diseases and other health related issues amongst the people. It is said that the increase in respiratory diseases like asthma, lung cancer, bronchitis, etc. is primarily attributable to the worsening air quality in the NCR. The damage being caused to people's lungs is said to be irreversible. Other health related issues like allergies, temporary deafness are also on the rise. Various experts have pointed towards multiple adverse effects of air pollution on human health like premature deaths, rise in mortality rates, palpitation, loss of vision, arthritis, heart ailments, cancer, etc.
10. When we refer to these extreme effects, we are not merely referring to the inconvenience caused to people, but to abject deprivation of a range of constitutionally embedded rights that the residents of NCR ought to have enjoyed. Needless to state, the grim situation of air quality adversely affected the right to education, work, health and ultimately, the right to life of the citizens, and this Court is constitutionally bound to address their grave concerns. May we remind ourselves, that this is not the first time that this Court was impelled into ensuring clean air for the citizens of the capital region (see M.C. Mehta v. Union of India [M.C. Mehta v. Union of India, (1998) 6 SCC 60] · [M.C. Mehta v. Union of India, (1998) 9 SCC

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589] , *M.C. Mehta v. Union of India* [M.C. Mehta v. Union of India, (1998) 8 SCC 648] and *M.C. Mehta v. Union of India* [M.C. Mehta v. Union of India, (1998) 8 SCC 206].”

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

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

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

20. In *Vellore Citizens' Welfare Forum v. UOI & Ors.*<sup>6</sup>, it was observed that quality of human life is to be improved within the carrying capacity to supporting ecosystem. Relevant extract is as follows:-

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

21. These observations are reiterated in (2006) 6 SCC 371.<sup>7</sup>

<sup>6</sup> (1996) 5 SCC 647

<sup>7</sup> Para 66 to 76

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22 to 23 xxx..... xxx..... xxx

24. The Tribunal has a mandate to follow these principles under Section 20 read with Section 15 of the National Green Tribunal Act, 2010 and can issue appropriate directions for enforcement of these principles, as laid down in *Mantri Techzone Pvt. Ltd. v. Forward Foundation and Ors.*,<sup>8</sup> and the *Director General (Road Development) NHAI v. Aam Aadmi Lok Manch.*<sup>9</sup> Environmental rule of law requires strict enforcement of these principles as laid down in *Hanuman Laxman Aroskar v. UOI*.<sup>10</sup>
25. This Tribunal in O.A. No. 681/2018, vide order dated 21.08.2020, dealt with the remedial measures for restoration of air quality in 122 Non-attainment cities, including Delhi where air quality is generally beyond norms. The Tribunal directed stopping polluting activities, including brick kilns and assessment of carrying capacity of urban areas to take policy decisions to control polluting potential activities beyond carrying capacity. The Tribunal observed:-

"3. The Tribunal noted the concern arising from such large scale air pollution which grapples the country in spite of statutory mechanism under the Air Act, directions of the CPCB under section 18(1)(b), dated 29.12.2015 and directions of the Hon'ble Supreme Court for control of vehicular pollution<sup>11</sup>, industrial and construction sector pollution<sup>12</sup>, power sector pollution<sup>13</sup> and agricultural sector pollution<sup>14</sup> and orders of this Tribunal dealing with the said issues<sup>15</sup>. The Tribunal also referred to a Comprehensive Action Plan (CAP) for air pollution control for NCR prepared in pursuance of order of the Hon'ble Supreme Court dated 06.2.2017 by

<sup>8</sup> 2019 SCC online 8C 322, Para 43-47

<sup>9</sup> AIR 2020 (SC) 3471, Para 75

<sup>10</sup> (2019) 15 SCC 401

<sup>11</sup> Rural Litigation and Entitlement Kendra, Dehradun and Others Vs State of U.P. Others (1985) 2 SCC 431, M.C. Mehta v. Union of India (2001) 3 SCC 756, M.C. Mehta v. Union of India (1998) 6 SCC 63, M.C. Mehta v. Union of India (2002) 4 SCC 356, M.C. Mehta v. Union of India (1998) 6 SCC 60

<sup>12</sup> M.C. Mehta v. Union of India (1997) 2 SCC 353, M.C. Mehta v. Union of India and Shriram Foods and Fertilizer Industries and Anr. (1986) 2 SCC 176, Rural Litigation and Entitlement Kendra, Dehradun v. State of U.P. (1985) 2SCC 431, Mohd. Hareem Ansari v. District Collector (2004) 1 SCC 491, Union of India v. Union Carbide Co. (1989) 1 SCC 674, M.C. Mehta v. Union of India (1992) 3 SCC 256, Sterlite Industries (India) Ltd. etc. v. Union of India & Ors. (2013) 4SCC 575, M.C. Mehta v. Union of India (2004) 6 SCC 588, M.C. Mehta v. Kamal Nath (2000) 6 SCC 213

<sup>13</sup> Consumer Education and Research Centre v. Union of India (1995) 3 SCC 42, Dahanu Taluka Environment Protection group and Ors. v. Bombay Suburban Electricity Supply Company Ltd. and Ors (1991) 2SCC 539

<sup>14</sup> Arjun Gopal and Ors v. Union of India and Ors (2017) 16 SCC 280, Dr. B.L. Wadhara v. Union of India and Ors (1996) 2 SCC 594

<sup>15</sup> Vardhman Kaushik v. Union of India and Ors. O.A no. 21 of 2014, Vikrant Kumar Tongad v. Environment Pollution (Prevention and Control) Authority and Ors, O.A No. 118 of 2013, Satish Kumar v. Union of India and Ors, O.A. No. 56 (Twe) OF 2013, Smt. Ganga Lalwani V. Union of India and Ors. O.A No. 451 of 2018

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the Environment; Pollution (Prevention and Control) Authority (EPCA) in consultation with the CPCB and Delhi Pollution Control Committee (DPCC) on 05.04.2017<sup>16</sup> and Graded Response Action Plan (GRAP) notified by the MoEF&CC on 12.01.2017 stipulating specific steps for different levels of air quality such as **improvement in emission and fuel quality and other measures for vehicles, strategies to reduce vehicle numbers, non-motorised transport network, parking policy, traffic management, closure of polluting power plants and industries including brick kilns, control of generator sets, open burning, open eateries, road dust, construction dust, etc.**<sup>17</sup>

4. Implementation of prescribed norms in the light of legal provisions and court directions remains a challenge. The consequence is that India is being ranked high in terms of level of pollution compared to many other countries with enormous adverse impact on public health. Most victims are children, senior citizens and the poor.<sup>18</sup>

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

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

7 to 13...xxx.....xxxx.....xxx

14. According to the CPCB, draft framework has been prepared and SA study completed in four States (for 05 cities). Study was under progress in 14 States (for 54 cities), and at proposal stage in 10 States (for 37 cities). Methodology for carrying capacity has been shared with

<sup>16</sup> Report No.71, EPCA-R/2-17/L-21, Comprehensive Action Plan for air pollution control with the objective to meet ambient air quality standards in the National Capital Territory of Delhi and National Capital Region, including states of Haryana, Rajasthan and Uttar Pradesh.

<sup>17</sup> S.O.118(E), Notification, Ministry of Environment, Forest and Climate Change

<sup>18</sup> <https://www.thehindu.com/sci-tech/energy-and-environment/india-ranks-177-out-of-180-in-sustainable-development-index/article22513015.ece>, <https://www.ndtv.com/delhi-news/delhi-air-pollution-has-caused-death-of-15-000-people-study-1832022>

*State PCBs/PCCs. Twelve (12) States/UTs have given the details of the carrying capacity and the remaining have yet to take necessary steps. CC/SA studies are pre requisite for meaningful planning to enforce environmental law. This pre-requisite should have been undertaken long ago. Air quality norms have been statutorily laid down under the Air (Prevention and Control of Pollution) Act, 1981 as well as the Environment (Protection) Act, 1986 and such norms are being flagrantly violated, which has been made by the Parliament a criminal offence. If the rule of law has to have meaning and guilty are to be punished, the policies of the State have to be based on scientific studies to contain polluting activities within the scope of Carrying Capacity."*

26. *Dealing with the issue of air pollution in manufacture of tiles at Morbi in Gujrat, vide order dated 6.3.2019 OA 20/17 Babubhai v GPCB, this Tribunal directed closure of industries operating with coal unless they shifted to natural gas. This was referred in the earlier order of this Tribunal in the present matter. It was further observed that while under the orders of the Hon'ble Supreme Court, GRAP was laid down providing for closing of specified activities on crossing of air quality norms as laid down in the GRAP, the same did not debar consideration of further situations requiring closure/regulation.*

27. *Thus, in view of report of the CPCB, at this stage it is not possible to vacate direction not to permit operation of brick kilns in NCR beyond the carrying capacity found by the CPCB. All applications of the brick kiln owners seeking rejection of CPCB report and vacation of interim order against operation of brick kilns, without air quality assimilative capacity permitting such activity will stand rejected subject to further exploring viable options, including change to clean fuel like natural gas. We are conscious that brick kilns may be necessary. Object of this order is not to stop any legitimate business activity but to enforce the right to breathe fresh air which is right to life. The source apportionment studies, placed on record, show that brick kilns contribute 5-7% PM. Air pollution Control devices to be installed by the polluting sources including the brick kilns need to comply not only the consent standards but are also the Ambient Air Quality norms and available assimilative capacity of the region. If the right to fresh air is not enforced, the consequences of brick kilns beyond carrying capacity of the air quality in the area are disastrous in terms of deaths and air borne diseases. This will be contrary to the mandate of the Constitution and the environmental law, particularly the principle of 'Sustainable Development'. It is well established that deteriorated ambient air quality in terms of PM<sub>10</sub> and PM<sub>2.5</sub> affects respiratory system particularly, the lungs*

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*which may make individuals more vulnerable to get other related fatal diseases.<sup>19</sup>*

16. It is seen from above, that there was no carrying capacity in Mahendragarh District to sustain brick kilns. Thus, stone crushers can also not be allowed in absence of carrying capacity in terms of air quality to sustain operation of stone crushers. Precautionary principle has to be applied having regard to impact of air pollution on health. Right of citizens to breathe fresh air cannot be denied and right of operating stone crushers cannot get preference over and above right to life on specious plea that the stone crushers were set up as per siting parameters allowed by the State without study of impact of the carrying capacity. As already noted, the siting norms is only one of the issues and even if this issue is to be ignored for the time being, there has to be carrying capacity in terms of air quality.

17. Accordingly, we direct that the joint Committee with the addition of the CPCB to take further steps in terms of order of this Tribunal dated 24.07.2019, quoted earlier for compliance of environmental norms in the light of the carrying capacity of the area and the health impact of the operation of stone crushers on the inhabitants. The joint Committee may go by the order of the High Court and the State Government as far as siting criteria is concerned but close illegally polluting stone crushers in terms of all other environmental norms, including the air quality, illegal water extraction. The joint Committee may also study the health impact on the inhabitants and take remedial action. The State PCB will be the nodal agency for coordination and compliance. The statutory authorities taking coercive measures may ensure due process of law.

18. Let an action taken and status report in the matter be furnished before the next date by e-mail at [judicial-nak@gov.in](mailto:judicial-nak@gov.in) preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF."

7. In pursuance of above, action taken report dated 27.09.2021 has been filed by the State PCB on behalf of the joint Committee. The report mentions 18 clusters where these stone crushers were mainly operating. The health impact as per letter of the CMO dated 16.06.2021, showing 100% increase in diseases, is mentioned. The carrying capacity has been found to be in the negative due to existing high pollution load. It has been

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

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recommended that new stone crushing units and non-compliant units may not be allowed. The remaining may be allowed subject to safeguards such as water sprinkling, covering of the conveyor belt to minimize dust generation, paving of the roads to minimize pollution during transportation and undertaking regular health survey. The report also mentions need for further study to ascertain the number and capacity of stone crushers which could be allowed in the light of ambient air quality and also source apportionment study. The operative part of the report is reproduced below:

**"A. Status of Stone Crushing Units**

- (i) A report mentioning the consent and operating status of the stone crushing units in the District Mahendergarh was filed before the Hon'ble NGT, vide dated 23.07.2019.
- (ii) The status of the stone crushing units has further been modified as on date (at the time of reporting), wherein the consent to establish and consent to operate were revoked by the Board and the same is enclosed. **(Annexure- I).**
- (iii) The stone crushing units which were found using ground water without obtaining requisite permission from Central Ground Water Authority (CGWA) have also issued Show Cause Notice for imposing Environmental Compensation **(Annexure- II).**
- (iv) The stone crushing units are mainly operating in different clusters and the detail of the same is given below:

**Table- I**

Tehsil	Name of the Clusters/ Villages	No. of Stone Crushing Units
Mahendergarh (34)	Village Garhi	21
	Village Zerpur	13
Narnaul (21)	Village Kuitajpur	6
	Village Lutajpur	9
	Village Faizabad	1
	Village Mandiana	1
	Village Raghunathpura	1
	Village Karota	3
Nangal Chaudhary (107)	Village Gangutana	19
	Village Bakhrija	17



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	Village Begapur	24
	Village Dholera	15
	Village Jainpur	12
	Village KhatoliAhr	13
	Village Berundia	3
	Village Panchnota	2
	Village KhatoliJat	1
	Village Bayal	1

- (v) It is also placed on record by the Committee that out of 162 Nos. stone crushing units, the HSPCB has monitored 48 Nos. stone crushers for verification of the compliance prior to order Hon'ble NGT order dated 03.12.2020 and status of the same is also enclosed (**Annexure- III**). Out of 48 Nos. units it is submitted that only 05 Nos. found non-compliant in regards to installation of non-adequate air pollution control devices and with the prescribed emission standards. The detail is attached with Annexure- III.
- (vi) HSPCB has established 02 Nos. Ambient air Quality Monitoring Stations (Manual) at Nangal Chaudhary and Mahendargarh. The monitoring of PM 2.5 and PM 10 is undertaken as per the guidelines prescribed by CPCB. The Ambient Air monitoring network was commissioned from February, 2020, however sufficient data could not be gathered for its analysis due to pandemic.

#### **B. Health Impact on the inhabitants**

- (i) The concerned CMO vide letter No. PH/2021/72 dated 16.06.2021 has forwarded Air Borne Disease Report, District Mahendargarh for the period 2011 to 2020 (**Annexure- IV**).
- (ii) The report suggests that the number of cases were 21329 in the year of 2011 which has increase to 42309 in the year of 2019, an increase of 100 % cases in the span of 8 to 9 years.
- (iii) The report however has not indicated the cause of air borne Disease as neither has identified any specific reason of increasing the air borne disease.

#### **C. Assessment of Carrying Capacity**

- (i) This refers to the Table 1, mentioned at Para No. A (iv) and which identifies the three clusters of stone crushing units in the District Mahendargarh. The minimum distance between two clusters is found approx. 5 km and the maximum distance is approx. 40 km.
- (ii) The maximum stone crushing units are operating in the Tehsil of Nangal Chaudhary and considered to be within the area of

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15 Sq. km. Further, the maximum number of stone crushing units operating in Villages Bakhrja (17), Begopur (24) and Dholera (15) and therefore becomes the prominent source of air pollution.

- (iii) The data of ambient air quality for assessment of carrying capacity are gathered as follows:

Table- II (Stone Crusher Operational)

Particulars	Pre-Monsoon		
	Tehsil-Nangal Choudhary	Tehsil-Narnaul	Tehsil-Mahendergarh
Study Area (km <sup>2</sup> )	225	49	225
Mixing height (km)	0.6362	0.6362	0.6344
Volume of air in the study area (km <sup>3</sup> )	143	31	143
PM10 (µg/m <sup>3</sup> )	669	298	Monitoring not undertaken due to non-operation of Stone crushing units
Total Estimated load of particulate matter in ambient air in the study area during study period	95667	9238	
Assimilative Carrying Capacity (kg)	14300	3100	
Supportive Carrying Capacity (kg)	-81367	-6138	

Table- III (Stone Crusher Operational)

Particulars	Post-Monsoon		
	Tehsil-Nangal Choudhary	Tehsil-Narnaul	Tehsil-Mahendergarh
Study Area (km <sup>2</sup> )	225	49	225
Mixing height (km)	0.4483	0.4483	0.4483
Volume of air in the study area (km <sup>3</sup> )	101	22	101
PM10 (µg/m <sup>3</sup> )	427	273	299
Total Estimated load of particulate matter in ambient air in the study area during study	43127	6006	30199
Assimilative Carrying Capacity	10100	2200	10100
Supportive Carrying Capacity (kg)	-33027	-3806	-20099

Table- IV (Stone Crusher Non-Operational)

Particulars	Pre-Monsoon		
	Tehsil-Nangal Choudhary	Tehsil-Narnaul	Tehsil-Mahendergarh
Study Area (km <sup>2</sup> )	225	49	225
Mixing height (km)	0.555	0.555	0.6344
Volume of air in the study area	125	27	143
PM10 (µg/m <sup>3</sup> )	499	241	493

Total Estimated load of particulate matter in ambient air in the study area	62375	6507	70499
Assimilative Carrying Capacity	12500	2700	14300
Supportive Carrying Capacity	-49875	-3807	-56199

Table- V (Stone Crusher Non-Operational)

Particulars	Post-Monsoon		
	Tehsil-Nangal Choudhary	Tehsil-Narnaul	Tehsil-Mahendergarh
Study Area (km <sup>2</sup> )	225	49	225
Mixing height (km)	0.463	0.463	0.463
Volume of air in the study area	104	23	104
PM10 ( $\mu\text{g}/\text{m}^3$ )	380	220	411
Total Estimated load of particulate matter in ambient air in the study area during	39520	5060	42744
Assimilative Carrying Capacity	10400	2300	10400
Supportive Carrying Capacity	-29120	-2760	-32344

Note:- As there is no Sound Detection and Ranging (SODAR) station in district Mahendergarh, so atmospheric mixing height of Delhi (i.e. SODAR station located at CPCB, East Arjun Nagar, New Delhi) is considered for calculation.

- (iv) The above data have been prepared basis on the Ambient Air Quality Monitored by HSPCB on 18 locations on dated 05.03.2021 to 08.03.2021 (Pre-Monsoon) and 24.08.2021 to 27.08.2021 (Post-Monsoon) covering the cluster, the village phirni and distance from the stone crushing units. The data reveal that the supporting carrying capacity in all the Tehsils of District Mahendergarh found to be negative. This implies that the total pollution generation due to industrial and domestic activities including transportation (auto emission and road dust etc.) is over the assimilative carrying capacity of the study region.

#### Recommendation

The following recommendations are made considering the status of stone crushing units and assessment of carrying capacity.

- No new stone crushing units of any capacity shall further be allowed to establish & operate in the region including any expansion of the existing units.
- The stone crushing units which were reported not confirming to the notified siting criteria shall remain close and be shifted as per the Notification dated 11.05.2016 and amended 04.04.2019.
- The stone crushing units shall provide water sprinkling system and cover the conveyer the belt to ensure minimum dust generation from their operation for further improvement of air quality. It is also recommended that the units shall provide telescoping chute at the level of loading/un-loading of the finished crushed material to avoid any suspension of the same.

- d. *The stone crushing unit may provide concrete/pacca road to assess the crushing and transport area and provide adequate water sprinkling arrangement so as to minimise the dust formation.*
- e. *The Department of Health shall undertake regular survey of the workers and nearby inhabitants to ascertain the impact on inhabitants especially due to operation of stone crushing units besides other air polluting activities.  
A detailed study needs to be undertaken for ascertaining the number and capacity of stone crushing units that can be allowed to operate so as to bring the ambient air quality of the region within the notified standard. A source apportionment study may suffice the need."*

8. The above report is in first two matter jointly and there is a similar report in O.A No. 599/2019 separately.

9. We have heard learned counsel for the applicant, learned counsel representing one of the stone crushers and learned counsel for the State of Haryana.

10. On behalf of one of the stone crushers - Shree Vinayak Stone crusher, our attention has been drawn to order of the Punjab and Haryana High Court dated 12.07.2021 in *CWP-10337-2021 (O&M)* wherein challenge inter alia was to an order of the State PVB declining consent to operate and order of the Hon'ble Supreme Court dated 02.08.2021 in *Special Leave to Appeal (c) Nos. 11052/2021* filed against the said order of the High Court. Learned Counsel submitted that he is not representing the parties to the said proceedings but was bringing the same to the notice of this Tribunal only for information. The operative part of the order of the High Court and the text of the order of the Hon'ble Supreme Court are reproduced below:

*"Having heard learned counsel for the parties, it is observed that as far as the factual issue raised by the petitioners whether the petitioners/stone-crushers are within 1 km of the village phirmi or beyond, the same is required to be taken up by the petitioners before*

the concerned authority i.e. either the appellate authority or the National Green Tribunal. It is also observed that the petitioners had accepted the notification on 11.05.2016 since its very inception for the stone crusher of the petitioner unit is situated beyond the prohibited limit of 1 km as prescribed thereunder and above all three reports in that regard were submitted by the revenue authorities. Therefore, their grievance that arises today is only on account of the subsequent report dated 23.07.2019 vide which the petitioners/stone-crushers are allowed to be situated within the prohibited limit of 1 km.

*In the circumstances, we are of the considered opinion that the factual issues raised in respect of the distance at which the stone crushers are situated; the carrying capacity are all required to be taken up and dealt with either by the appellate authority or the National Green Tribunal, and therefore this Court is not required to examine these aspects, at this stage. As the competent authority is already looking into the aforesaid aspects, the petitioners would be at liberty to take all objections in that regard before the authority concerned.*

*As far as the challenge to the notification dated 11.05.2016 is concerned, we are of the considered opinion that in view of the orders passed by this Court in similar matters, we do not propose to entertain the same.*

*In the circumstances, the petition filed by the petitioners is disposed of granting liberty to the petitioners to take up all the issues in respect of the factual aspects regarding the distance at which the petitioners/stone crushers are situated as well as the carrying capacity before the appellate authority or the National Green Tribunal. It is also observed that in view of the fact that a Co-ordinate Bench had granted stay in the matter on 11.06.2021, which is continuing till date, therefore, it is ordered that the said interim order dated 11.06.2021 shall continue for a further period of four weeks."*

**Text of the order of the Hon'ble Supreme Court:**

*"Issue notice.*

*Counter Affidavit be filed within two weeks.*

*Rejoinder Affidavit, if any, be filed within one week thereafter.*

*List after three weeks.*

*In the meantime; there shall be stay of operation and implementation of the impugned Judgment."*

11. In view of above orders, by way of precaution, we have first asked learned Counsel to assist on the question whether this Tribunal can and

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ought to continue with the consideration of the matter. Learned counsel for applicant submitted that in view of order dated 02.11.2020 by which the Hon'ble Supreme Court directed the Tribunal to dispose of the matter leaving it open to the parties to argue the matter before this Tribunal, the Tribunal is required to proceed with the matter. Later order dated 02.08.2021, which stays the operation of judgement of the Punjab and Haryana High Court, dismissing Writ Petition against refusal to give consent to a particular stone crusher, does not operate as bar to consideration of the matter by this Tribunal on the issue of regulating the stone crushers operating beyond carrying capacity of the environment without requisite safeguards.

12. In view of above, we proceed to consider the matter, obviously subject to any order of the Hon'ble Supreme Court. We have heard learned Counsel and perused the report of the joint Committee dated 27.9. 2021. At the close of hearing on 26.10.2021, we also gave opportunity to file any written submissions/documents on or before 8.11.2021.

13. On behalf of some of the affected units undertaking mineral grinding or stone crushing, including the Association of Crushers Owners and Employees, three separate written submissions have been filed on 08.11.2021. Two sets of written submissions in OA No. 667/2018 are by the stone crushers and are identical. Written submissions by mineral grinding units in OA No. 599/2019 are also in substance similar except that such minerals are smaller in size than stones. The submissions are based on the opinion of a retired Director of MoEF&CC consulted by the industry. The objections relate to methodology of working out the carrying capacity. We have duly considered the said submissions and do not find any substance therein. The opinion states that mixing height data of Delhi

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has been taken which is 120 kms away from Mahendragarh. The carrying capacity has been assessed on the data of March and August at different locations. Stone crushers are not the only contributors to air pollution. We find that data of Mahendragarh has been separately taken. The opinion relied upon does not show any other data for Mahendragarh to establish that there is carrying capacity. Apart from criticizing the report, if the consultant is of the opinion that there is carrying capacity, the same should be shown with the support of the data compiled, if any, otherwise the opinion is without any tangible basis. As regards the submission of the mining grinding industries, only objection is that size of the minerals grinded is smaller than the stones. This objection has no substance in view of data of air pollution in the concerned area. Smallness of size of the mineral does not by itself rule out air pollution. As regards fulfilment of norms by individual units, the same cannot be seen in isolation, unless it can be shown that no addition is made to the existing excessive pollution load. Stand of the State PCB does not show assimilative air capacity of the area to sustain further contribution of pollution by the mineral grinding units. In any case whether mineral grinding units do not cause any pollution can be directed to be specifically looked into. Further, the PPs have not indicated source of water in absence of which the objection that water is being illegally extracted in the dark zone cannot be brushed aside.

14. While dealing with the identical matter for the adjoining District of Haryana, this Tribunal vide order dated 26.10.2021 in O.A. No. 607/2018, *Vinod Kumar Jangra v. State of Haryana & Ors.* observed:-

\*1 to 7...xxx.....xxx.....xxx

8. We have considered the report dated 27.09.2021 in pursuance of order dated 02.02.2021. The report does not mention status of compliance of directions in para 7 of the said order requiring stopping of polluting activities beyond carrying capacity and also requiring that

only such activity may be allowed which the environment can sustain irrespective of date of setting up of the stone crushers. Needless to say that mere compliance by individual stone crusher is not enough if the environment does not have capacity to sustain the polluting activity in question on account of pre-existing pollution load. In such situation, stone crushers can be allowed only if they do not contribute further to the pollution load by taking such mitigation measures, as viable. Standard laid down for an individual units are subject to assimilative capacity of the environment to sustain additional air pollution load as laid down by this Tribunal vide order dated 17.02.2021 in O.A. No. 1016/2019, *Utkarsh Panwar v. CPCB & Ors.*, dealing with the issue of prohibiting/regulating brick kilns in NCR, having regard to the absence of carrying capacity of the environment. Contrary to that, report merely mentions that no new stone crushers have been allowed. Action taken against stone crushers beyond carrying capacity which environment cannot sustain, has not been mentioned. Further, legality of measurement of raw material for the stone crushers needs to be ascertained and remedial action taken. The Committee being constituted may look into the aspect. Thus, in view of absence of carrying capacity and unsustainability of the stone crushers prima-facie the stone crushers may be liable to be closed to the extent the same are not sustainable. The list of operating stone crushers also mentions District Bhivani at many places, apart from Charkhi Dadri, which was initially the subject matter of consideration. Thus, the said District will also, to the extent necessary, have to be covered by the remedial action. The report dated 31.01.2021 relates to the study period of 250 days from 04.03.2020 to 08.11.2020. The relevant table has been quoted earlier and is reproduced below for ready reference:-

"The carrying capacity assessment of ambient air environment, of District Charkhi Dadri as estimated by the Joint Committee based on the available data of Continuous Ambient Air Quality Monitoring Station (CAAQMS) located in the district, for time period of 250 days i.e. 04.03.2020 to 08.11.2020 for the predominant air quality parameter i.e.  $PM_{10}$ , is as follows:

Particulars	Values	Summer Season	Monsoon Season	Post Monsoon Season
Area of District ( $km^2$ )	1370	1370	1370	1370
Mixing height (km)	0.691	0.745	0.672	0.643
Volume of air in the district	946	1021	921	892
$PM_{10}$ ( $ng/m^3$ )	265	246	177	409
Total Estimated load of particulate matter in ambient air in the district in	250815	251508	162671	360369
Assimilative Carrying Capacity (kg)	94647	102073	92112	88153
Supportive Carrying Capacity (kg)	-156168	-149435	-70558	-272216



9. It is well known fact that from the period from November to February, which has not been taken into account, the air quality is certainly inferior to the rest of the year. In view of negative carrying capacity, only those stone crushers can be permitted which do not add to the pollution load by adopting appropriate technology or methodology enabling functioning without deterioration to the air quality, during the operation of the stone crushers or during the transportation of raw material and finished product.

10. Number of stone crushers to be permitted may have to be suitably reduced to maintain adequate distance inter-se, as per formula suggested in above report of the Expert Committee which is reproduced below:-

(ii) Considering the stone dust settlement behaviour, the inter-se distance between two stone crushing units may be kept as:

$$d = (h_1 \cdot N_1 + h_2 \cdot P_2) / 100$$

Where,  $d$  = inter-se distance between two stone crushing units (in meter)

$h_1$  &  $h_2$  = height of highest nodes for unit 1 & 2, respectively (in meter)

$P_1$  &  $P_2$  = production capacity for unit 1 & 2, respectively (in MTD)

11. There is also need to implement the recommendations in the report of the Expert of the Committee dated 31.01.2021. Further solution to be considered for permitting operation of stone crushers can be development of a green belt around the periphery of the area where stone crushers are located of the width ranging from 25 meters to 50 meters, wherever viable. Any other pockets of land available may also be considered for afforestation within the crushing zone to improve the micro climate. The District Administration may also undertake paving the roads in and around the crushing area in additional water sprinkling on regular basis in the interest of public health of the citizens affected by the air pollution generated in the process."

15. In view of above the report and showing negative carrying capacity not only non-complying but also other polluting units may have to be closed unless it is ensured that there are adequate safeguards enabling operation of stone crushers without adding to the pollution load. In respect of units grinding minerals other than stones, same approach has to be adopted if they add to the existing pollution load. Safeguards can be maintaining distance from habitation and educational/health care institutions, inter se distance, limiting the number to sustainable level,

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afforestation/development of a green belt around the periphery of the area upto 25 meters from location of stone crushers and in any pockets of land available nearby to improve the micro climate and to act as barrier against air pollution. The District Administration may also undertake paving the roads in and around the crushing area in additional water sprinkling on regular basis in the interest of public health of the citizens affected by the air pollution generated in the process.

16. Let a six-member joint Committee of CPCB, State PCB, District Magistrate, Mahendragarh, jurisdictional Conservator of Forest, nominee of IIT Delhi with expertise on the subject of air pollution and a Pulmonologist, nominated by DG Health, Haryana meet within two weeks and ponder over the issue. The CPCB and the State PCB will be nodal agency for coordination and compliance. They may interact with the stake holders, including the representatives of the stone crushers, who may be informed about proceedings before this Tribunal by the State PCB, in coordination with any other concerned authorities, in an appropriate manner by e-mail or otherwise. Any expenses to be incurred will be borne by the State PCB, subject to further orders. The District Magistrate may provide logistics for execution of the order. The Committee may give a report about the number of stone crushers and mineral grinding units which can be allowed and subject to what conditions, having regard to air pollution load and adverse impact on public health. The report may be furnished within three months by e-mail at [judicial-ngt@gov.in](mailto:judicial-ngt@gov.in) preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF which may also be uploaded on the website of the State PCB for information of all the affected stone crushers who will be at liberty to file their comments, if any, to the report before this Tribunal within 15 days of uploading of the report.

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List for further consideration on 07.04.2022.

A copy of this order be forwarded to the CPCB, State PCB, District Magistrate, Mahindragarh, Conservator of Forest through the State PCB, IIT Delhi and DG Health, Haryana by e-mail.

Adarsh Kumar Goel, CP

Sudhir Agarwal, JM

Brijesh Sethi, JM

Dr. Nagin Nanda, EM

November 15, 2021  
Original Application No. 667/2018 and connected matters.  
AB

Annexure - II

**DEVELOPMENT OF EMISSION INVENTORY FOR EIGHTEEN VILLAGES OF  
MAHENDRAGARH DISTRICT IN HARYANA**

by

**Dr. Sri Harsha Kota**

Department of Civil Engineering, IIT Delhi

**Introduction:**

Air pollution is a matter of serious concern for developed, developing and underdeveloped nations as it is a local as well as a global issue. Air pollution can be described as contamination of the atmosphere by gaseous, liquid, or solid wastes or by-products which endanger human health and welfare of plants and animals, attack materials, reduce visibility or produce undesirable odours. The most important components of emissions to air include carbon dioxide, carbon monoxide, sulphur oxides ( $SO_x$ ), methane, non-methane volatile organic compounds and nitrogen oxides ( $NO_x$ ), Particulate matter (PM), ions and heavy metals associated with PM. While some pollutants are released by natural sources like volcanoes, coniferous forests, and hot springs, most of them are emitted by the burning of fossil fuels, industrial sources, power and heat generation, waste disposal and the operation of internal combustion engines, etc. The increased air pollution levels can be mainly attributed to rapid industrialization and urbanization. Most cities in the country are facing the problem of air pollution. Indian cities have experienced a phenomenal increase in population, industry, and vehicles. Given the current rapid rate of economic development of India, the further degradation of air quality is likely to occur in future and hence preventive measures become imperative. It becomes extremely necessary to make use of scientific tools available for decision making. Air pollutant emission inventory (EI) and air quality modelling are some of these tools. Emission Inventory provides the fundamental knowledge for understanding local and regional air pollution, its transport, and impacts. Emission Inventory is a structured collection of information about emissions of pollutants in a specified area. Emission inventories with highly resolved temporal and spatial information are urgently needed to combat the increasing urban and regional air pollution. An exhaustive and quality emission inventory should be able to provide a reliable estimate of total emissions of different pollutants, their spatial and temporal distribution, identification, and characterization of main sources and tracking progress towards air pollution

control. In addition, emission inventory can be used for air quality modelling for developing air pollution control strategies for attaining air quality standards. Policymakers and researchers face challenges in forming effective air quality management strategies in absence of a structured emission inventory. This information on emission inventory is an essential input to air quality models for developing strategies and policies. The goal of emission inventory development is to identify and achieve emission patterns for deriving pollution control policies.

#### **Need for the study:**

Air pollution in the Indo Gangetic plains is one of the biggest challenges that require immediate attention. Mahendragarh district in Haryana has been an area of concern and is facing high concentrations of particulates. The area also has many stone crushers that have been a cause of concern. However, due to the lack of air quality monitoring stations in these regions, there is no available data of the pollutant concentrations in these regions. Also, high concentrations of particulates may cause serious health problems in the people living in this area. Thus, there is a need to develop an emission inventory for this area to understand the contributions of different sources to the PM<sub>10</sub> concentrations so that the necessary actions can be taken to ensure that the air quality standards prescribed by CPCB are met.

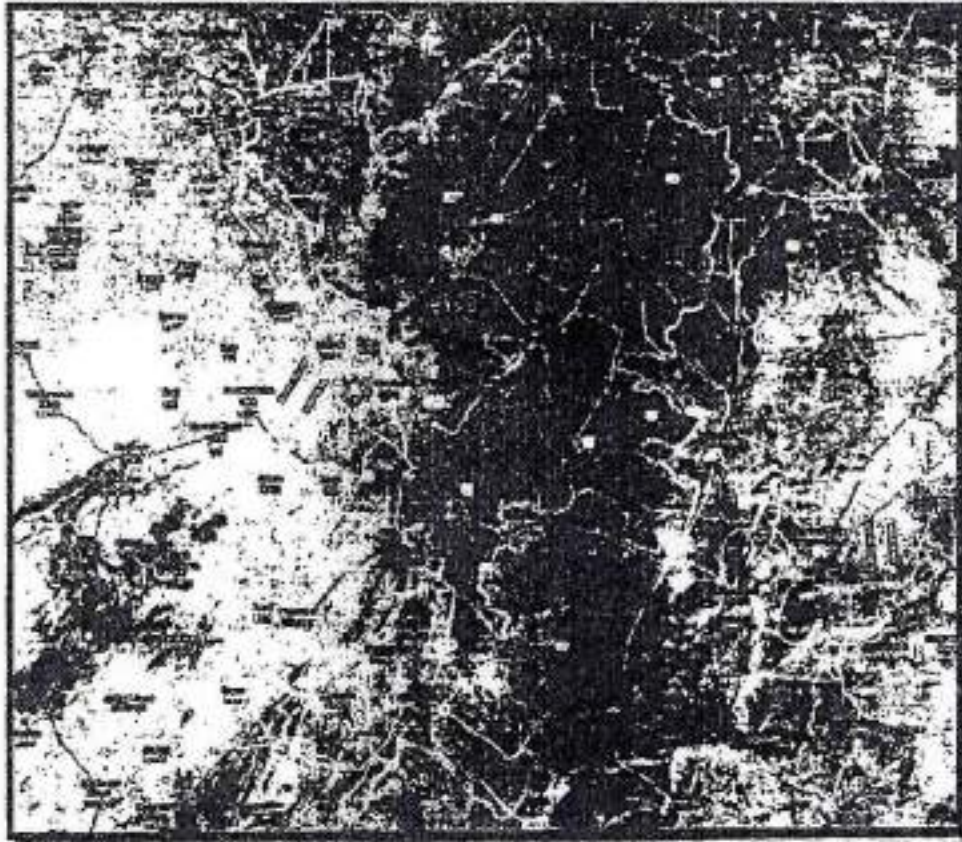


Figure 1. Map of Mahendragarh district

**Objectives of the study:**

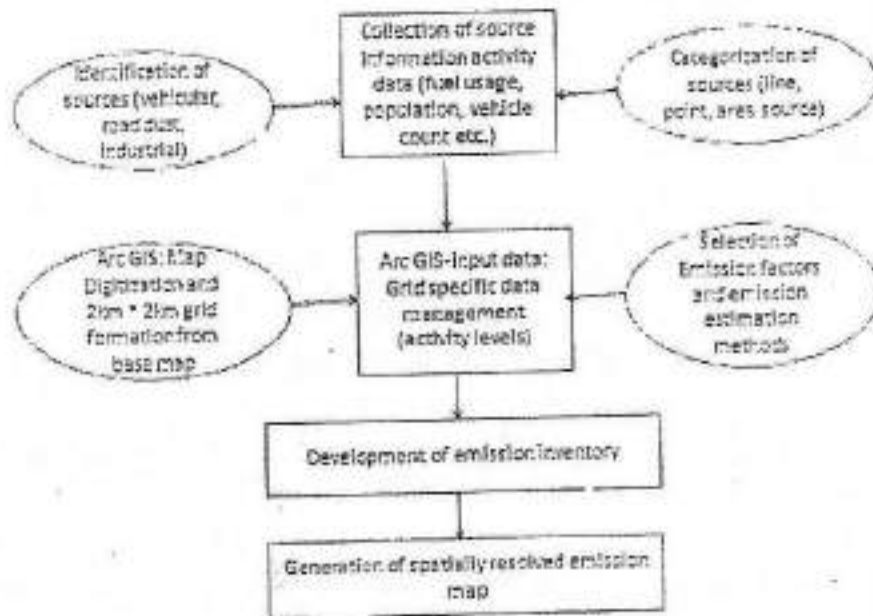
The main objective of the proposed project is to estimate the emissions of various sources such as vehicles, road dust, industry, stone crushers etc. to the total  $PM_{10}$  emissions in villages of Garhi, Zerpur, Kultajpur, Lutufpur, Faizabad, Mandlana, Raghunathpura, Karota, Gangutana, Bakhrija, Begopur, Dholera, Jainpur, Khatoli Ahir, Berundla, Panchnota, Khatoli Jat and Bayal in the Mahendragarh district. It is proposed to meet this main objective through the following sub-objectives:

- i. Preparation of an exhaustive emission inventory of  $PM_{10}$  from various sources for the selected villages in the Mahendragarh district of Haryana.
- ii. Preparation of action plans for these villages of Mahendragarh district.

**Methodology:**

The source activities for air pollution in this region can be broadly classified as transport (motor vehicles), commercial activities, industrial activities, domestic activities, and fugitive sources. Clusters of small and medium scale industries are significant contributors to the air pollution of which, stone crushers are one of the most prevailing sources of air pollution in this region. Diesel driven tractors are the dominant sources of transportation in the region.

In addition to industrial and automobile pollution, there are emissions from domestic cooking using fuels like wood, coal, biomass etc. Garbage burning may be a common practice and can be an important contributor to air pollution. The road condition may cause non-exhaust road dust emission in a significant amount as many roads in the Mahendragarh area are unpaved. An overall project methodology is presented in Figure 2.



**Figure 2. Overall Methodology for Emission Inventory**

ArcGIS will be used for the digitization of the emission inventory for this study because it is user friendly and is frequently used by the local authorities and research institutions for air pollution management. The topographical map, of cities, will be geo-coded as the base maps in the form of polygons for geo-referencing the other maps. The other maps (e.g., land use, road, and railway intersection) and ward boundary will be geo-referenced. Various thematic layers of gridded maps will be generated in GIS (e.g., road maps, population map).

Based on primary data from field surveys, major sources of air pollutants will be classified as:

- (1) Industries
- (2) Stone crushers
- (3) Mineral grinding
- (4) Vehicles
- (5) Domestic fuel burning,
- (6) Open burning (agricultural residue and garbage burning),
- (7) Hotel and restaurant fuel use,
- (8) Diesel generator (DG) sets
- (9) Road dust
- (10) Other sources (e.g., other fugitive sources).

The methodology can be divided into two phases:

**1. Phase 1:**

The primary and the secondary data including the field survey data will be provided to IIT Delhi by Haryana State Pollution Control Board (HSPCB). All the requisite survey forms for each source will be provided by IIT Delhi.

The following data is to be provided to IIT Delhi for this phase:

- Boundary maps of the selected villages in Mahendragarh district to be provided.
- Collection of activity data for industrial and domestic emissions including fugitive and non-point sources.
- Traffic survey at roads selected by IIT Delhi.
- Road dust sampling at roads selected by IIT Delhi.
- Secondary data such the meteorological data.

**2. Phase 2:**

Digitization of all the data and maps provided by HSPCB and preparation of gridded PM<sub>10</sub> emission inventory of the selected villages of Mahendragarh district will be carried out in this phase. The emission inventory developed in this phase of the project will help in estimating the contribution of different sources to the PM<sub>10</sub> of these areas.



**3. Phase 3:**

Using the developed emission inventory, action plans would be formulated to reduce the excess current pollution load, if any. Different scenarios used in these action plans include but are not limited to:

- i. Operating time and frequency of stone crushers to limit the impact on air quality.
- ii. Converting all the unpaved roads to paved roads.

**Project deliverables/Expected outcomes:**

- (i) An exhaustive emission inventory for the selected villages of Mahendragarh will be developed.

**Duration:**

The proposed duration is three months. Zero date of the project is the date on which funds are received from HSPCB.

**Timeline:**

S. No.	Description	Month 0	Month 1	Month 2
1.	Conducting surveys and data collection by HSPCB			
3.	Digitization of maps and data collected			
4.	Preparation of emission inventory			
7.	Final report submission			

Note: The timeline starts from the zero date (date of receiving funds from HSPCB).

**Budget:**

12 Lakhs INR (Exclusive of applicable GST)

## Haryana State Pollution Control Board

REGIONAL OFFICE, LALA NEMI CHAND SINGHAL ENCLAVE, SOHNA ROAD  
NEAR PUNJAB NATIONAL BANK, DHARUHERA

Tele Fax: 01274-244241

E-Mail: hspcbrodr@gmail.com

To,

The Chairman,  
Haryana State Pollution Control Board,  
Panchkula

Sub.- Revised sanction of Rs. 12 Lakhs for proposal submitted by Dr. Sri Harsha Kota, Associate Professor, IIT, Delhi in the matter OA No. 667/2018 titled as Mahendra Singh Vs State of Haryana and Ors., OA No. 679/2018 titled as Tejpal Vs State of Haryana and Ors. & OA No. 599/2019 titled as Bishamber Singh Vs State of Haryana and Ors.- reg in favour of IRD ACCOUNT IITD, IIT CAMPUS,IRD UNIT, HAUZ KHAS, NEW DELHI - 110016.

Ref.- Head office sanction order of Rs. 12 Lakhs vide No. I/99859/2022 dated 05.03.2022.

In this connection, it is submitted that sanction of Rs. 12 Lakhs was received from Head Office in the name of Dr. Sri Harsha Kota, Associate Professor, IIT, Delhi vide No. I/99859/2022 dated 05.03.2022 in regards to carry out preparation of an exhaustive emission inventory of PM10 from various sources in the District Mahendragarh. Dr. Sri Harsha Kota, Associate Professor, IIT, Delhi has provided the account details in the name of "IRD ACCOUNT IITD, IIT CAMPUS,IRD UNIT, HAUZ KHAS, NEW DELHI." and vide this office letter No. 6 dated 06.04.2022 has requested the Head Office to deposit the fund in the accounts detail shared by Dr. Sri Harsha Kota- IRD ACCOUNT IITD, IIT CAMPUS,IRD UNIT, HAUZ KHAS, NEW DELHI. Now telephonic message has been received from Sr. Account Officer, Panchkula that revised sanction in favour of IRD ACCOUNT IITD, IIT CAMPUS,IRD UNIT, HAUZ KHAS, NEW DELHI is required to release the funds as already sanctioned.

Keeping in view of above, it is requested to kindly accord the revised sanction of Rs. 12 Lakhs in favour of IRD ACCOUNT IITD, IIT CAMPUS,IRD UNIT, HAUZ KHAS, NEW DELHI and also requested that the amount may be deposited/released in the said account, so that action taken report in compliance of the Hon'ble NGT order dated 15.11.2021 in the matter of OA No. 667/2018 titled as Mahendra Singh Vs State of Haryana and Ors., & OA No. 679/2018 titled as Tejpal Vs State of Haryana and Ors. and OA No. 599/2019 titled as Bishamber Singh Vs State of Haryana and Ors. may be submitted to Hon'ble NGT within stipulated time period, accordingly.

- DAJ- 1. Copy of Head Office Sanction  
2. Copy of bank detail

Signed by Dinesh Yadav  
Date: 20-04-2022 13:57:25  
Reason: Approved

Regional Officer  
Dharuhera Region

**HARYANA STATE POLLUTION CONTROL BOARD**

**C-11 Sector-6, Panchkula**  
**Ph - 0172- 577870-73, Fax No. 2581201**  
**E-mail- hspcbhazardouswaste@gmail.com**  
**Website; hspcb.gov.in**

Office Order

Sanction is hereby accorded for Rs. 12 Lakhs (Twelve Lakhs only) (Exclusive of applicable GST) in favour of Dr. Sri Harsha Kota, Associate Professor, IIT Delhi regarding Study on Development Of Emission Inventory for Eighteen Villages of Mahendergarh District in Haryana in compliance of Hon'ble NGT order dated 15.11.2021 in the matter of OA no. 667/2018 titled as Mahender Singh Vs State of Haryana and others and OA no. 679/2018 titled as Tejpal Vs State of Haryana and others subject to all financial provisions and procedures, as applicable. The duration of the study will be 03 months and zero date of projects will be the date on which funds are received from Haryana State Pollution Control Board for the study.

Dated the Panchkula

P. Raghavendra Rao

04/03/2022

Chairman

Endst./HWM/2022/Dated:- 04/03/2022

1. The Regional officer, Dharuhera.
2. Sr. Accounts Officer, HSPCB.
3. Administrative Officer cum PS to Chairman, HSPCB.
4. PA to Member Secretary.

Signed by Naveen Gulia

Date: 05-03-2022 14:43:26

Reason: Approved  
Sr. Environmental Engineer(HQ)

For Chairman

1934242/2022/REGION DHAUHERA

04/43

1934242/2022/REGION DHAUHERA



भारतीय प्रौद्योगिकी संस्थान दिल्ली  
INDIAN INSTITUTE OF TECHNOLOGY DELHI  
डॉ. आर. कृष्ण, आई.टी.डी. - 110 016, हाउस खास, नई दिल्ली - 110 016  
अनुसंधान एवं शिक्षण एकक/Research & Development UNIT

R & D Establishment  
011-2659 1727 (Asst. Registrar)  
011-2659 1722 (Superintendent)  
011-2659 7155/7157/7157/7157  
Email : aridac@admin.iitd.ac.in

R & D Reception  
Tel : 011-2659 7154 (Ext.)  
011-2659 7157 (Accts.)  
Fax : 011-2659 4715

R & D Accounts  
011-2659 1758 (Asst. Registrar)  
011-2659 7545 (Supervisor-I)  
011-2659 7542 (Supervisor-II)  
Email : aridac@admin.iitd.ac.in

## INDIAN INSTITUTE OF TECHNOLOGY DELHI

ELECTRONIC CLEARING SERVICE (CREDIT CLEARING) / REAL TIME GROSS SETTLEMENT (RTGS) FACILITY  
FOR RECEIVING PAYMENT

## \*A. DETAILS OF ACCOUNT HOLDER

NAME OF ACCOUNT HOLDER	IRD ACCOUNT LTD
COMPLETE CONTACT ADDRESS	IT CAMPUS, IRD UNIT, HAUZ KHAS, NEW DELHI - 110016
TELEPHONE NUMBER/FAX/EMAIL	011-26591758/26597157 E mail Id :- aridac@admin.iitd.ac.in

## \*B. BANK ACCOUNT DETAILS

BANK NAME	STATE BANK OF INDIA
BRANCH NAME WITH COMPLETE ADDRESS	INDIAN INSTITUTE OF TECHNOLOGY, HAUZ KHAS, NEW DELHI-110016
IFS CODE OF THE BRANCH	SBIN001077
MICR CODE	110002156
TYPE OF BANK ACCOUNT	SAVING
BANK ACCOUNT NO.	10773572600
SWIFT CODE	SBININBR547
CURRENCY IN WHICH THE ACCOUNT IS HELD	INDIAN RUPEES

IRD PAN No. AAAT0393L

I hereby declare that the particulars given above are correct and complete.

वैयक्तिक कृतवी / स.अ. मुद्रांकन  
सहायक नृशासिन (अकाउन्ट्स एण्ड डी.)  
Assistant Registrar (Accounts-P&D)

Date: 12-02-2019

Signature of the Competent Authority, Indian Institute  
of Technology Delhi  
डॉ. आर. कृष्ण, आई.टी.डी. - 110 016, हाउस खास, नई दिल्ली - 110 016

Certified that the particulars furnished above are correct and signature of Authorized Signatory are  
verified as per our records



Date: 12/02/2019

Signature of the Competent Authority Official of the Bank (with  
Bank's Stamp)

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भारतीय स्टेट बैंक  
State Bank Of India

(01077) IFS CODE : SBIN0001077  
111, NEW DELHI INDIAN INSTITUTE OF TECHNOLOGY,  
MAJIZ KHAS, NEW DELHI - 110016

THE STATE BANK OF INDIA  
D D M M Y Y P P

PAY

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For R D ACCOUNT LTD

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Particulars  
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AS/RO (A/S) ADDEAN (R & O)  
Please sign above

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HARYANA STATE POLLUTION CONTROL BOARD  
C-11, SECTOR-8, PANCHKULA  
Ph-0172-577870-73, Fax No. 2581201  
E-mail: hspcbhazardouswaste@gmail.com

HSPCB/HWM/2022/ Dated: 29/04/2022

Office Order

In continuation to this office order no. I/99859/2022 dated 05.03.2022, sanction was accorded for Rs. 12 Lakhs (Twelve Lakhs only) (Exclusive of applicable GST) in favour of Dr. Sri Harsha Kota, Associate Professor, IIT Delhi regarding "Study on Development Of Emission Inventory for Eighteen Villages of Mahendergarh District in Haryana" in compliance of Hon'ble NGT order dated 15.11.2021 in the matter of OA no. 667/2018 titled as Mahender Singh Vs State of Haryana and others and OA no. 679/2018 titled as Tejpal Vs State of Haryana and others.

Now, Regional officer, Dharuhera vide his letter dated 20.04.2022(copy enclosed) has submitted to accord revised sanction of Rs. 12 lakhs in favour of Indian Institute of Technology, IIT CAMPUS,IRD UNIT, HAUZ KHAS, NEW DELHI instead of Dr. Sri Harsha Kota, Associate Professor, IIT Delhi. The duration of the study will be 03 months and zero date of projects will be the date on which funds are received from Haryana State Pollution Control Board for the study.

Therefore, sanction is hereby accorded for Rs. 12 lakhs in favour of Indian Institute of Technology, IIT CAMPUS, IRD UNIT, HAUZ KHAS, NEW DELHI. The account details are also attached herewith.

Dated the Panchkula                      P. Raghavendra Rao  
29/04/2022                                      Chairman

Endst./HWM/2022/Dated:- 29/04/2022

1. The Regional officer, Dharuhera.
2. Sr. Accounts Officer, HSPCB. He is requested to deposit the amount in account detail in the name of Indian Institute of Technology, IIT CAMPUS,IRD UNIT, HAUZ KHAS, NEW DELHI.
3. Administrative Officer cum PS to Chairman, HSPCB.
4. PA to Member Secretary.

Signed by Naveen Gulia  
Date: 29-04-2022 09:16:04  
Reason: Approved  
Sr. Environmental Engineer(HQ)  
For Chairman