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

ORIGINAL APPLICATION NO. 1358 OF 2024

IN THE MATTER OF:

ARCHIT ARORA. …APPLICANT

VERSUS

GOVT. OF PUNJAB & ORS. …RESPONDENTS

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THROUGH

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

ORIGINAL APPLICATION NO. 1358 OF 2024

IN THE MATTER OF:

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REPLY ON BEHALF OF RESPONDENT NO.3 I.E. ALL INDIA STEEL ROLLERS ASSOCIATION.

MOST RESPECTFULLY SHOWETH:

1. That the present Original Application has been filed by the Applicant under Sections 14 and 15 of the National Green Tribunal Act, 2010, inter alia seeking directions against the Respondents with respect to the alleged air pollution in Khanna, Punjab, primarily attributing the same to the operation of steel rolling mills and industrial units using coal/furnace oil, and further seeking directions for transition of such industries to Piped Natural Gas (PNG) from coal-based in the industrial area of Khanna. The matter is pending adjudication and is now listed for hearing on 26.05.2024.

2. That the present reply is being filed by the Respondent No.3 i.e. All India Steel Rollers Association, to bring on record necessary facts and documents important for the fair and just adjudication of the instant Original Application.

3. The Respondent No.3 herein i.e. All India Steel Rollers Association was established in the year 1972. The Respondent No.3 herein is an apex body of more than 1,000 members. The Respondent No.3 promotes Re-Rolling

technology (R&D) and rendering all assistance to members for efficient running of their units.

4. It is respectfully submitted that the issue involved in the present matter cannot be viewed in isolation or reduced to a singular question of fuel usage by rolling mills. The material placed on record would demonstrate that the ambient air quality concerns in Khanna are multi-factorial in nature involving substantial contribution from road dust, vehicular emissions, highway traffic, construction activities and other non-industrial sources. It shall further be demonstrated that the proposed transition to PNG has throughout remained dependent upon availability of adequate infrastructure, continuity and sufficiency of supply, techno-economic feasibility and sustainable commercial conditions, all of which presently remain uncertain and unstable. In fact, the prevailing shortages and disruptions in PNG supply stand specifically acknowledged not only by the gas supplier company themselves through various communications issued to industrial consumers regarding curtailment and restricted supply, but also by the Central Pollution Control Board (CPCB), which has itself recognized extraordinary situations arising out of shortage and disruption in supply of approved cleaner fuels and has accordingly permitted temporary use of alternate fuels in appropriate circumstances.

   It is further submitted that even at the national policy level, the Government of India has recently acknowledged the vulnerability arising from excessive dependence upon imported LNG/natural gas and the adverse impact of ongoing geopolitical disturbances and international supply-chain disruptions on availability and pricing of gas. It is in this background that the Government of India has recently approved and promoted large-scale coal gasification projects with the specific object of reducing dependency on imported

LNG/natural gas and insulating domestic industries from global supply volatility. The Respondent No.3 therefore seeks to place before this Hon'ble Tribunal the prevailing ground realities relating to incomplete PNG connectivity, recurring shortages and curtailment in gas supply, monopolistic and arbitrary pricing mechanisms, severe financial distress faced by MSME rolling mills and the scientific source-apportionment data indicating comparatively limited contribution of rolling mills towards overall ambient particulate pollution in the region.

5. That pertinently the rolling mill industry has throughout remained compliant with the applicable environmental framework and has consistently undertaken measures directed by the regulatory authorities, including installation of Air Pollution Control Devices (APCDs), maintenance of prescribed stack heights and regular monitoring of stack emissions under the supervision of the Punjab Pollution Control Board. However, despite such compliance, the industry presently finds itself placed in a highly precarious position due to coercive pressure for compulsory transition to PNG notwithstanding the prevailing infrastructural, commercial and supply-side constraints which remain beyond the control of the industrial units. The Respondent No.3 is therefore constrained to place the true factual and legal position before this Hon'ble Tribunal so that the present matter may be adjudicated in a balanced, scientific and pragmatic manner consistent with environmental objectives, industrial sustainability and the express policy framework governing fuel transition within the State of Punjab.

6. The brief facts necessary for the fair and just adjudication of the present matter are as follows: -

i. That nine cities in the State of Punjab, namely Dera Bassi, Nangal, Patiala, Mandi Gobindgarh, Khanna, Ludhiana, Jalandhar, Pathankot and Amritsar, were identified and declared as Non-Attainment Cities (NACs) by the Central Pollution Control Board (CPCB) on the basis of ambient air quality data for the period 2011–2015, on account of non-compliance with the prescribed annual average standard of PM10 concentration of 60 μg/m³. Pursuant thereto, the CPCB issued directions to the Punjab Pollution Control Board for preparation and implementation of city-specific action plans aimed at improvement of ambient air quality in the aforesaid non-attainment cities.

ii. The Hon'ble National Green Tribunal, while taking cognizance of the draft National Clean Air Programme (NCAP), passed detailed directions vide order dated 08.10.2018 in O.A. No. 681 of 2018 for preparation and implementation of action plans for non-attainment cities across the country. The said directions, inter alia, required the concerned authorities to prepare city-specific action plans within a stipulated time frame for bringing ambient air quality within prescribed standards; constitute inter-departmental committees for preparation and supervision of such plans; undertake source identification and source apportionment studies with respect to vehicular, industrial, construction, agricultural and residential pollution; strengthen ambient air quality monitoring infrastructure; undertake public awareness and grievance redressal measures; and formulate time-bound mitigation measures consistent with the carrying capacity assessment of the concerned non-attainment cities. The Hon'ble Tribunal further directed CPCB and the State Pollution Control Boards to strengthen and expand the nationwide ambient air quality monitoring

network, preferably through Continuous Ambient Air Quality Monitoring Stations (CAAQMS), and to prepare comprehensive action plans with specific timelines for implementation. Copy of the order dated 08.10.2018 passed by this Hon'ble Tribunal in O.A. No. 681 of 2018 is marked and annexed herewith as **Annexure-R3/1**.

iii. That it is relevant to mention that the Petroleum and Natural Gas Regulatory Board (PNGRB), in its 9th City Gas Distribution (CGD) Network Bidding Round, invited bids for development of CGD networks in 86 Geographical Areas across the country, including the Geographical Area comprising Ludhiana, Barnala and Moga Districts, identified as GAID No. 53. Pursuant thereto, a consortium comprising Think Gas Investments PTE Ltd. and Think Gas Distribution Pvt. Ltd. (hereinafter referred to as the "Think Gas Consortium") participated in the bidding process and, upon evaluation of bids, was granted authorization vide letter dated 01.11.2018 for development of the CGD network in the geographical area of Ludhiana, Barnala and Moga Districts (LBM GA Authorization). It is submitted that the scope of the said LBM Geographical Area also included Khanna town falling within Ludhiana District, and accordingly the responsibility for laying, building, operating and expanding the CGD network infrastructure in the said area was awarded to the Think Gas Consortium. Subsequently, the Think Gas Consortium requested the PNGRB for transfer of the said authorization to a Special Purpose Vehicle (SPV), namely Think Gas Ludhiana Pvt. Ltd., which had been specifically incorporated for execution of the project, and the PNGRB permitted the said SPV to undertake and carry forward the

activities relating to development and operation of the CGD network in the LBM Geographical Area.

iv. That in furtherance of the directions issued by this Hon'ble Tribunal, the Ministry of Environment, Forest and Climate Change (MoEFCC) launched the National Clean Air Programme (NCAP) in the year 2019 with the objective of reducing ambient particulate matter (PM) pollution levels in 131 identified non-attainment cities across the country. Under the NCAP framework, the concerned cities were required to formulate and implement city-specific action plans aimed at achieving reduction in PM pollution levels by 20–30% by the year 2024, taking 2017 as the base year. Subsequently, in the year 2022, the targets under NCAP were revised and enhanced to achieve reduction of PM pollution levels by 40% by the year 2026.

v. That pursuant to the National Clean Air Programme (NCAP) launched by the Ministry of Environment, Forest and Climate Change (MoEFCC), as well as the directions issued by this Hon'ble Tribunal vide order dated 08.10.2018 in O.A. No. 681 of 2018, the Directorate of Environment and Climate Change, Department of Science, Technology and Environment, Government of Punjab prepared an Action Plan for Clean Air in Khanna dated 13.02.2019. The said Action Plan envisaged various sector-specific measures and activities aimed at minimising and controlling pollution generated from industrial units operating in Khanna, including measures relating to industrial emissions, fuel transition and adoption of cleaner technologies. Relevant portion from the Action Plan prepared by the

Government of Punjab is reproduced herein below for the ready reference of this Hon'ble Authority:

> *"8.3 CIE 2 – Conversion to CNG/ PNG from Coal A large number of units in Gobindgarh are using coal as source of energy.* ***With the availability of CNG in the city, PPCB will motivate the industry to convert from Coal to CNG. The State government will be approached to reduce VAT to make it viable alternative****."*

Further, the Action Plan proposed the following action:

> *"8.5 CIE 4 – Action against non-complying industrial units: The regular monitoring of industries is being carried out as per the policy of the Board. In case, any industry is found violating the provisions of the Air (Prevention and Control of Pollution) Act, 1981, action under the provisions of the said Act is initiated against the violating industries. The number of inspections carried out and action taken will be monitored regularly by the District Level Committee."*

vi. It is pertinent to submit that the Action Plan for Clean Air itself records that the "major parameter of concern" in the concerned area is PM10, whereas **all other monitored parameters were found to be within the prescribed limits**. It is relevant to mention herein that vehicular pollution contributes to PM10 and the industries in question do not have much effect on the PM 10 levels. The Action Plan further notes, **on the basis of the ambient air**

quality data annexed therein, that the Air Quality Index (AQI) of Khanna generally remains in the "Moderate" category (101–200) and at times falls within the "Satisfactory" category (51–100). Thus, even as per the Government's own assessment contained in the Action Plan, the issue primarily pertains to particulate matter levels, while the remaining air quality parameters were observed to be within permissible standards. The AQI data for the year 2018 as provided for in the action plan itself is reproduced herein below for ready reference:

"*Annexure B – AQI data for the year 2018 depicting the air quality in Khanna*

Month	***AQI***	***CATEGORY***
April -2018	*125*	*Moderate*
May -2018	*120*	*Moderate*
June – 2018	*124*	*Moderate*
July – 2018	*49*	*Satisfactory*
August - 2018	*55*	*Satisfactory*
September - 2018	*54*	*Satisfactory*
October - 2018	*113*	*Moderate*
November - 2018	*111*	*Moderate*
December - 2018	*107*	*Moderate*
Annual Average	***95***	***Moderate***

The AQI data for the year 2018, as reproduced in the Action Plan itself, clearly demonstrates that the ambient air quality in Khanna predominantly remained within the "Moderate" category and, during several months, even fell within the "Satisfactory" category. Notably, the annual average AQI recorded was 95, which is substantially below the "Poor", "Very Poor" or "Severe" categories. The said data itself indicates that the air quality situation in Khanna was neither alarming nor critical in nature and

that the ambient air quality remained within manageable and regulated parameters.

vii. That it is further pertinent to submit that even as per the Action Plan for Clean Air prepared by the Government of Punjab, **the proposed transition of industrial units from coal to cleaner fuel such as CNG/PNG was expressly made contingent upon the availability and laying of PNG pipeline infrastructure in the concerned area**. Annexure-F appended to the said Action Plan, dealing with "Action Plan for Control on Industrial Emissions", specifically records that no industry had, at the relevant time, converted its furnace from coal to PNG fuel and that a**pproximately 93 industrial units were proposed to shift to PNG only "subject to reduction of VAT by the State Government**". The Action Plan further contemplated that **such transition would take place within one year after laying of the PNG pipelines. Thus, the Action Plan itself recognizes that the proposed fuel transition was conditional and dependent upon multiple external factors, including (i) reduction of VAT by the State Government, and (ii) provision and operationalization of PNG pipeline infrastructure by the concerned authorities/agencies**. The milestones stipulated in the Action Plan also clearly demonstrate that the responsibility for laying and providing PNG infrastructure rested with the concerned authorities and gas supplier agencies, and only thereafter could procurement, installation and commissioning by industries be undertaken.

"*Annexure F – Action Plan for Control on Industrial Emissions*

S.No	***Activity***	***Responsible Agencies***	***Base Line***	***Target to be achieved***	***Target Date***	***Milestones (Monthly/ Quarterly)***
1.	*CIE 2 – Conversion to CNG/PNG from coal*	*Punjab Pollution Control Board &Think Gas/ MC*	*No industry have converted their furnace from coal to PNG fuel*	***93 units will shift to PNG subject to reduction of VAT by State Govt.***	***One year after laying of pipelines***	*1.* ***The matter to be taken with the Government to reduce VAT.*** *2.***Providing pipeline for transportation of PNG-One year.*** *3. Procurement of instruments 4. Installation 5.Commissioning*

viii. That the Action Plan for Clean Air itself also contains a source-apportionment assessment identifying the estimated contribution of various sectors towards air pollution in Khanna. The said assessment clearly demonstrates that air pollution in the region is attributable to multiple and diverse sources and is not solely dependent upon industrial activity. As per the Action Plan, industrial emissions account for approximately 40% of the pollution load, whereas significant contribution

also emanates from road dust (30%), vehicular pollution (20%), burning of garbage and biomass (5%), construction and demolition activities (4%) and other sources (1%). The aforesaid figures clearly establish that a substantial portion of the air pollution burden in Khanna arises from non-industrial sources such as road dust and vehicular emissions, which together contribute nearly 50% of the overall pollution load. Consequently, the issue of ambient air quality in the region cannot be attributed exclusively to industrial units alone and necessarily requires a comprehensive, multi-sectoral and coordinated approach involving all concerned stakeholders and authorities. The relevant source-apportionment figures recorded in the Action Plan are reproduced hereinbelow for ready reference:

1.	*Industrial Emissions*	*40%*
2.	*Road Dust*	*30%*
3.	*Vehicular Pollution*	*20%*
4.	*Burning of Garbage and Biomass*	*5%*
5.	*Construction and Demolition Activities*	*4%*
6.	*Other Sources*	*1%*

Copy of the Action Plan for Clean Air in Khanna dated 13.02.2019 prepared by the Directorate of Environment and Climate Change, Department of Science, Technology and Environment, Government of Punjab is marked and annexed herewith as **Annexure-R3/2**.

ix. That thereafter, an Original Application bearing **O.A. No. 924 of 2019 titled *Neeraj Goyal vs. State of Punjab & Ors***. came to be filed before this Hon'ble Tribunal primarily **seeking remedial action against the**

alleged polluting activities of motor scrapping units operating in Mandi Gobindgarh, Punjab. It is pertinent to mention that the said Original Application pertained specifically and exclusively to the area of Mandi Gobindgarh and did not concern or involve Khanna town or the industrial units operating therein. While adjudicating the said matter, this Hon'ble Tribunal vide order dated 01.10.2020 issued certain directions concerning industrial pollution in the area, including observations with respect to rolling mills operating on coal. The Hon'ble Tribunal observed that in the event shifting from coal to PNG did not take place, the State Pollution Control Board should ensure closure of non-compliant units and take coercive measures including recovery of environmental compensation and initiation of prosecution in accordance with law. However, it is most respectfully submitted that a plain reading of the order dated 01.10.2020 itself clearly reveals that the principal issue under consideration before this Hon'ble Tribunal in O.A. No. 924 of 2019 pertained to remedial action against illegal and polluting activities of motor scrapping units in Mandi Gobindgarh, and not against rolling mills as such. It is further pertinent to mention that none of the rolling mills operating in Mandi Gobindgarh were impleaded as parties to the said Original Application, nor were they afforded any opportunity of hearing before issuance of the aforesaid observations/directions concerning transition from coal to PNG. The relevant portion of the order dated 01.10.2020 is reproduced hereinbelow for the ready reference of this Hon'ble Tribunal:

"The issue for consideration is remedial action against polluting activities by the motor scraping units in Mandi Gobindgarh, Punjab….

……..In the context of directions to shift rolling mills from coal to PNG, we direct the State PCB to ensure that if such shifting does not take place, the non-compliant units be closed till compliance. This should apply not only to rolling mills but also to other similarly placed industries operating on coal. Wherever there is non-compliance, the State PCB may take coercive measures including closure, recovery of compensations and initiating prosecution, following due process of law."

It is further submitted that the said Original Application was finally disposed of by this Hon'ble Tribunal vide order dated 06.04.2021, wherein this Hon'ble Tribunal took note of the status of PNG connectivity and observed that while 48 units had already been provided PNG connections, applications of 160 additional units were under process and 31 units had yet to initiate the process. Accordingly, this Hon'ble Tribunal directed the State of Punjab and the Ministry of Petroleum to take expeditious steps in the matter and further directed the Chief Secretary, Punjab to facilitate the project relating to laying of necessary PNG infrastructure. The relevant portion of the order dated 06.04.2021 is reproduced hereinbelow:

"Since 48 units have been given PNG, applications of 160 more units are in the process of getting PNG and 31 units have yet to initiate the process, the State of Punjab as well as the Ministry of Petroleum may take expeditious steps in the matter. The Chief

Secretary, Punjab may facilitate the project of laying of necessary infrastructure which is necessary for protection of environment and public health."

That owing to subsequent and drastic changes in circumstances, which rendered implementation of the directions contained in the orders dated 01.10.2020 and 06.04.2021 commercially and practically unviable for the rolling mill units operating in Mandi Gobindgarh, the Respondent No. 3 herein has preferred Review Application No. 37 of 2025 before this Hon'ble Tribunal seeking review/modification of the aforesaid orders. The said Review Application, inter alia, raises issues concerning the subsequent factual developments, practical difficulties and changed circumstances affecting viability and implementation of the proposed fuel transition measures. It is submitted that the said Review Application was last listed before this Hon'ble Tribunal on 14.05.2026 and is presently fixed for further consideration on 28.08.2026. Copy of the order dated 14.05.2026 passed by this Hon'ble Tribunal in review Application bearing No. 37 of 2025 is marked and annexed herewith as **Annexure-R3/3**.

x. That, as already stated hereinabove, the responsibility for laying, building, operating and expanding the CGD network infrastructure in the concerned area vested with Think Gas Ludhiana Pvt. Ltd. In terms of the Action Plan dated 13.02.2019, the laying of the PNG pipeline infrastructure was envisaged to be completed within a period of one year, and only thereafter were the industrial units, including rolling mills, expected to undertake conversion from coal-based fuel to PNG within the subsequent one-year

period. However, it is pertinent to submit that, as admitted by the Respondent Punjab Pollution Control Board itself in its Status Report dated 08.01.2025 filed before this Hon'ble Tribunal (uploaded on 13.01.2025), the process of laying the PNG pipeline infrastructure was delayed by Think Gas Ludhiana Pvt. Ltd. on one pretext or another. In this regard, the Punjab Pollution Control Board specifically records in paragraph 11 of the said Status Report (page 495 of the court file) that repeated delays occurred in implementation of the CGD network project. It is further submitted that on account of such delays, the Punjab Pollution Control Board was constrained to issue multiple Show Cause Notices dated 03.12.2020, 21.12.2020 and 30.12.2020, followed by an order dated 08.01.2021, against Think Gas Pvt. Ltd. for delaying the laying and operationalization of the Piped Natural Gas (PNG) network in the Ludhiana–Barnala–Moga Geographical Area (LBM GA). Thus, the delay in availability of PNG infrastructure was attributable to the concerned CGD entity responsible for implementation of the project.

xi. That as stated by the Respondent Board in its reply (para- 12 page 495 of the court file), being aggrieved by the aforesaid action of the Punjab Pollution Control Board, Think Gas Pvt. Ltd. preferred Civil Writ Petition No. 948 of 2021 before the Hon'ble Punjab and Haryana High Court challenging the Show Cause Notices dated 03.12.2020, 21.12.2020 and 30.12.2020, as well as the order dated 08.01.2021 issued by the Punjab Pollution Control Board. In the said writ petition, Think Gas Pvt. Ltd. sought issuance of a writ of Certiorari for quashing of the aforesaid notices and order on the ground that the same were illegal, arbitrary and beyond the jurisdiction of the Punjab Pollution Control Board, contending

inter alia that the work of laying and development of the PNG pipeline network was being undertaken pursuant to authorization granted by the Petroleum and Natural Gas Regulatory Board (PNGRB), and therefore the matter fell exclusively within the regulatory domain of PNGRB. It was further prayed before the Hon'ble High Court that no coercive or further action be taken against Think Gas Pvt. Ltd. pursuant to the impugned show cause notices and order, the same being alleged to be arbitrary and without jurisdiction. The aforesaid proceedings clearly demonstrate that substantial disputes and delays existed with respect to the laying and operationalization of the PNG infrastructure itself, which was a prerequisite for transition of industries from coal to PNG.

That in compliance to the order dated 18.01.2024 passed by the Hon'ble Punjab and Haryana High Court, the Punjab Pollution Control Board filed its reply dated 29.04.2024 in Civil Writ Petition No. 948 of 2021. The Writ Petition is currently pending before the Hon'ble Punjab and Haryana High Court and is now listed for further consideration on 13.07.2026.

xii. That it is relevant to mention herein that in the interregnum another Original Application titled ***Dimple Kumar vs. State of Punjab & Ors.*** **bearing OA No. 295 of 2023** came to be filed before this Hon'ble Tribunal alleging, inter alia, non-compliance of the directions issued in *Neeraj Goyal vs. State of Punjab & Ors.* and contending that several rolling mills in Mandi Gobindgarh had still not shifted to cleaner fuels such as PNG. It is submitted that the said Original Application was not confined to the issue of industrial fuel transition, but also pertained to various contributing factors affecting air quality in the region, including road dust, vehicular pollution and other environmental concerns. In this

regard, various authorities and stakeholders, including the National Highways Authority of India (NHAI), were also impleaded as parties in the proceedings considering the allegations relating to road dust and infrastructure-related pollution. Thus, even in the said proceedings, the issue of ambient air pollution was recognized as a multi-factorial concern involving several contributing sources and agencies, and not one attributable solely to rolling mills or industrial units operating in the area.

That the aforesaid Original Application bearing O.A. No. 295 of 2023 came to be finally decided by this Hon'ble Tribunal vide judgment/order dated 25.02.2026, whereby this Hon'ble Tribunal, inter alia, issued various directions to the State of Punjab and the Punjab Pollution Control Board for ensuring strict compliance with the mandate of shifting rolling mills from coal to PNG in terms of the earlier order dated 01.10.2020 passed in O.A. No. 924 of 2019 (*Neeraj Goyal vs. State of Punjab & Ors.*). This Hon'ble Tribunal further directed implementation of the State Fuel Policy dated 04.10.2023, adherence to the directions issued by the Hon'ble Supreme Court in *M.C. Mehta vs. Union of India & Ors.* vide order dated 17.11.2017 concerning prohibition on use of pet coke and furnace oil, compliance with the CPCB directions dated 23.08.2019 issued under Section 5 of the Environment (Protection) Act, 1986, and acceptance and enforcement of the recommendations made by the Joint Committee, including use of cleaner fuels and assessment of the carrying capacity of Mandi Gobindgarh within a stipulated time period. It is submitted that the Respondent No. 3 herein has thereafter preferred Review Application No. 5 of 2026 before this Hon'ble Tribunal seeking review of the aforesaid order dated 25.02.2026, inter alia, on the ground

that several material aspects, submissions and prevailing ground realities pertaining to the rolling mill sector, which have a direct bearing on the issues involved in the matter, were not specifically considered in the impugned order. The said Review Application also raises subsequent developments and changed circumstances relevant for proper adjudication of the issues involved. It is submitted that the said Review Application was listed before this Hon'ble Tribunal for in-chamber circulation on 18.05.2026 and is now further listed on 11.08.2026. Copy of the order dated 18.05.2026 passed by this Hon'ble Tribunal in Review Application No. 5 of 2026 is marked and annexed herewith as **Annexure-R3/4**.

xiii. That in the interregnum, the State of Punjab, after considering the prevailing industrial, environmental and economic circumstances in the State, notified the "Fuel Policy for the Industries of the State of Punjab" on 04.10.2023 with the object of regulating transition towards cleaner fuels in a balanced, phased and techno-economically feasible manner. **The said Fuel Policy is of considerable significance in as much as it recognizes that transition to cleaner fuels such as CNG/PNG/CBG cannot be mandated in an absolute or mechanical manner, but is intrinsically dependent upon several relevant factors including actual availability and supply of such fuels by the authorized licensees, techno-economic feasibility, sustainability of industrial operations and prevailing market conditions**.

It is pertinent to submit that Clause II of the said Fuel Policy specifically provides that directions and timelines for conversion to cleaner fuels are to be issued by the State Government in consultation

with the Punjab Pollution Control Board only "upon availability of supply" of CNG/PNG/CBG in the concerned geographical areas by the entities authorized by the Petroleum and Natural Gas Regulatory Board (PNGRB). The said clause further mandates that such conversion directions are required to take into consideration techno-economic and legal feasibility. Thus, the Fuel Policy itself acknowledges that mere formulation of a policy for cleaner fuels does not automatically translate into immediate enforceability against industries unless adequate infrastructure, uninterrupted supply and feasibility conditions exist on the ground.

It is further submitted that Clause VII of the Fuel Policy also expressly recognizes the dynamic nature of fuel pricing and fuel availability, particularly in view of fluctuations in international energy markets, and accordingly empowers the State Government, in consultation with the Punjab Pollution Control Board, to permit use of alternative fuels for limited periods based upon techno-economic feasibility and prevailing circumstances, so as to ensure sustainability and continued operation of industries within the State. The aforesaid provision clearly demonstrates that the State Government itself has consciously recognized the practical and economic constraints faced by industries and has therefore incorporated flexibility within the policy framework to permit use of alternate fuels whenever circumstances so warrant.

The relevant extracts of the Fuel Policy dated 04.10.2023 are reproduced hereinbelow for the ready reference of this Hon'ble Tribunal:

"(II) ***Upon availability of supply of CNG / PNG / CBG etc. in various geographical areas of the state by the respective licensees authorized by the Petroleum and Natural Gas Regulatory Board (PNGRB)****, the State Government in consultation with the State Pollution Control Board shall issue appropriate directions and timelines to the industries and other stakeholders for conversion to such cleaner fuels considering technoeconomic and legal feasibility.*

XXX

(VII) ***Due to dynamics of cost and availability of fuels based on international market State Government in consultation with PPCB shall be empowered to permit usage of alternative fuels for a limited period based on techno-economic feasibility as per the prevailing scenario to ensure the sustainability of industrial sector in the State.****"*

Copy of the Fuel Policy dated 04.10.2023 is marked and annexed herewith as **Annexure-R3/5**.

xiv. That after the Fuel Policy has been notified by the State of Punjab, there are certain core issues presently being faced by the rolling mills situated in Khanna City, which have a direct bearing on the controversy involved in the present proceedings, and can broadly be categorized under the following three principal headsShortage/unavailability of PNG.

a. Incomplete Infrastructure/Shortage / Non-availability of PNG/.
b. Unjustified and Arbitrary Pricing Mechanism arising from Monopolistic Structure.

c. Rolling Mills not constituting the Sole or Major Source of Pollution.

a. <u>INCOMPLETE INFRASTRUCTURE/ SHORTAGE / NON-AVAILABILITY OF PNG</u>

xv. That the State itself, in its reply/status report filed in the present proceedings, has categorically admitted the prevailing factual position regarding the operational status of rolling mills in Khanna City. As recorded in paragraph 9 at page 575 of the court file, there are approximately 70 steel rolling mills situated in Khanna City as on 01.12.2025. Out of the said 70 units, 13 rolling mills have permanently closed down and 7 rolling mills remain temporarily closed. It is further stated that only one rolling mill is operational on PNG and one unit is operating on wood pellets, whereas the remaining 48 operational units continue to operate on coal. It is pertinent to mention herein that the one unit that had shifted to PNG has also currently ceased its operation inter-alia due to both shortage in supply of PNG as well as due to unarbitrary pricing.

Total Rolling Mills in Khanna City	Rolling Mills closed permanently	Rolling Mills closed temporary	Operational Rolling Mills on PNG	Operational Rolling Mills on Wood Pellets	Operational Rolling Mills on Coal	Rolling Mills having no availability of PNG pipeline	Rolling Mills having availability of PNG pipeline	Rolling Mills situated on opposite side of National Highway do not have the
70	**13**	**07**	**01**	**01**	**48**	**13**	**26**	**18**

The said status report unequivocally establishes that PNG infrastructure and supply are still not available to a substantial number of rolling mills situated in Khanna City. The State itself has admitted that 13 rolling mills do not have availability of PNG pipeline infrastructure and a further 18 rolling mills situated on the opposite side of the National Highway also do not have PNG connectivity. Thus, **PNG infrastructure remains unavailable to 31 rolling mills as on 01.12.2025**. **The aforesaid position is completely consistent with the Action Plan for Clean Air as well as the State Fuel Policy dated 04.10.2023, both of which clearly contemplate that transition from coal to PNG is dependent upon actual availability and supply of PNG infrastructure in the concerned geographical areas.**

xvi. That even for the sake of arguments, if it is assumed, though not admitted, that the PNG pipeline infrastructure has now been completely laid and made available in the concerned areas, the prevailing and ongoing global situation relating to availability and supply of natural gas remains highly uncertain and unstable. It is submitted that due to continuing geopolitical tensions, war-like situations and international conflicts affecting global energy markets, the supply and availability of natural gas/LNG has become volatile and unpredictable across the world. Since PNG supplied within the country is substantially dependent upon imported natural gas/LNG, any disruption in international supply chains directly impacts domestic availability and continuity of PNG supply. It is further submitted that the present global energy scenario has resulted in recurring shortages, supply-side constraints and uncertainty in availability of gas for industrial consumption. Consequently, mere laying of pipeline infrastructure by

itself does not guarantee uninterrupted, stable or adequate supply of PNG to industrial units.

xvii. That even the regulatory authorities have themselves recognized the practical constraints and contingencies arising out of limited availability and disruption in supply of PNG and other prescribed cleaner fuels. In this regard, the **Central Pollution Control Board (CPCB), vide advisory dated 12.03.2026, has specifically acknowledged that extraordinary situations may arise on account of shortage or supply constraints in approved fuel sources such as PNG/LPG and other cleaner fuels. Taking note of such practical difficulties, the CPCB has permitted the State Pollution Control Boards/Pollution Control Committees, in consultation with the concerned State Governments, to allow temporary use of alternative fuels including biomass, RDF pellets and, where circumstances so require, even coal**. The aforesaid advisory itself clearly demonstrates that uninterrupted availability of PNG cannot be presumed as an absolute certainty and that even the apex regulatory authority has recognized the possibility of fuel shortages and supply-side disruptions affecting industrial operations. The said advisory further recognizes the necessity of permitting alternate fuels in exceptional situations so as to maintain continuity and sustainability of industrial activities. Copy of the advisory dated 12.03.2026 issued by CPCB is marked and annexed herewith as **Annexure-R3/6.** That the time period of one month permitting the temporary use of alternate fuels given under the advisory dated 12.03.2026 was further extended for a period of one month i.e. upto 12.05.2026 by CPCB vide advisory dated 15.04.2026.

Copy of the advisory dated 15.04.2026 issued by CPCB is marked and annexed herewith as **Annexure-R3/7.**

xviii. That it is further pertinent to submit that the Government of India itself has recently acknowledged the vulnerability arising from excessive dependence on imported natural gas/LNG and the adverse impact of ongoing geopolitical disruptions on fuel availability and pricing. In this regard, the Union Cabinet has recently approved the "Scheme for Promotion of Surface Coal/Lignite Gasification Projects" with a financial outlay of Rs. 37,500 crores, specifically with the objective of reducing dependence on imported LNG and insulating the country from global price volatility and geopolitical supply-chain disruptions. The Press Information Bureau release dated 13.05.2026 specifically records that more than 50% of LNG requirements in India are met through imports and that the country's import vulnerability has been "further exposed by the ongoing geopolitical situation in West Asia." Copy of the Press Information Bureau release dated 13.05.2026 is marked and annexed herewith as **Annexure-R3/8**. It is a matter of fact that India remains substantially dependent on imported natural gas and LNG, thereby exposing domestic industries to international supply disruptions and volatile fuel prices. The document/article concerning Coal Gasification by the Adani Group specifically notes that approximately 45% of India's natural gas requirement is met through imports and that such dependence exposes the country to "price volatility and supply insecurity." The said material further emphasizes the need for alternative and sustainable domestic fuel strategies in view of global uncertainties affecting supply of imported fuels. Copy of the document/article concerning Coal

Gasification by the Adani Group is marked and annexed herewith as **Annexure-R3/9**. Thus, the prevailing shortages and uncertainty in PNG/LNG supply are neither speculative nor isolated concerns, but stand recognized even at the highest policy-making levels of the Government of India.

xix. It is further submitted that the severe practical difficulties being faced by the rolling mills on account of dependence upon PNG are not merely apprehensive in nature, but stand substantiated from the contemporaneous communications issued by the PNG supplier itself, namely Think Gas Ludhiana Pvt. Ltd. The communications placed on record clearly demonstrate recurring restrictions, curtailment and uncertainty in supply of natural gas owing to geopolitical developments and international supply disruptions affecting LNG availability. In this regard, Think Gas Ludhiana Pvt. Ltd., vide communication dated 03.03.2026 addressed to industrial consumers, specifically acknowledged that the ongoing geo-political crisis in Iran and the wider Gulf region had adversely affected LNG supplies from the Middle East, particularly through the Strait of Hormuz, resulting in reduction of approximately 20% of global LNG supplies and nearly 50% of India's LNG imports. The said communication further records that Think Gas had received supply curtailment notices from its upstream RLNG/LNG suppliers and accordingly warned industrial consumers regarding possible restrictions in gas supply while also advising customers having dual-fuel facilities to explore alternate fuels to meet contingencies. It is further submitted that subsequent communications issued by Think Gas Ludhiana Pvt. Ltd. reveal that the situation in fact worsened further. Vide email dated

06.03.2026, the company informed industrial consumers that its upstream suppliers had invoked Force Majeure under gas supply contracts and that supplies would be regulated without any upward flexibility. Thereafter, vide communication dated 11.03.2026, it was informed that pursuant to directions issued by the Government of India under the Essential Commodities Act, gas supplies to industrial consumers would stand restricted to only 80% of average consumption levels. Copy of the emails dated 03.03.2026, 06.03.2026 and 11.03.2026 sent by Think Gas Ludhiana Pvt. Ltd. are marked and annexed herewith as **Annexure-R3/10**.

xx. In view of the aforesaid facts and circumstances, it is evident that the **issue concerning transition of rolling mills from coal to PNG is intrinsically linked with actual availability, adequacy and continuity of PNG infrastructure and supply. The Action Plan itself provided that conversion to PNG would occur only after laying of the requisite pipeline infrastructure, while Clause II of the State Fuel Policy specifically stipulates that directions for conversion to cleaner fuels are to be issued only "upon availability of supply" of CNG/PNG/CBG by the authorized entities, and further subject to techno-economic and legal feasibility. Consequently, in the absence of adequate and complete PNG connectivity in several parts of Khanna City, including areas situated across the National Highway, as well as in the absence of uninterrupted supply, the industrial units situated therein cannot be faulted for inability to shift to PNG despite lack of requisite infrastructure and supply. It is further submitted that even if pipeline infrastructure is stated to have been laid, uninterrupted**

and economically viable supply of PNG continues to remain uncertain owing to global fuel shortages, international market volatility and geopolitical disruptions affecting imported natural gas/LNG supply. The prevailing circumstances therefore clearly demonstrate that the issue is not merely one of willingness on the part of industrial units, but involves larger infrastructural, logistical and supply-side constraints which remain beyond the control of the rolling mills operating in Khanna City. **Accordingly, strict insistence on exclusive use of PNG, in the absence of assured supply, may not be practicable and warrants a balanced and contextual consideration. Minor amendments to the fuel policy are necessary to ensure the sustainable growth of industries, particularly in light of the prevailing global scenario concerning PNG. In this regard, the use of alternative cleaner fuels such as coal gasifiers, biomass fuels, and eco-friendly fuels and other alternative fuels with cleaner technologies may also be permitted**.

xxi. That it is further submitted that at the time of laying of the PNG pipeline infrastructure and even thereafter, priority in terms of connectivity as well as supply of gas was admittedly accorded to the industrial units situated in Mandi Gobindgarh. However, despite such preferential treatment and priority allocation, the industries in Mandi Gobindgarh itself continue to face serious issues relating to adequacy and continuity of gas supply. It is noteworthy that a similar situation presently prevails in Mandi Gobindgarh where, due to the existing supply constraints and prevailing position in the region, no fresh industrial PNG connections are presently being released by the gas supply company, as priority is being given

towards ensuring adequate and uninterrupted supply to the existing consumers already connected to the network. It is further understood that until the present demand and consumption requirements of the existing industrial consumers are fully met and stabilized, the question of granting fresh PNG connections to additional industries does not arise. Even for that matter, even in Khanna there is currently shortage of supply for domestic use and no new connection is being granted for domestic use as well. The aforesaid circumstances have a direct bearing on the practical feasibility of any mandatory transition to PNG, as industrial units which are presently not connected to the PNG network are effectively left without any viable or practical means to comply, despite their willingness to do so. Moreover, when even the industries situated in Mandi Gobindgarh, which were accorded priority in laying of infrastructure and supply allocation, are themselves facing shortages, restrictions and uncertainty in gas supply, it is difficult to comprehend how the industrial units situated in Khanna would be able to sustainably operate and meet their substantial fuel requirements in the prevailing circumstances. The existing ground realities therefore clearly demonstrate that the PNG infrastructure and supply network is presently incapable of adequately supporting the entire industrial demand of both Mandi Gobindgarh and Khanna simultaneously.

xxii. Given the recurring nature of disruptions in PNG supply, there is an urgent need to establish a stable and long-term framework that permits the use of approved alternative fuels. At present, the grant of only temporary permissions compels industries to repeatedly undertake

furnace modifications, each involving substantial capital expenditure in the range of approximately Rs. 2–3 crores.

xxiii. It is submitted that when industrial units shift from PNG to coal pursuant to short-term approvals, they incur significant costs in modifying their furnaces. However, upon normalization of PNG supply, reverting back once again necessitates further considerable investment, as coal-based systems are not readily compatible with PNG operations. This cycle of repeated modifications imposes an unsustainable financial burden on the industry. In continuation of the earlier request for revision of the State Fuel Policy to incorporate cleaner alternative fuels alongside PNG, it is reiterated that a more practical, balanced, and sustainable approach is required. The present situation is likely to persist for a considerable period, and therefore, strict enforcement of the existing mandate at this stage may not be feasible.

xxiv. It is further submitted that the continuing uncertainty, inadequacy and instability in PNG supply has been specifically acknowledged and repeatedly raised even in recent correspondence exchanged between the industry association and the gas supplier companies. The All India Steel Rerollers Association (AISRA), vide communication dated 09.05.2026 addressed to the General Manager (Commercial & Marketing), IRM Energy Ltd., specifically pointed out that the existing industrial consumers were already facing severe operational difficulties due to inadequate gas supply and that the prevailing daily consumption formula was practically resulting in an operational impact of nearly 30–40% on a day-to-day basis. The Association further sought urgent clarification

regarding continuation of the present shortage situation, release of fresh PNG connections despite the prevailing shortages and the proposed criteria for management of supply to new consumers while existing industrial units themselves were operating under curtailed supply conditions. It was specifically highlighted that if new PNG connections were granted preferential or uninterrupted supply while the existing industrial consumers continued to face shortages and restrictions, the same would be contrary to the principles of fairness and the understanding under which the existing industries had shifted to PNG. Copy of the representation dated 09.05.2026 submitted by the Respondent No.3 herein i.e. All India Steel Rerollers Association (AISRA) to the General Manager (Commercial & Marketing), IRM Energy Ltd. is marked and annexed herewith as **Annexure-R3/11**.

xxv. In response thereto, IRM Energy Ltd., vide its communication/email, stated that it was “currently evaluating the additional demand of Natural Gas to cater these new customers” and that appropriate action would be taken only after completion of such evaluation. The said response itself clearly demonstrates that even as of date, the supplier company is still assessing whether the existing infrastructure and gas availability are sufficient to cater additional industrial demand. Significantly, although IRM Energy Ltd. sought to state in its response that it “has not curtailed supply of Natural Gas to any industrial customer” since March 2026, the said stand is completely contradicted and belied by the contemporaneous communications and notices issued by the gas suppliers themselves. As already placed on record, Think Gas Ludhiana Pvt. Ltd. had specifically informed industrial consumers vide communications issued during March

2026 that owing to Force Majeure conditions, geopolitical disturbances and directions issued under the Natural Gas (Supply Regulation) Order, 2026, gas supplies stood restricted to only 80% of average consumption for the preceding six months and that any consumption beyond the restricted quantity would attract penal overdrawal charges at highly escalated rates. Thus, while the supplier company now seeks to technically deny "curtailment", the contemporaneous record unequivocally establishes that industrial consumers were in fact subjected to restricted supply conditions, capped consumption limits and penal overdrawal mechanisms, all of which effectively amounted to substantial curtailment and reduction in actual usable gas supply available to the industries.

b. <u>UNJUSTIFIED AND ARBITRARY PRICING MECHANISM ARISING FROM MONOPOLISTIC STRUCTURE.</u>

xxvi. That the State itself, in its reply/status report filed before this Hon'ble Tribunal, has acknowledged that out of approximately 70 rolling mills situated in Khanna, only one unit is presently operating on PNG and one unit is operating on wood pellets, whereas the remaining operational units continue to operate on coal. The said factual position itself demonstrates the severe practical and commercial difficulties associated with transition to PNG in the Khanna region. It is submitted that although certain units initially attempted to shift towards PNG, the transition process itself involved enormous financial and technological burdens. One industrial unit invested approximately Rs.80 lakhs towards furnace renovation/conversion, which process still remains incomplete, while

another unit incurred expenditure exceeding Rs.2 crores for complete conversion to PNG-based operations.

xxvii. It is submitted that initially the principal impediment in shifting to PNG was the absence and non-availability of adequate PNG pipeline infrastructure in several industrial areas of Khanna. Thereafter, even after partial laying of pipeline infrastructure, the Gas Sale Agreements (GSAs) with industrial consumers were not finalized for considerable periods of time. It is further submitted that the PNG rates quoted by the supplier for industries situated in Khanna were substantially higher, approximately Rs.3/- to Rs.5/- per SCM more than the rates applicable to industries situated in neighboring Mandi Gobindgarh. In the absence of parity in pricing, transition to PNG became commercially unviable and economically discriminatory for industries situated in Khanna. Furthermore, Mandi Gobindgarh was admittedly accorded first priority for allocation and supply of PNG, while Khanna industries remained secondary in the supply chain.

xxviii. That pursuant to the orders passed by this Hon'ble Tribunal in *Neeraj Goyal vs. State of Punjab & Ors.*, the rolling mills situated in Mandi Gobindgarh undertook substantial efforts and made significant capital investments for transition from coal-based systems to PNG-compatible furnaces and infrastructure. The said conversion was not merely procedural in nature but involved extensive technological modifications and large-scale financial expenditure. It is submitted that installation of PNG-compatible furnaces alone required investments ranging approximately between Rs.1.5 crores to Rs.3.5 crores per unit, while

additional plant modifications and allied infrastructural changes required further investments ranging between Rs.1.5 crore to Rs. 3 crores depending upon the scale and capacity of the industrial unit. Significantly, most of the rolling mills operating in the region are MSME units having total industrial investments ranging between Rs.0.5 crores to Rs.5 crores, thereby making such forced conversion extraordinarily burdensome and financially risky.

xxix. However, despite making such enormous investments towards PNG conversion, the industries were thereafter confronted with unprecedented and steep escalation in PNG prices, rendering the entire transition economically unsustainable. It is respectfully submitted that at the time industries were directed to shift to PNG, the prevailing PNG price was approximately Rs.18/- to Rs.21/- per SCM. However, within a relatively short period, the PNG price escalated drastically to nearly Rs.56/- to Rs.60/- per SCM, while the price of steam coal remained comparatively stable at approximately Rs.12/- per kilogram. Such abrupt and uncontrolled increase in PNG rates led to substantial increase in production cost, estimated at approximately Rs.500/- to Rs.600/- per metric tonne, thereby severely affecting the competitiveness of the rolling mills operating in Punjab vis-à-vis industries operating in neighboring States where coal and alternate fuels continued to remain permissible.

xxx. The Respondent herein further submits that PNG pricing remains unregulated by any governmental authority, and the supply and pricing mechanism in the Mandi Gobindgarh and Khanna region is monopolized by M/s IRM Energy Ltd., which is the sole supplier of PNG in the area.

The monopoly has further exacerbated the pricing crisis, as there is no competitive check or transparency in the determination of rates. It is relevant to bring to the attention of this Hon'ble Tribunal that during the financial year 2021–2022, the procurement cost of PNG by M/s IRM Energy Ltd. from the international market stood at approximately Rs.120 crores, whereas the sale proceeds from the same quantity of PNG exceeded Rs.240 crores, clearly reflecting excessive mark-ups and profiteering. A copy of the Balance Sheet of M/s IRM Energy Ltd., evidencing this disproportionate pricing, is annexed herewith and marked as **Annexure-R3/12** for the kind perusal of this Hon'ble Tribunal.

xxxi. The industries situated in Khanna were closely observing the developments and consequences faced by the rolling mills in the neighbouring industrial cluster of Mandi Gobindgarh after compulsory transition to PNG. The Khanna industries witnessed that despite making huge capital investments for conversion to PNG-compatible furnaces and infrastructure, several rolling mills in Mandi Gobindgarh were pushed into severe financial distress owing to arbitrary and unprecedented increase in PNG prices, supply uncertainty and monopolistic pricing practices of the gas supplier. The industries also witnessed closure of a substantial number of units in Mandi Gobindgarh after transition to PNG became commercially unsustainable. Consequently, the rolling mills situated in Khanna became extremely apprehensive and reluctant to undertake similar conversion by investing crores of rupees into PNG infrastructure, particularly in absence of any assurance regarding price stability, uninterrupted supply or commercial viability.

xxxii. That the apprehensions of the Khanna industries were neither speculative nor unfounded. As admitted by the Punjab Pollution Control Board itself in its status report filed before this Hon'ble Tribunal, out of approximately 70 rolling mills situated in Khanna, 13 units have already permanently ceased operations and 7 units remain temporarily closed. The said figures themselves demonstrate the grave economic distress presently prevailing in the sector. It is submitted that a substantial part of such distress has arisen due to the coercive pressure upon the industries to compulsorily shift to PNG despite absence of adequate supply certainty, commercially viable pricing and infrastructural feasibility. On the one hand, industries were being subjected to repeated show cause notices, closure threats and coercive proceedings by the Pollution Control Board for non-conversion to PNG, while on the other hand, the experience of industries which had already shifted to PNG clearly demonstrated that continued operation on PNG at prevailing prices and supply conditions was commercially unsustainable and financially ruinous. Thus, the industries were effectively placed in an impossible situation where failure to shift to PNG exposed them to threat of closure by the authorities, whereas shifting to PNG exposed them to severe financial losses, operational instability and eventual closure due to exorbitant fuel costs and monopolistic pricing.

xxxiii. That the steep and arbitrary increase in PNG prices has had catastrophic consequences upon the rolling mill sector. A substantial number of industrial units which had shifted to PNG became financially distressed and many units were ultimately compelled to suspend or permanently cease operations due to inability to bear the exponentially increased fuel costs. The Respondent Association had specifically brought these issues

to the notice of the authorities through various representations, including representation dated 21.09.2022 addressed to the Chairman, Punjab Pollution Control Board and representation dated 03.07.2024 addressed to the Chief Secretary, Government of Punjab. Copy of the representation dated 21.09.2022 addressed to the Chairman, Punjab Pollution Control Board and a copy of the representation dated 03.07.2024 addressed to the Chief Secretary, Government of Punjab are marked and annexed herewith as **Annexure-R3/13** and **Annexure-R3/14** respectively. In the said representations, the Association categorically highlighted that the industry had become commercially non-viable due to non-stop increase in PNG prices and monopoly of gas supply companies, resulting in closure of several units and threatening survival of the entire MSME steel rolling cluster of Mandi Gobindgarh and Khanna.

xxxiv. That as already elaborated in the preceding paragraphs, presently the industries continue to face severe supply restrictions and exorbitant pricing mechanisms. The aforesaid restrictions were accompanied by substantial escalation in gas prices. That vide email dated 06.03.2026 it was informed as under:

> *"We are trying our best to manage supplies to our customers from our portfolio. However, owing to*
>
> *curtailment in upstream supplies, we are compelled to regulate supply to our downstream customers at 100% of Daily Contracted Quantity (DCQ) without any upward flexibility effective from 06:00 Hrs on 7th March 2026.*

You are requested to strictly adhere to the revised supply regulation and ***any overdrawal beyond 100% DCQ from 7th March 2026 shall be invoiced at 200% of the applicable contract price during the supply period until any further notice****."*

Further, vide email dated 11.03.2026 it was intimated as under:

"*However, Government of India vide Order No: CG-DL-E-10032026-270784 dated 09-03-2026 has invoked provisions of the Essential Commodities Act, 1955 to order curtailment of gas supplies to industrial customers of CGD entities such as TG/AGP from 6 am on 11-03-2026. Accordingly, we are constrained to restrict supplies to your unit to 80% of average consumption for the past six months, which in your case is 31.92 MMBtu/Day.*

We request you to cooperate with us by restricting your offtake as per the above-mentioned levels so that we can serve all customers uniformly. Since our upstream supplies are restricted, we are not in a position to provide supplies beyond 80% levels as mentioned above. ***Any overdrawal above mentioned restricted levels shall be charged at the rate of $34.29 per MMBtu (exclusive of Tax).*** *Considering that we are constrained to send this communication at a very late hour, the overdrawal charges will be applicable from 12-03-2026 so that you can adjust your production plan or make alternate arrangements*."

xxxv. Think Gas Ludhiana Pvt. Ltd., vide price revision notice dated 29.03.2026 effective from 16.03.2026, revised the industrial gas price to USD 16.21 per MMBTU (approximately INR 1503.96 per MMBTU subject to forex

fluctuations). Further, **overdrawal beyond the restricted quantities was made chargeable at significantly higher penal rates, with overdrawal price being indicated at USD 23.47 per MMBTU inclusive of VAT**. Copy of the email dated 29.03.2026 is marked and annexed herewith as **Annexure-R3/15**.

xxxvi. The present billing and supply mechanism imposed by the PNG supplier is commercially unworkable and economically unsustainable for the rolling mill industry, particularly the MSME sector, as the conditions imposed by the supplier company are excessively onerous, arbitrary and not conducive to continued industrial operations. The communications issued by Think Gas Ludhiana Pvt. Ltd. itself reveal that the industries are being subjected to severe supply curtailments coupled with exorbitant penal charges and unilateral price escalations.

By way of illustration, if the average withdrawal of an industrial unit during the preceding six months is taken as 1000 SCM per day, then under the prevailing supply restrictions only 80% thereof, i.e. 800 SCM per day, is treated as the permissible quantity. However, if the actual consumption on a given day is only 600 SCM, the unutilized balance quantity of 200 SCM is not carried forward or adjusted in any manner and is effectively treated as nil. Further, if the rolling mill remains shut for certain days during the month on account of repair, maintenance or operational reasons, the consumption for those days is also treated as nil for all practical purposes. Consequently, although the supplier company ostensibly claims that the supply cut is restricted to 20%, the actual effective reduction in usable gas quantity works out to nearly 35–40%, thereby severely affecting industrial production and viability.

It is further submitted that if the industrial unit exceeds the prescribed restricted quantity, even marginally, the excess consumption is subjected to highly excessive and punitive overdrawal charges.

The supplier company has been unilaterally revising prices and altering commercial conditions in a completely arbitrary manner under a monopolistic supply structure without any effective regulatory oversight or competitive market mechanism. Significantly, the PNG rates were revised twice within a span of merely 36 days, which itself demonstrates the arbitrary and monopolistic nature of the pricing mechanism. The drastic escalation was simultaneously accompanied by increase in penal overdrawal charges despite the industries already facing curtailed supply and an unfair methodology for determining eligible consumption quantities. The aforesaid circumstances clearly demonstrate that the prevailing PNG pricing and billing mechanism is arbitrary, commercially oppressive and wholly unsustainable for the rolling mill industry.

xxxvii. That the present monopolistic structure directly defeats the very object and intent of the Petroleum and Natural Gas Regulatory Board Act, 2006. The Statement of Objects and Reasons of the said enactment itself specifically provides that the Act was enacted to protect the interests of consumers, ensure uninterrupted and adequate supply of petroleum products and natural gas and promote competitive markets. However, in the present case, industries situated in Mandi Gobindgarh and Khanna are left entirely dependent upon a single supplier without any effective market competition, transparency or regulatory price control mechanism, thereby exposing the industries to arbitrary pricing, supply restrictions and

commercial exploitation contrary to the legislative intent underlying the PNGRB Act.

xxxviii. That the issue concerning transition to PNG cannot be viewed in a simplistic or mechanical manner divorced from the prevailing ground realities, techno-economic considerations expressly recognized even under the governing policy framework itself. The Action Plan for Clean Air specifically contemplated that conversion to PNG would be undertaken subject to reduction of VAT by the State Government, thereby acknowledging the critical role of economic viability and fuel affordability in the transition process. Likewise, Clause II of the State Fuel Policy dated 04.10.2023 itself expressly stipulates that directions for conversion to cleaner fuels are to be issued only upon availability of supply and after considering techno-economic and legal feasibility. However, despite the aforesaid policy safeguards and express recognition of commercial feasibility concerns, the rolling mill industries have continuously remained under coercive pressure to compulsorily convert to PNG without addressing the foundational issues relating to monopolistic pricing, arbitrary rate escalation, supply insecurity, lack of competitive market structure, inadequate infrastructure and overall economic viability of the sector. The industries have effectively been placed in a situation where, if they do not convert to PNG, they face threat of coercive action, show cause notices and closure proceedings by the authorities, whereas if they convert to PNG, they are exposed to commercially unsustainable fuel costs, supply curtailments and severe financial distress ultimately threatening their very survival.

xxxix. It is therefore respectfully submitted that any insistence upon compulsory and exclusive use of PNG, without first ensuring stable supply, transparent and reasonable pricing, adequate infrastructure, competitive market conditions and genuine techno-economic feasibility, would be contrary to the very intent of the Action Plan and the State Fuel Policy themselves, apart from causing irreversible prejudice to the MSME steel rolling sector operating in Khanna and Mandi Gobindgarh.

c. <u>ROLLING MILLS NOT CONSTITUTING THE SOLE OR MAJOR SOURCE OF POLLUTION.</u>

xl. It is respectfully submitted that the rolling mills operating in Khanna do not constitute the sole or principal source of air pollution in the region. Multiple other factors, including but not limited to road dust, vehicular emissions, construction and demolition activities, and burning of garbage/biomass, contribute significantly to the deteriorating ambient air quality in and around the area. These major contributing sources continue to remain either insufficiently regulated or inadequately addressed, thereby substantially diluting the efficacy and rationale of imposing strict and exclusive fuel-transition mandates solely upon the rolling mill industry.

xli. That the Action Plan for Clean Air itself contains a source-apportionment assessment identifying the estimated contribution of various sources towards air pollution in Khanna. As per the said Action Plan, industrial emissions contribute approximately 40% of the pollution load, whereas road dust alone contributes 30% and vehicular pollution contributes 20%, meaning thereby that nearly 50% of the pollution burden emanates from

non-industrial sources. Additional contribution also arises from burning of garbage and biomass (5%), construction and demolition activities (4%) and other miscellaneous sources (1%). The said figures clearly establish that the issue of ambient air pollution in the region is multi-sectoral in nature and cannot be attributed exclusively or disproportionately to rolling mills operating in the area.

xlii. It is pertinent to note that despite the substantial contribution of road dust and vehicular pollution, no effective or proportionate action appears to have been taken against the concerned authorities responsible for management and maintenance of roads and highways. In fact, the National Highways Authority of India (NHAI), Public Works Department (PWD), Municipal Corporation which are directly concerned with issues relating to road dust and highway infrastructure, have not even been impleaded as a party in the present proceedings. This itself demonstrates the selective manner in which the issue is sought to be projected exclusively against the rolling mill sector, despite the Action Plan itself acknowledging multiple other dominant contributors to ambient air pollution. Therefore, it is necessary that the National Highways Authority of India (NHAI), Public Works Department (PWD), Municipal Corporation be arrayed as party Respondents in the present matter.

xliii. It is further pertinent to submit that Khanna is widely recognized as one of the largest grain market hubs in Asia and witnesses continuous large-scale movement, handling, loading, unloading and transportation of agricultural produce throughout the year. The activities associated with the grain market, including movement of heavy commercial vehicles,

unloading/loading operations, storage handling, open transportation of agricultural produce and generation of dust from food grains and allied agricultural activities, constitute a significant source of fugitive particulate emissions and ambient dust in the region. The continuous movement of trucks, tractors, trailers and other heavy transport vehicles connected with the grain market further substantially contributes towards vehicular emissions, road dust resuspension and congestion-related pollution in and around Khanna. However, despite the aforesaid being a significant local factor contributing towards ambient particulate pollution, neither the Action Plan for Clean Air nor the earlier broad source estimations appear to have specifically identified or independently assessed the pollution contribution arising from the grain market and the extensive agricultural-commercial transportation activities associated therewith. The absence of any separate assessment of such major localized pollution-generating activities further demonstrates that the earlier Action Plan did not comprehensively account for all relevant contributing sources while broadly attributing pollution levels to industrial emissions. This itself further reinforces the necessity of adopting a detailed, scientific and source-specific approach towards pollution mitigation rather than disproportionately attributing the ambient air quality concerns solely to the rolling mill sector. In these circumstances, the concerned authorities ought to be directed to undertake a fresh and comprehensive source apportionment study specifically taking into consideration the pollution generated from the grain market activities, movement of heavy commercial vehicles, loading/unloading operations, road dust generated from agricultural transportation and other allied

localized sources contributing towards ambient particulate pollution in Khanna.

xliv. It is further submitted that a Source Apportionment Study of Khanna conducted by IIT Delhi for the Punjab Pollution Control Board itself conclusively establishes that rolling mills and industrial emissions are not the dominant contributors to particulate pollution in Khanna. The Executive Summary of the said report records that **for PM2.5, vehicular emissions contribute approximately 40%, road dust contributes 35%, whereas industrial emissions contribute only about 12%. Similarly, for PM10, road dust alone contributes approximately 60%, vehicular emissions contribute 17% and industrial emissions again contribute only about 12%**. The said report further specifically notes that heavy vehicular movement, particularly heavy-duty commercial vehicles, movement along NH-1, poorly maintained roads, potholes, partially paved surfaces and road dust are major contributors to particulate pollution in Khanna. **Thus, even the scientific study conducted by IIT Delhi under the aegis of the Punjab Pollution Control Board clearly demonstrates that the predominant contributors to ambient air pollution in Khanna are road dust and vehicular emissions and not the rolling mill industry alone**. Despite the same, no proportionate or equivalent action appears to have been initiated against the concerned authorities responsible for regulation and maintenance of roads, highways and vehicular traffic, including NHAI and allied agencies. Relevant charts showing the sector-wise contribution as given in the source appointment study are as follows:

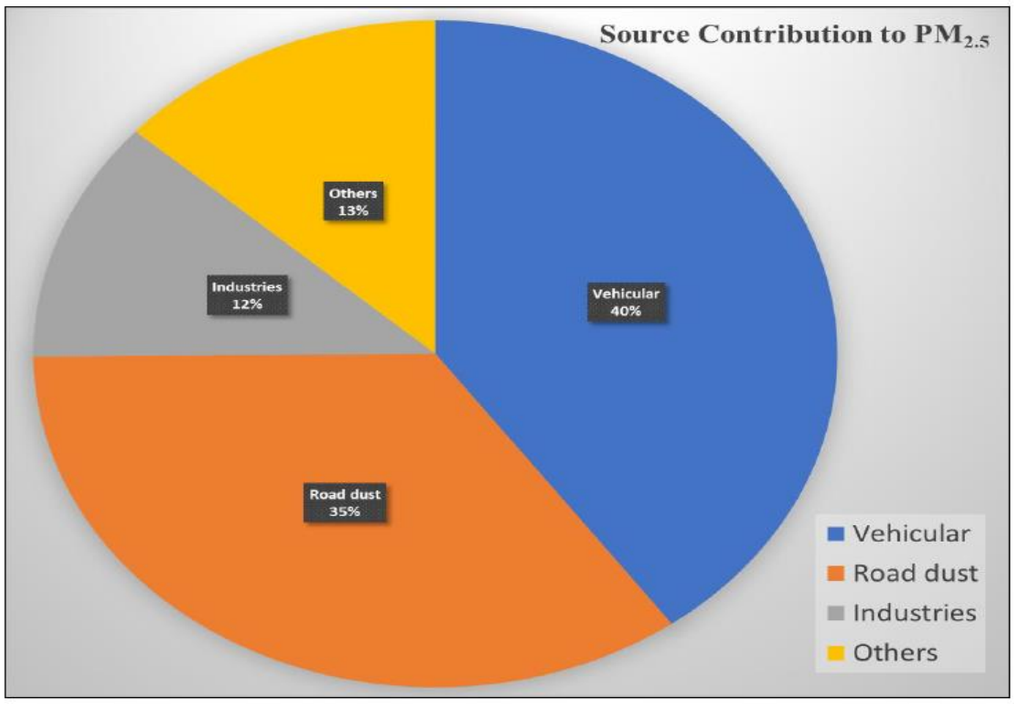

Figure 30 Chart showing the contribution of various sources to total emissions of $PM_{2.5}$

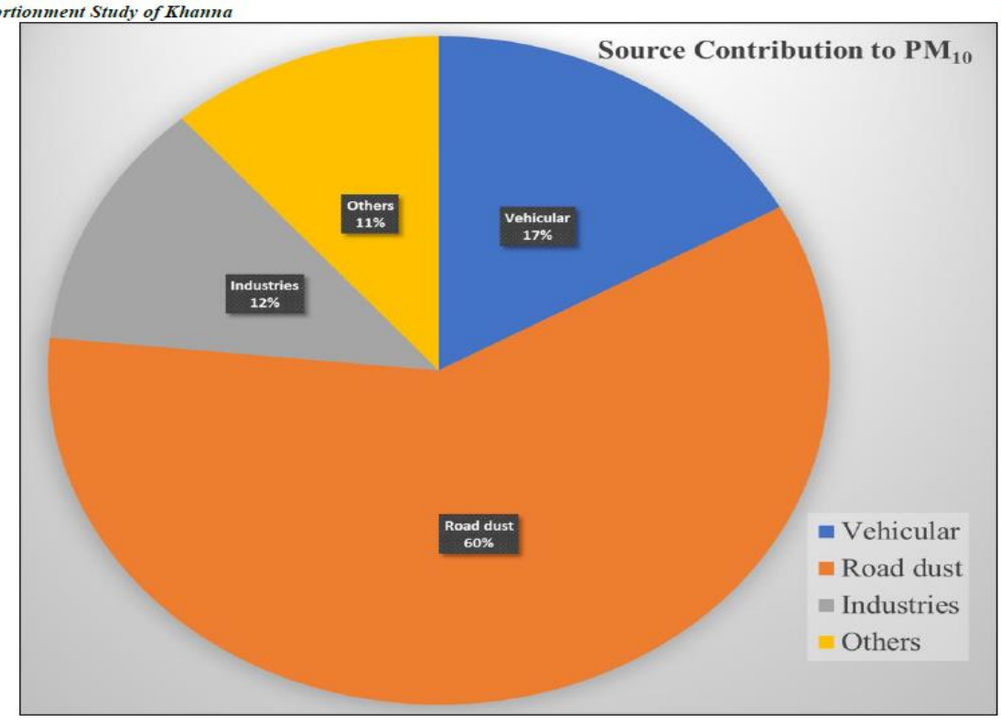

Figure 31 Chart showing the contribution of various sources to total emissions of PM_{10}

Copy of the Source Apportionment Study of Khanna conducted by IIT Delhi is marked and annexed herewith as **Annexure-R3/16**.

xlv. It is pertinent to submit that the findings of the recent Source Apportionment Study conducted by IIT Delhi for the Punjab Pollution Control Board materially differ from the earlier estimates contained in the Action Plan for Clean Air. While the earlier Action Plan had broadly estimated industrial emissions to contribute approximately 40% towards air pollution in Khanna, the subsequent scientific and detailed source apportionment exercise carried out by IIT Delhi has significantly revised and reduced the estimated contribution of industrial emissions to only about 12% for both PM2.5 and PM10. On the other hand, the IIT Delhi study identifies vehicular emissions and road dust as the dominant contributors towards particulate pollution in Khanna, attributing approximately 40% contribution to vehicular emissions and 35% contribution to road dust in relation to PM2.5, while for PM10, road dust alone contributes nearly 60%. The aforesaid findings clearly demonstrate that the **earlier assumptions contained in the Action Plan materially overstated the contribution of industrial emissions and that the more recent and scientifically conducted source apportionment study has conclusively established that non-industrial sources constitute the principal contributors to ambient particulate pollution in Khanna**. **Consequently, continued disproportionate focus exclusively upon rolling mills and industrial fuel transition, without addressing the dominant sources such as road dust and vehicular emissions, would neither effectively address the pollution problem nor achieve the intended environmental objectives**.

xlvi. That as per the recent IIT Delhi Source Apportionment Study, the **total contribution of all industrial activities taken together towards PM**

pollution in Khanna is assessed at only about 12%. Consequently, the individual contribution attributable specifically to steel rolling mills would necessarily constitute only a fraction of the said 12%, and would therefore be substantially lower in comparison to the dominant pollution sources such as road dust and vehicular emissions. It is respectfully submitted that, insofar as the steel sector is concerned, the rolling mills represented by the Respondent Association have comparatively minimal impact on the ambient air quality of the region. The Steel Rolling Mills generally operate for an average duration of approximately 10 hours per day, whereas induction furnaces typically operate for substantially longer durations, often averaging around 20 hours per day. Further, the rolling mills are connected with adequately designed and elevated stacks of considerable height, generally around 90–100 feet, and are equipped with appropriate and adequate Air Pollution Control Devices (APCDs) to ensure that Suspended Particulate Matter (SPM) emissions remain within the prescribed statutory limits. Owing to the height of the stacks and the controlled nature of emissions, the particulate matter released through such stacks disperses gradually in a diffused state over a wider area without causing concentrated localized impact upon ambient air quality in and around Khanna. In contrast, emissions from other industrial processes, including induction furnaces, are comparatively more localized in nature and involve escape of particulate matter from lower operational levels within the industrial premises itself. The aforesaid distinction further demonstrates that the pollution impact attributable to rolling mills is comparatively limited and

cannot be equated with other major contributors to ambient particulate pollution.

xlvii. That the Punjab Pollution Control Board regularly undertakes monitoring and sampling of stack emissions of the rolling mills by collecting samples from the emission stacks in accordance with the prescribed procedure and applicable PPCB guidelines. The said sampling is specifically conducted for assessing particulate matter (PM) emissions and ensuring compliance with the prescribed environmental norms and emission standards. It is submitted that the stack emission samples collected from the rolling mills represented by the Respondent Association have consistently been found to be within the permissible limits prescribed under the applicable environmental regulations and PPCB guidelines. The said fact itself demonstrates that the rolling mills are operating with adequate Air Pollution Control Devices (APCDs) and necessary pollution control mechanisms and are maintaining compliance with the prescribed emission norms. Copy of the stack monitoring reports of some of the rolling mills of Khanna are marked and annexed herewith as **Annexure-R3/17(Colly)**.

xlviii. In view of the aforesaid facts and circumstances, it is respectfully submitted that the present issue concerning ambient air quality in Khanna/Mandi Gobindgarh is a complex and multi-sectoral issue involving several independent contributing factors, including road dust, vehicular emissions, highway traffic, construction activities and other non-industrial sources, which admittedly constitute a substantial and predominant share of the pollution load. The material placed on record,

including the recent IIT Delhi Source Apportionment Study conducted for the Punjab Pollution Control Board, clearly establishes that industrial emissions collectively account for only a limited fraction of the overall particulate pollution, and the specific contribution attributable to rolling mills is even lesser. It is further submitted that the rolling mill sector has throughout acted in compliance with the regulatory framework and has consistently cooperated with the authorities by installing requisite pollution control devices, maintaining prescribed stack heights and undertaking measures directed by the authorities from time to time. At the same time, the material on record unequivocally demonstrates that the transition to PNG has remained dependent upon factors entirely beyond the control of the rolling mills, including delay in laying of infrastructure, non-availability of PNG connectivity in several areas, uncertainty and shortage in gas supply, international fuel volatility and techno-economic constraints – arbitrary price mechanism. In these circumstances, imposing disproportionate or coercive measures exclusively upon rolling mills, while the dominant pollution contributors remain inadequately addressed, would neither be equitable nor environmentally effective. The issue therefore requires a balanced, scientific and holistic approach based upon actual source contribution, infrastructural realities and techno-economic feasibility, rather than selective targeting of one industrial sector alone.

xlix. That the Respondent No.3 herein submitted a detailed representation dated 06.04.2026 to the Chairman, Punjab Pollution Control Board, Patiala, seeking permission for use of alternate fuels for the rolling mills situated in Mandi Gobindgarh and Khanna in order to safeguard the MSME sector and ensure sustainability of the steel rolling cluster. In the

said representation, AISRA placed on record comparative emission study reports conducted in industrial units at Mandi Gobindgarh and Raipur (Chhattisgarh) using different fuel sources including low sulphur imported coal, biomass pellets and PNG. The representation specifically highlighted that the comparative analysis of stack emissions revealed only marginal variation in Suspended Particulate Matter (SPM) levels across the different fuel systems, with recorded values of approximately 24.0 mg/Nm³, 35.0 mg/Nm³ and 38.0 mg/Nm³ respectively, all remaining within the prescribed environmental norms. It was further pointed out that the studies observed comparable environmental performance across the various fuel systems and did not indicate any hazardous waste generation. On the basis of the aforesaid studies and findings, AISRA requested the Punjab Pollution Control Board to permit use of cleaner and eco-friendly fuels and other alternative fuels with cleaner technologies such as High Temperature Coal Gasifiers, Biomass Fuel/Wood Processing Waste Pellets and Low Sulphur Coal, subject to compliance with the prescribed emission standards and safeguards. Copy of the detailed representation dated 06.04.2026 submitted by Respondent No.3 herein to the Chairman, Punjab Pollution Control Board, Patiala is marked and annexed herewith as **Annexure-R3/18**.

l. That permitting use of alternate fuels, subject to compliance with prescribed emission standards and pollution control safeguards, is neither unprecedented nor contrary to the prevailing environmental regulatory framework. In fact, the Commission for Air Quality Management in National Capital Region and Adjoining Areas (CAQM), in exercise of its powers under Section 12 of the Commission for Air Quality Management

in National Capital Region and Adjoining Areas Act, vide order/guidelines dated 22.06.2022, after considering the levels of emissions generally observed/achieved in industries using such fuels and taking into account extant national and international standards, permitted use of metallurgical coke in standalone cupola-based furnaces and use of low sulphur heavy stock fuels in furnaces for metal heating/smelting/refining purposes in regions of NCR beyond the jurisdiction of GNCTD, subject to compliance with stricter emission norms and adoption of appropriate pollution control systems and technological safeguards. It is submitted that the aforesaid decision of the CAQM itself recognizes that use of alternate fuels may be permitted where industries comply with the prescribed emission standards through appropriate Air Pollution Control Devices (APCDs), technological upgrades and monitoring mechanisms. The said approach is consistent with the stand of the Respondent No. 3 that the issue ought to be addressed on the basis of actual emissions and environmental compliance rather than by imposing an inflexible prohibition on all alternate fuels irrespective of prevailing technological feasibility and pollution-control measures. Copy of permissible fuels for industrial applications in NCR issued by Commission for Air Quality Management in National Capital Region and Adjoining Areas on 22.06.2022 is marked and annexed herewith as **Annexure-R3/19**.

li. It is further submitted that even various State Pollution Control Boards and State Governments across the country have recognized coal and other alternate fuels as permissible/approved fuels for industrial usage subject to environmental safeguards and compliance with emission norms. In this regard, the Haryana State Pollution Control Board and Maharashtra

Pollution Control Board, under their respective policies/guidelines/orders, have included coal within the category of approved fuels for specified industrial operations. Copy of the relevant policies/guidelines/orders of the Haryana Pollution Control Board and Maharashtra Pollution Control Board are collectively marked and annexed herewith as **Annexure-R3/20(Colly).** Similarly, the Forest and Environment Department, Government of Odisha, vide Fuel Policy dated 12.04.2021, has also permitted usage of coal subject to regulatory safeguards and environmental compliance. Copy of the fuel policy dated 12.04.2021 issued by Forest and Environment Department (Government of Odisha) is marked and annexed herewith as **Annexure-R3/21**.

lii. The aforesaid policies and regulatory measures clearly demonstrate that environmental regulation in relation to industrial fuel usage has consistently adopted a balanced and pragmatic approach based upon emission standards, technological safeguards, availability of fuels and techno-economic feasibility, rather than imposing an absolute prohibition on use of alternate fuels. Consequently, the request of the Respondent No. 3 seeking permission for use of alternate fuels in appropriate circumstances and subject to prescribed safeguards is fully consistent with the broader regulatory and policy framework prevailing across the country.

liii. That a letter dated 18.03.2025 from Agriculture Machinery Manufacturer's Association was received by the Respondent Association in which it has been requested to prioritize coal- based steel production over PNG/LPG for Agricultural Implement Manufacturing. That since 2022, agricultural implement manufacturers have faced challenges with

coating adhesion due to the transition of rolling mills in Mandi Gobindgarh from coal to PNG/LPG as the primary fuel. This shift has altered steel surface characteristics, leading to reduced weldability and coating adhesion, affecting the structural integrity and performance of agricultural machinery. Some technical observations were also mentioned in the said letter and the same are being 4 reproduced herein below for the ready reference of this Hon'ble Tribunal:

"Technical Observations:

1. **Surface Texture Modification**: Steel produced using PNG/LPG exhibits an excessively smooth and somewhat tacky surface, lacking the micro-roughness (in microns) inherent in coal-based steel. This subtle roughness is essential for optimal welding penetration and mechanical bonding.

2. **Reduced Weldability & Coating Adhesion**: The altered surface properties of PNG/LPG-based steel negatively impact weld fusion and paint adhesion, leading to weak joints and compromised corrosion resistance. This directly affects the longevity of essential agricultural

machinery, including rotavators combines and tillage equipment.

3. **Structural Integrity & Performance Degradation**: Poor weld strength and diminished paint adherence result in accelerated wear, increased maintenance requirements, and reduced service lite of agricultural implements, adversely affecting farmers' productivity and operational efficiency.

4. **Elevated Safety Risks**: The inferior weld quality in PNG/LPG based steel raises concerns about structural failure, particularly under high mechanical loads, posing 5 serious safety risks to farm operators.

It was further recommended that Applicant should support the continued use of coal-based fuels and other similar Calorific Value Fuel alternatives in rolling mills for agricultural grade steel production. **Furthermore, if the same issues are not addressed, then the manufacturers may be forced to source steel from supply chains in Himachal and Rajasthan, where coal-based steel remains accessible.** Copy of the letter dated 18.03.2025 is marked and annexed herewith as **Annexure – R3/22**.

liv. In view of the facts and circumstances stated hereinabove, it is most respectfully submitted that the present issue concerning ambient air quality in Khanna is a complex and multi-dimensional issue involving several contributing factors and stakeholders, and cannot be simplistically or disproportionately attributed solely to the rolling mill industry. The material placed on record, including the Action Plan for Clean Air, the recent IIT Delhi Source Apportionment Study, the State Fuel Policy dated 04.10.2023, the communications issued by the gas supplier companies themselves and the various contemporaneous documents annexed herewith, unequivocally establish that the transition to PNG has always remained conditional upon availability of infrastructure, continuity and adequacy of supply, techno-economic feasibility and sustainable pricing mechanisms. The record further demonstrates that the rolling mill sector has throughout cooperated with the authorities, complied with pollution control norms and installed requisite Air Pollution Control Devices (APCDs), while the industries have simultaneously been subjected to severe infrastructural constraints, monopolistic pricing practices, arbitrary escalation in fuel costs, uncertainty and curtailment in gas supply and coercive regulatory pressure for compulsory transition despite the prevailing ground realities.

lv. It is therefore respectfully submitted that any rigid or coercive insistence upon compulsory and exclusive use of PNG, without first ensuring adequate infrastructure, uninterrupted and affordable supply, transparent and competitive pricing and overall techno-economic feasibility, would not only be contrary to the Action Plan and the State Fuel Policy themselves, but would also seriously jeopardize the survival of the MSME

steel rolling industry operating in Khanna and Mandi Gobindgarh. It is further submitted that the scientific material placed on record clearly establishes that rolling mills are not the dominant contributors to ambient particulate pollution and that major contributions arise from road dust, vehicular emissions and other non-industrial sources which require proportionate and coordinated regulatory attention. In these circumstances, a balanced, scientific and pragmatic approach is required, permitting use of appropriate alternate fuels subject to compliance with prescribed emission norms and environmental safeguards, so as to simultaneously protect environmental interests, industrial sustainability and livelihood concerns. The present proceedings therefore merit consideration in light of the actual source contribution, infrastructural realities, prevailing global fuel scenario and the express policy framework governing techno-economic feasibility and availability of supply.

lvi. It is also pertinent to submit that pursuant to the order dated 25.02.2026 passed by this Hon'ble Tribunal in O.A. No. 295 of 2023 (*Dimple Kumar vs. State of Punjab & Ors.*), a meeting of the Cabinet Sub-Committee was convened on 07.05.2026 under the Chairmanship of the Hon'ble Minister of Industries & Commerce, Punjab, specifically with regard to compliance of the directions issued by this Hon'ble Tribunal concerning the issue of air pollution in Mandi Gobindgarh. The minutes of the said meeting record the detailed submissions made on behalf of the Respondent Association/AISRA regarding the prevailing ground realities affecting compulsory transition to PNG, including the ongoing international conflict affecting gas supplies to India, insufficiency and uncertainty in PNG supply, highly volatile pricing, substantial capital

investment required for conversion of furnaces to PNG-based systems and the severe operational and financial burden being faced by MSME industries. The minutes further record the submissions regarding the practical impact of supply restrictions imposed by gas companies and the request made by AISRA for permitting additional clean fuel options including high-temperature coal gasifiers and biomass-based fuels alongside PNG while maintaining prescribed emission norms.

It is further submitted that during the deliberations, the Cabinet Sub-Committee specifically resolved that the representation submitted by AISRA seeking amendment/modification of the State Fuel Policy dated 04.10.2023 for permitting alternate fuels was required to be legally examined and accordingly directed that the said representation be forwarded to the Learned Advocate General, Punjab for obtaining legal opinion on the issue. The minutes further record that the concerned departments as well as the licensee gas company were directed to examine and furnish details regarding disrupted gas supply, requirement, allocation and availability of PNG. In view of the aforesaid developments and the fact that the issue concerning amendment of the Fuel Policy and permitting alternate fuels is presently under active consideration at the State level pursuant to the deliberations of the Cabinet Sub-Committee, it is respectfully submitted that the present issue ought to await final consideration and decision by the competent authorities rather than precipitative coercive action being taken against the rolling mill industry in the interregnum. Copy of the minutes of meeting of Cabinet Sub-Committee convened on 07.05.2026 under the Chairmanship of the

Hon'ble Minister of Industries & Commerce, Punjab are marked and annexed herewith as **Annexure-R3/23**.

lvii. It is respectfully submitted that the issues raised in the present proceedings involve substantial questions relating to environmental policy, fuel regulation, clean fuel transition framework and implementation of national-level environmental directives, and therefore the Ministry of Environment, Forest and Climate Change (MoEF&CC) as well as the Central Pollution Control Board (CPCB) are necessary and proper parties to the present proceedings. This is particularly so in view of the fact that the National Clean Air Programme (NCAP), the directions relating to non-attainment cities and the advisories concerning permissible fuels and alternate fuel usage emanate from or are regulated by the said authorities. It is further pertinent that the CPCB itself, vide advisory/orders dated 12.03.2026 and subsequent extension dated 15.04.2026, has permitted temporary use of alternate fuels in circumstances involving disrupted or insufficient PNG supply. More importantly, CPCB has further extended the permission to use alternate fuels vide advisory dated 12.05.2026 and the permission has been extended upto 12.06.2026. Copy of the advisory dated 12.05.2026 issued by CPCB is marked and annexed herewith as **Annexure-R3/24**. The issues concerning amendment/modification of the State Fuel Policy, permissibility of alternate fuels and fuel-transition framework therefore necessarily require consideration in the presence of the aforesaid authorities. It is further submitted that the material placed on record, including the Action Plan for Clean Air as well as the recent Source Apportionment Study, clearly demonstrates that road dust and vehicular

emissions constitute major contributors towards ambient particulate pollution in Khanna/Mandi Gobindgarh. Despite the same, neither the National Highways Authority of India (NHAI), nor the concerned Municipal Council/Municipal Corporation, nor the Public Works Department (PWD) have been impleaded in the present proceedings, despite such authorities being directly responsible for road maintenance, traffic management, dust mitigation, infrastructure upkeep and allied activities connected with the major pollution sources identified in the studies. In absence of the said authorities, the present proceedings suffer from non-joinder of necessary parties and risk being reduced into a one-dimensional proceeding exclusively targeting the rolling mill sector while ignoring other major contributing sources of pollution.

It is therefore respectfully submitted that appropriate directions ought to be issued to the Applicant to implead MoEF & CC, CPCB, NHAI, the concerned Municipal Authorities and the Public Works Department as necessary parties to the present proceedings so that the issue may be adjudicated comprehensively and holistically after considering all major contributing sources and stakeholders.

PRAYER

In light of the facts and circumstances mentioned herein above, it is prayed that this Hon'ble Tribunal may be graciously pleased to:-

i. Take the present Reply on record;

ii. Take into consideration that any direction for compulsory and exclusive transition to PNG/CNG cannot be enforced in absence of complete infrastructure, uninterrupted and adequate supply, transparent and commercially viable pricing mechanism and consideration of techno-economic and legal feasibility as contemplated under the State Fuel Policy dated 04.10.2023;

iii. Permit the rolling mills situated in Khanna and Mandi Gobindgarh to use appropriate alternate fuels, including Low Sulphur Coal, High Temperature Coal Gasifiers, Biomass Fuel/Wood Pellets and other approved alternate fuels, subject to compliance with prescribed emission standards, operation of requisite Air Pollution Control Devices (APCDs) and such safeguards as may be deemed fit and proper;

iv. Direct the Applicant to implead the Ministry of Environment, Forest and Climate Change (MoEF & CC), Central Pollution Control Board (CPCB), National Highways Authority of India (NHAI), concerned Municipal Authorities and the Public Works Department (PWD) as necessary parties to the present proceedings in view of the policy-related issues involved and the admitted contribution of road dust and vehicular pollution towards ambient air pollution in the concerned area;

v. Exempt the Respondent No 3 from filing better/typed/translated copies of Some Annexures;

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Pass any other further orders as may deem fir and proper in the circumstances of the case.

Note: Affidavit is attached.

For All India Steel Re-Rollers Association

President

Attested as Identified
NOTARY PUBLIC
KHANNA (Pb.)

NOTARY RITIN No. 44041 18/FEB/26 GOVT. OF INDIA

I Know the deponent/executant he/she has signed/R.T.I./L.T.I. in my presence

RESPONDENT
ALL INDIA STEEL ROLLERS ASSOCIATION
THROUGH MR. VINOD VASHISHT

Certified that the affidavit is explained to seemed directly ... the marking there of

SHRIYA TAKKAR, MANAN TAKKAR, AVANTIKA THAKUR, PRINCE SHARMA
P/1769/2016 D/2518/2023 UP/10905/2018 PH/1820/2022

AASTHA TYAGI, UDIT SAINI, YASH DEWAN & SAIRA TAGRA
D/4060/2022 PH/3781-A/2022 D/7501/2023 D/4897/2022

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P-6/2E, DLF PHASE-2,
GURGAON-122002
9815550001
SHRIYATAKKAR@ARTLO.IN

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

ORIGINAL APPLICATION NO. 1358 OF 2024

IN THE MATTER OF:

Archit Arora ...Applicant

Versus

State of Punjab & Ors. ...Respondents

AFFIDAVIT

I, Vinod Vashisht S/o. Ramesh Chander Vashisht aged about 71 Years R/o. Kothi No.22-33, New Khanna City Extension near Golden Grain Club, Khanna, Ludhiana, Punjab -141401 the above-named deponent do hereby solemnly affirm and state as under: -

1. That the Reply on behalf of All India Steel Rollers Association Through Mr. Vinod Vashisht and has been drafted under the authority and instructions of the deponent and after perusing its contents, the deponent has duly signed it, and the contents of paragraph Nos. 1 to 6 thereof are true and correct to the knowledge of the deponent, and the same may be read as contents of this affidavit also, which are not being reproduced for the sake of brevity No part of it is false and nothing material has been kept concealed therefrom.

For All India Steel Re-Rollers Association

President

I Know the deponent ... he/she has signed ...

NOTARY ... RITIN ... No. 44041

66

2. That the contents of paragraphs no. 1 to 6 of above Reply are true and correct to my knowledge, no part of it is false and nothing material has been kept concealed therefrom.

3. That the Annexures attached with the Reply are true copies of their respective Original.

For All India Steel Re-Rollers Association
President

PLACE:
DATE:

DEPONENT

VERIFICATION:

Verified that the contents of para 1 and 3 my affidavit are true and correct to my knowledge No. part of it is face and nothing material has been kept concealed therefrom.

For All India Steel Re-Rollers Association
President

PLACE:
DATE:

Attested as Identified
NOTARY

DEPONENT

NOTARY
GOVT. OF INDIA
18/5/26

I Know the deponent/executant he/she has signed/R.T.I./L.T.I. in my presence

Certified that the affidavit/document has been ... deponent/ executant ... understand the same

ANNEXURE -R3/1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 681 of 2018

IN THE MATTER OF:

News Item Published In 'The Times of India' Authored by Shri. Vishwa Mohan Titled
"NCAP with Multiple Timelines to Clear Air in 102 Cities to be released around August 15"

CORAM: HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
HON'BLE DR. JUSTICE JAWAD RAHIM, JUDICIAL MEMBER
HON'BLE MR. JUSTICE S.P. WANGDI, JUDICIAL MEMBER
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER

Dated: 08th October, 2018.

ORDER

1. Proceedings in this matter have been initiated on the basis of a newspaper item dated 03.08.2018 in the Times of India under the heading "*NCAP with multiple timelines to clean air in 102 cities to be released around August 15*"[1]. According to the news item, the National Clean Air Programme (NCAP) proposes to reduce pollution in 102 cities where standards of air pollution are in excess in the next 10 years- 35% in next 3 years, 50% in next 5 years and 70-80% in next 10 years.

2. The question that arises for consideration is whether the timeline of 10 years for bringing down pollution levels is in accordance with the mandate of law requiring pollution free environment especially when there is imminent threat to human health as a result of such pollution. According to a survey, 15,000 persons died prematurely in Delhi in the year 2016. Delhi was ranked as third in the list of cities reporting most deaths due to air pollution. Premature deaths in

[1] https://timesofindia.indiatimes.com/india/ncap-with-multiple-timelines-to-clean-air-in-102-cities-to-be-released-around-august-15/articleshow/65254122.cms

Mumbai, Kolkata, Bangalore and Chennai are reported to be between 5,000-10,000 in 2016.[2]

3. 102 cities have been identified as 'Non-attainment cities'. Non-attainment city is the one which does not meet the National Ambient Air Quality Standards (NAAQS). The said standards are prescribed under Section 16 (2) (h) of Air (Prevention and Control of Pollution) Act, 1981, (Air Act, 1981) vide Notification dated 18.11.2009 by the Central Pollution Control Board (CPCB).

4. Serious concerns have been expressed in the last four decades about the need to restore the standards of the air quality, in view of the adverse effect of air pollution on public health. Section 20 of the Air Act, 1981 provides for directions for ensuring standards for emission from automobiles by the State Pollution Control Boards. Section 21 of the Air Act, 1981 requires Consent to Establish (CTE) or operate an industrial plant in air pollution control areas. Conditions for such grant include installation of equipments for control of air pollution, use of specified chimneys and such other conditions as may be necessary. Section 22 provides for control of industrial pollution. State Boards can also seek injunction against air pollution from any source under Section 21-A. Section 31-A empowers a Pollution Board to give directions to close an industrial activity on the ground of pollution. It is, however, well known that the statutory mechanism under the Air Act, 1981 has not been successful in controlling air pollution. The result is that air pollution has been subject matter of consideration by the Hon'ble Supreme Court and other Courts as well as this Tribunal.

[2]https://www.ndtv.com/delhi-news/delhis-air-pollution-has-caused-of-death-of-15-000-people-study-1883022.

5. Directions have been issued by the Hon'ble Supreme Court for control of vehicular pollution[3], industrial and construction sector pollution[4], power sector pollution[5] and agricultural sector pollution[6]. This Tribunal also dealt with some of such issues.[7] CPCB has also issued directions under Section 18(1)(b) of the Air Act, 1981 vide letter dated 29.12.2015 regarding prevention, control or abatement of air pollution and improvement of ambient air quality[8].

6. A Comprehensive Action Plan (CAP) for air pollution control for NCR was prepared in pursuance of order of the Hon'ble Supreme Court dated 06.2.2017 by the Environment Pollution (Prevention and Control) Authority (EPCA) in consultation with the CPCB and DPCC on 05.04.2017.[9] The said plan also provides for enforcement of Graded Response Action Plan (GRAP) notified by the MoEF&CC on 12.01.2017[10]. The GRAP envisages 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,

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[3] M.C. Mehta v. Union of India (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) 3 SCC 356, M.C. Mehta v. Union of India (1998) 6 SCC 60

[4] 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 235, Rural Litigation and Entitlement Kendra, Dehradun v. State of U.P. (1985) 2SCC 431, Mohd. Haroon Ansari v. District Collector (1998) 6 SCC 60, Union of India v. Union Carbide Co. (1989) 1 SCC 674, M.C. Mehta v. Union of India (1992) 4 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

[5] 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

[6] Arjun Gopal and Ors v. Union of India and Ors (2017) 16 SCC 280, Dr. B.L Wadhera v. Union of India and Ors (1996) 2 SCC 594

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

[8] p. 38, http://envfor.nic.in/sites/default/files/NCAP%20with%20annex-ilovepdf-compressed.pdf

9 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.

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

control of generator sets, open burning, open eateries, road dust, construction dust, etc.

7. 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, mechanised cleaning of road, and sprinkling of water, stopping the use of diesel generator sets, enhancing parking fees, etc. 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.[11]

8. A chamber meeting was held in this Tribunal on 05.09.2018 to review the situation. The same was attended by all the Members of the Tribunal, representatives of CPCB, Ministry of Road Transport and Highways (MoRTH), Ministry of Petroleum and Natural Gas, Ministry of Environment, Forest and Climate Change (MoEF&CC), Ministry of Agriculture, Cooperation and Farmers Welfare, Ministry of Heavy Industries, States of Haryana, Punjab, Uttar Pradesh and Rajasthan, NCT of Delhi, IIT Delhi, IIT Kanpur and NEERI. In the said meeting, presentation was given by CPCB to the effect that 102 cities have been declared as “non-attainment” cities based on study of data from 2011-2015 and directions were issued by the CPCB to concerned States to

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

frame city specific action plans. 73 such plans were received. 36 were finalized. 37 are pending. 29 are yet to be submitted.

9. Under the National Ambient Air Quality Monitoring Programme (NAAQM) of the CPCB, renamed as National Air Quality Monitoring Programme (NAMP), air quality data is compiled with reference to notified air standards. Four air pollutants viz. Sulphur Dioxide ($S0_2$), Oxides of Nitrogen as $N0_2$, Suspended Particulate Matter (PM_{10}) and fine Particulate Matter ($PM_{2.5}$) have been identified for regular monitoring at all the locations.[12] In addition to this, there are hundred and one (101) real-time Continuous Ambient Air Quality Monitoring stations (CAAQMS) in 57 cities monitoring 08 pollutants viz. PM_{10}, $PM_{2.5}$, $S0_2$, NOx, Ammonia (NH_3), Carbon Monoxide (CO), Ozone (0_3) and Benzene. PM_{10} are inhalable coarse particles, which are particles with a diameter between $PM_{2.5}$ and 10 micrometers (μm) and $PM_{2.5}$ are fine particles with a diameter of 2.5 μm or less. Particulates are the deadliest form of air pollutant due to their ability to penetrate deep into the lungs and blood streams unfiltered· The smaller $PM_{2.5}$ are particularly deadly as they can penetrate deeper into the lungs.

10. As already noted, there are 102 non-attainment cities where the air quality is worse than National Ambient Air Quality Standards consecutively in the last five years. The number of cities has increased from 94 identified earlier under the National Air Quality Monitoring Programme (2011-15). The highest number of cities are in Maharashtra (17) followed by Uttar Pradesh (15), Punjab (9), Himachal Pradesh (7), Odisha and Madhya Pradesh (6 each), Assam, Andhra Pradesh and Rajasthan (5 each), Karnataka (4), Bihar, Chhattisgarh and Telangana (3 each), Gujarat, Jammu and Kashmir, Nagaland and Uttarakhand (2 each) and Jharkhand, Delhi, Chandigarh, Meghalaya, Tamil Nadu and West Bengal (1 each).

[12] http://envfor.nic.in/sites/default/files/NCAP%20with%20annex-ilovepdf-compressed.pdf

11. The list of 102 cities identified by CPCB with status of parameters exceeded and major sources of pollution are as follows:

State Sl. No	State	Cities Sl. No	Cities	Status	Major Sources of Pollution
1	Andhra Pradesh	1	Guntur	PM10	i. Vehicular Emissions. ii. Road Dust/Re-suspension of dust and other fugitive emission. iii. Air Pollution from Bio-Mass Burning iv. Industrial Air Pollution. v. Air Pollution from Construction and Demolition Activities. vi. DG sets vii. LPG instead of coal in restaurants/ dhabas/ road side eateries.
		2	Kurnool	PM10	
		3	Nellore	PM10	
		4	Vijaywada	PM10	
		5	Vishakhapatnam	PM10	
		6	Guwahati	PM10	
		7	Nagaon	PM10	
2	Assam	8	Nalbari	PM10	
		9	Sibsagar	PM10	
		10	Silchar	PM10	
	Bihar	11	Gaya	N.A	
		12	Patna	N.A	
		13	Muzzafarpur	N.A	
3	Chandigarh	14	Chandigarh	PM10	
4	Chhattisgarh	15	Bhillai	PM10	
		16	Korba	PM10	
		17	Raipur	N.A	
5	Delhi	18	Delhi	PM10, NO2	
6	Gujarat	19	Surat	PM10	
		20	Amedabad	N.A	
		21	Baddi	PM10	
		22	Damtal	PM10	
		23	Kala Amb	PM10	
7	Himachal Pradesh	24	Nalagarh	PM10	
		25	Paonta-Sahib	PM10	
		26	Parwanoo	PM10	
		27	Sunder Nagar	PM10	
8	Jammu & Kashmir	28	Jammu	PM10	
		29	Srinagar	N.A	
9	Jharkhand	30	Dhanbad	PM10	
10	Karnataka	31	Bangalore	PM10	
		32	Devanagere	PM10	
		33	Gulburga	PM10	
		34	Hubli-Dharwad	PM10	
		35	Bhopal	PM10	
		36	Dewas	PM10	

State Sl. No	State	Cities Sl. No	Cities	Status	Major Sources of Pollution
11	Madhya Pradesh	37	Indore	PM10	i. Vehicular Emissions. ii. Road Dust/Re-suspension of dust and other fugitive emission. iii. Air Pollution from Bio-Mass Burning iv. Industrial Air Pollution. v. Air Pollution from Construction and Demolition Activities. vi. DG sets. vii. LPG instead of coal in restaurants/ dhabas/ road side eateries.
		38	Sagar	PM10	
		39	Ujjain	PM10	
		40	Gwalior	N.A	
		41	Akola	PM10	
		42	Amravati	PM10	
		43	Aurangabad	PM10	
		44	Badlapur	PM10, NO2	
		45	Chandrapur	PM10	
		46	Jalgaon	PM10	
		47	Jalna	PM10	
12	Maharashtra	48	Kolhapur	PM10	
		49	Latur	PM10	
		50	Mumbai	PM10	
		51	Nagpur	PM10	
		52	Nashik	PM10	
		53	Navi Mumbai	PM10	
		54	Pune	PM10, NO2	
		55	Sangli	PM10	
		56	Solapur	PM10	
		57	Ulhasnagar	PM10, NO2	
13	Meghalaya	58	Byrnihat	PM10	
14	Nagaland	59	Dimapur	PM10	
		60	Kohima	PM10	
15	Orissa	61	Angul	PM10	
		62	Balasore	PM10	
		63	Bhubneshwar	PM10	
		64	Cuttack	PM10	
		65	Rourkela	PM10	
		66	Talcher	PM10	
		67	Amritsar	N.A	
		68	DeraBassi	PM10	
		69	Gobindgarh	PM10	
		70	Jalandhar	PM10	

State Sl. No	State	Cities Sl. No	Cities	Status	Major Sources of Pollution
16	Punjab	71	Khanna	PM10	i. Vehicular Emissions. ii. Road Dust/Re-suspension of dust and other fugitive emission. iii. Air Pollution from Bio-Mass Burning iv. Industrial Air Pollution. v. Air Pollution from Construction and Demolition Activities. vi. DG sets. vii. LPG instead of coal in restaurants/ dhabas/ road side eateries.
		72	Ludhiana	PM10	
		73	NayaNangal	PM10	
		74	Pathankot/Dera Baba	PM10	
		75	Patiala	PM10	
		76	Alwar	PM10	
		77	Jaipur	PM10	
17	Rajasthan	78	Jodhpur	PM10	
		79	Kota	PM10	
		80	Udaipur	PM10	
18	Tamil Nadu	81	Tuticorin	PM10	
19	Telangana	82	Hydrabad	PM10	
		83	Nalgonda	PM10	
		84	Patencheru	PM10	
		85	Agra	PM10	
		86	Allahabad	PM10	
		87	Anpara	PM10	
		88	Bareily	PM10	
		89	Firozabad	PM10	
		90	Gajraula	PM10	
20	Uttar Pradesh	91	Ghaziabad	PM10	
		92	Jhansi	PM10	
		93	Kanpur	PM10	
		94	Khurja	PM10	
		95	Lucknow	PM10	
		96	Muradabad	PM10	
		97	Noida	PM10	
		98	Raebareli	PM10	
		99	Varanasi	PM10	
21	Uttarakhand	100	Kashipur	PM10	
		101	Rishikesh	PM10	
22	West Bengal	102	Kolkata	PM10, NO2	

12. The above chart shows that major violation of standard is of "PM_{10}" and identified sources are vehicular, industrial, biomass burning, road dust, construction and demolition, DG sets and road side eateries. The action plan proposed by the CPCB[13] with the timeline is as follows:

Action Plan:				
	Action	**Implementation period (Short/ Mid /Long-term)**	**Time target for Implementation**	**Responsible agency (ies)**
Source group	1. Restriction on plying and phasing out of 15 years old commercial diesel driven vehicles.	Mid	Dec. 18	Transport Department
Vehicles	2. Introduction of cleaner fuels (CNG/LPG) for vehicles.	Mid	June,18	Transport Department & Oil companies
	3. Regular checking of vehicular emission and issue of Pollution under Control Certificate (PUC).	Short	March,18	Transport Department & Traffic Police
	4. Good traffic management including re-direction of traffic movement to avoid.	Mid	July, 18	Traffic Police
	5. Ban on registration of Diesel driven auto-rickshaw /Tempo.	Short	April, 18	Transport Department
	6. Promotion and operationalization of E-rickshaw.	Mid	June, 18	Transport Department
	7. Development of Multi-layer parking.	Long	Dec. 18,	MC, UD&HD & District Adm
	8. Retrofitting of particulate filters in diesel driven vehicle.	Mid	Dec. 18	Transport Department
	9. Checking of fuel adulteration	Short	April, 18	District Adm & Oil Company
	10. Monitoring on vehicle fitness.	Short	April, 18	Transport Department & Traffic Police
	11.Periodic calibration test of vehicular emission monitoring instrument	Short	April, 18	SPCB & Transport Department
Road Dust	1. Regular cleaning of road dust.	Short	April, 18	MC

[13]presented by CPCB in chamber meeting at NGT on 05.09.2018

	2. Water spraying on road through tankers	Mid	April, 18	MC
	3. Construction of pucca pavement along the roads.	Long	Dec. 18	MC and Road Construction Department
	4. Tree plantation along the roads.	Long	Aug. 19	Department of Environment and Forest
	5. Development of green belt in open areas, gardens, parks/ community places, schools & housing societies.	Long	Aug. 19	Department of Environment and Forest
	6. Introduction of water fountains at major traffic intersection/ Golambar/circle.	Long `	Aug.19	MC
Construction activities	1.Covering of construction site.	Short	April, 18	Building Construction Department and MC.
	2.Transporation of construction materials like sand, soil, stone chips etc. in covered system.	Short	April, 18	Transport Department District Adm. & Traffic Police.
	3. Restriction on storage of construction materials along the road.	Short	April, 18	MC
Biomass and garbage burning	1.Restriction on open burning of municipal solid waste, Biomass, plastic horticulture waste etc.	Short	March, 18	MC
	2. Immediate lifting of solid wastes generated from de-silting and cleaning of municipal drains for its disposal.	Short	April, 18	MC
	3.Transportation of municipal solid wastes, construction materials and debris in covered system.	Short	April, 18	MC
	4. Ensuring promotion & use of cleaner fuel for commercial purposes like local Dhaba/eateries	Long	Dec.19	District Adm. & Oil Company
Industries	1.Ensuring installation and operation of air pollution control devices in industries	short	April, 18	SPCB
	2.Ensuring emission standards in industries	short	April, 18	SPCB

	3.Adoption of cleaner technology in brick kilns at five blocks of City Name Viz. city Name Sadar, Danapur, Phulwarisharif, Maner and Fatuha by 31.08.2018	Mid	Aug. 18	SPCB
	4. Shifting of polluting industries,	Long	Dec. 19	SPCB & Industry Department
	5. ban on polluting industries	Short	April, 18	SPCB & Industry Department
Strengthening of AAQ monitoring	1.Installation of four CAAQMS at City Name A. Two CAAQMS stations under CSR funds of CPSU through Central Pollution Control Board at Eco-Park and IGIMS, City Name premise. b. Two CAAQM stations under State Govt. financial assistance	Mid	Aug.18	SPCB
	2. Source appointment study	Mid	Dec. 18	SPCB
Public Awareness	1.Issue of advisory to public for prevention and control of air pollution	Short	April, 18	SPCB & SDMA
	2.Involvement of school and other academic institution in awareness program	Mid	Aug. 18	SPCB
Others	1. Compliance of guidelines on D.G. sets and action against violation	Short	April, 18	SPCB & MC
	2. Help line to oversee non compliances on aforesaid issues.	Short	April, 18	SPCB & MC

13. The data of non-attainment cities is a matter of concern. Though, the MoEF&CC has announced NCAP, as noted earlier, the timeline for bringing down the pollution by 70-80% in next 10 years does not meet the mandate of law. The time line has to be revised. As per some studies, India ranks 177 out of 180 countries in Environmental Performance Index.[14]

[14] https://www.thehindu.com/sci-tech/energy-and-environment/india-ranks-177-out-of-180-in-environmental-performance-index/article22513016.ece

14. We are thus of the view that emergent measures are required to check sources of air pollution. Once the standards have been laid down in the statutory provisions of the Air Act, 1981, all the authorities as well as citizens are statutorily bound to follow the said standards.

15. Accordingly, we consider it appropriate to take cognizance of the alarming situation and issue directions as follows:

i. All the States and Union Territories with non-attainment cities must prepare appropriate action plans within two months aimed at bringing the standards of air quality within the prescribed norms within six months from date of finalization of the action plans.

ii. The Action Plans may be prepared by six-member committee comprising of Directors of Environment, Transport, Industries, Urban Development, Agriculture and Member Secretary, State Pollution Control Board or Committee of the concerned State. The Committee may be called Air Quality Monitoring Committee (AQMC). The AQMC will function under the overall supervision and coordination of Principal Secretary, Environment of the concerned State/Union Territory. This may be further supervised by the Chief Secretaries concerned or their counterparts in Union Territories by ensuring intra-sectoral co-ordination.

iii. The Action Plans may take into account the GRAP, the CAP and the action plan prepared by CPCB as well as all other relevant factors. The Action Plans may be forwarded to the CPCB by 31.12.2018. The same may be placed before the Committee as directed in direction no. vi. The Action Plan will include components like identification of source and its apportionment considering sectors like vehicular pollution, industrial pollution, dust pollution, construction activities, garbage burning, agricultural pollution including pollution caused by burning of crop residue, residential and indoor pollution etc. The action plan

shall also consider measures for strengthening of Ambient Air Quality (AAQ) monitoring and steps for public awareness including issuing of advisory to public for prevention and control of air pollution and involvement of schools, colleges and other academic institutions and awareness programmes.

iv. The Action Plan will indicate steps to be taken to check different sources of pollution having speedy, definite and specific timelines for execution.

v. The Action Plan should be consistent with the carrying capacity assessment of the non-attainment cities in terms of vehicular pollution, industrial emissions and population density, extent of construction and construction activities etc. The carrying capacity assessment shall also lay emphasis on agricultural and indoor pollution in rural areas. Depending upon assessed carrying capacity and source apportionment, the authorities may consider the need for regulating number of vehicles and their parking and plying, population density, extent of construction and construction activities etc. Guidelines may accordingly be framed to regulate vehicles and industries in non-attainment cities in terms of carrying capacity assessment and source apportionment.

vi. The Committee comprising of (a) Shri. Prashant Gargava, Member Secretary, CPCB, (b) Dr. Mukesh Khare, Professor, IIT Delhi, and (c) Dr. Mukesh Sharma, Professor, IIT Kanpur shall examine the Action Plans and on the recommendations of the said Committee, the Chairman, CPCB shall approve the same by 31.01.2019.

vii. The Chief Secretaries of the State and Administrators/ Advisors to Administrators of the Union Territories will be personally accountable for failure to formulate Action Plans, as directed.

viii. The CPCB, SPCBs and State Pollution Control Committees shall develop a public grievance redressal portal for redressal of public

complaints on air pollution along with a supervisory mechanism for its disposal in a time bound manner. Any visible air pollution can be reported at such portal by email/SMS.

ix. The CPCB and all the State Pollution Control Boards and Pollution Control Committees shall collectively workout and design a robust nationwide ambient air quality monitoring programme in a revised format by strengthening the existing monitoring network with respect to coverage of more cities/towns. The scope of monitoring should be expanded to include all twelve (12) notified parameters as per Notification No B-29016/20/90/PCI-L dated 18th November, 2009 of CPCB. The continuous Ambient Air Quality Monitoring Stations (AAQMS) should be preferred in comparison to manual monitoring stations. The CPCB and States shall file a composite action plan with timelines for its execution which shall not be more than three months. It is expected that all such AAQMS shall be connected to central server of CPCB for reporting analysis of results in a form of Air Quality Bulletin for general public at regular intervals atleast on weekly basis and ambient air quality on continuous basis on e-portal. MoEF&CC will provide requisite funds for the purpose. MoEF&CC in consultation with Ministry of Housing and Urban Affairs, MoRTH, Ministry of Petroleum and Natural Gas, Ministry of Agriculture, Cooperation and Farmers Welfare or any other Ministry to lay down such guidelines as may be considered necessary for improvement of air quality in the country.

16. A copy of this be sent by e-mail to all the concerned i.e. Ministries of Environment, Forest & Climate Change, Housing and Urban Affairs, Road Transport and Highway, Agriculture, Petroleum and the Chief Secretaries of all the States and Union Territories for compliance.

17. We understand that some of the Zonal Benches of the National Green Tribunal have also passed directions on the subject of Ambient Air Quality and the States in those Zones are in the process of implementation of such directions. Specific reference may be made in this regard to judgement dated 11.08.2016 in O.A No. 33/2018/EZ in the matter of *Subhas Datta v. State of West Bengal & Ors.* We make it clear that this order shall not be considered as an impediment to those actions but as an addition or supplement thereto for achieving the object of this order at the macro level and of the said order at the micro level in the concerned cities.

18. Needless to say, that order of National Green Tribunal is binding as a decree of Court and non-compliance is actionable by way of punitive action including prosecution, in terms of the National Green Tribunal Act, 2010.

19. The CPCB may compile the data and furnish the same to this Tribunal by email at filing.ngt@gmail.com on or before 15.2.2019.

20. Put up for consideration in the last week of February, 2019.

....., CP
(Adarsh Kumar Goel)

.....,JM
(Dr. Jawad Rahim)

.....,JM
(S.P. Wangdi)

.....,EM
(Dr. Nagin Nanda)

New Delhi
October, 08, 2018

ANNEXURE -R3/2

Action Plan for Clean Air, Khanna

13th Feb 2019

Directorate of Environment and Climate Change
Department of Science, Technology and Environment,
Government of Punjab

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Chapter 1 - Introduction

1.1. About Air Pollution

1.1.1 Air pollutant means any solid, liquid or gaseous substance present in the atmosphere in such concentration as may be or tend to be injurious to human being or other living creatures or plant or property or environment. Air pollution means the presence of air pollutants in the atmosphere. The most common sources of air pollution include particulates, ozone, oxides of nitrogen, and sulphur dioxide.

1.1.2 The health effects caused by air pollution may include difficulty in breathing, wheezing, coughing, asthma and worsening of existing respiratory and cardiac conditions.

1.2. About Khanna

1.2.1 History

(i) Khanna is an ancient town which came into existence 500 years back. History reveals that Sher Shah Suri built a number of Sarais (inns) at every 12 to 15 miles along the Delhi-Lahore road. One of the Sarais was built in this area which is still known as the Purani Sarai.

(ii) After the decline of Mughal rule in the Punjab, Baba Banda Singh Bahadur captured the area from Sirhind to Hoshiarpur. After that a Jathedar of Dahedu controlled and occupied the whole of the area from Dahedu to Nabha. He married his daughter, Daya Kaur, to the King of Nabha. When a family dispute arose between the King and his new wife, she left Nabha for good and went back to live with her parents in Dahedu. According to Indian conventions she could not remain there forever. Therefore, her father gave her a "kann", or a "small portion", of the territory between Dahedu and Nabha that was well known for its agriculture. Over time, the pronunciation of the name changed from "Kann" to "Khanna".

(iii) The city is 40 km from the city of Ludhiana on the Grand Trunk Road (National Highway 1) and is home to Asia's 2nd largest grain market. The city is intermixed with Mandi Gobindgarh, which is known as "Steel City". Like Mandi Gobindgarh, Khanna became a free trade zone for steel. The town experienced growth along with Mandi Gobindgarh.

1.2.2 Area and Population

Khanna is located 40 Km from Ludhiana city in a stretch of about 12 Km on National Highway-I. The City is spread over an area of about 28 Sq. Km and currently accommodates a population of about 1, 30,000.The city is home to Asia's 2nd largest grain market. The city is intermixed with Mandi Gobindgarh, which is known as "Steel City". Like Mandi Gobindgarh, Khanna became a free trade zone for steel. The town experienced growth along with Mandi Gobindgarh.

1.2.3 **Industry and Trade**

At present, the city contributes handsomely to the total recycled steel production of India. Industrialization in Khanna began at the start of the 20th century along with Mandi Gobindgarh as various categories of steel manufacturing units are operating in this town.Khanna has the largest grain market in Asia followed by the grain market of Rajpura (Punjab).

1.2.4 **Topography**

The topography of the Khanna is typical representative of an Alluvial plain, it owes its origin to the aggravation work of the Sutlej River. The alluvium deposited by the river has been worked over by the wind which gave rise to a number of small dunes and sand mounds. Most of these dunes have been levelled by the brave hard-working agriculturists of the district.

1.2.5 **Climate**

The climate of the Khanna is characterized by dryness except a brief spell of monsoon season in a very hot summer and a bracing winter. The winter season is from middle of November to the early part of March. The succeeding period up-to the end of June is the hot season. July, August and half of September constitute the south west of monsoon, the period of mid-September to about the middle of November may be termed as post monsoon or transitional period. June is generally the hottest month. Hot and scorching dust laden winds blow during summer season. December & January are the coldest months. The mean daily temperature varies in the range of 5 degree centigrade to 42 degree centigrade.

1.2.6 **Rainfall**

The rainfall in the city increases from south west towards the north east. About 70% of the rainfall is received during the period July to September. The rainfall during December to March accounts for 16% of the rainfall and the remaining 14% rainfall is received in other months of the year. The average annual rainfall is 859.4 mm.

1.3. **Government's past efforts for control of Air pollution**

1.3.1 Punjab Pollution Control Board had taken this as a challenge and also as an opportunity in order to achieve significant improvement in environmental quality and pave the way for sustainable development in the area. As Khanna is sister city of Mandi Gobindgarh, similar industries are established in these twin cities. Therefore, Khanna faces the similar challenges as Mandi Gobindgarh. The efforts being made by the Government in Mandi Gobindgarh are being replicated in Khanna city.

1.3.2 Punjab Pollution Control Board in consultation with Punjab State Council for Science & Technology, Chandigarh has evolved side suction hood technology for effective control of fugitive emissions generated by induction furnaces. Punjab Pollution Control Board has

asked the induction furnaces to upgrade their existing APCDs with side suction hood technology and bag filter house.

1.3.3 There are 90 steel rolling mills located in the Khanna city. At present, coal is being used as fuel in the re-heating furnaces, which is major cause of pollution, therefore, like Mandi Gobindgarh the Board is pursuing the steel rolling mills of Khanna to shift their furnaces from coal to piped natural gas (PNG).

1.4. **About National Green Tribunal directions**

1.4.1 Nine cities of Punjab namely DeraBassi, Nangal, Patiala, Mandi Gobindgarh, Khanna, Ludhiana, Jalandhar, Pathankot and Amritsar were declared non-attainment cities by Central Pollution Control Board (CPCB) on the basis of Ambient air data for the period of 2011-2015 for not meeting the annual average of 60 $\mu g/m^3$ for PM_{10}.Directions were issued to the Board by CPCB to prepare action plans for the above stated non-attainment cities of Punjab.

1.4.2 Subsequently, National Green Tribunal has taken cognizance of draft National Clean Air Program and passed directions in the matter of application no. 681 of 2018 dated 8/10/2018. The important points of the said directions are given as under:

(i) Action plans to be prepared within two months aimed at bringing the standards of air quality within the prescribed norms within six months from date of finalization of the action plans.

(ii) The action plans may be prepared by six-member committee comprising of Director of Environment, Transport, Industries, Urban Development, Agriculture and Member Secretary, State Pollution Control Board under the overall supervision of Principal Secretary, Environment and further supervised by Chief Secretary.

(iii) The Action plans may take into account the GRAP, the CAP and the action plan prepared by CPCB as well as all other relevant factors.

(iv) The Action Plan will include components like identification of source and its apportionment considering sectors like vehicular pollution, industrial pollution, dust pollution, construction activities, garbage burning, agricultural pollution including pollution caused by burning of crop residue, residential and indoor pollution etc.

(v) The Action plan shall also consider measures for strengthening of Ambient Air Quality (AAQ) monitoring and steps for public awareness including issuing of advisory to public for prevention and control of air pollution and involvement of schools, colleges and other academic institutions and awareness programmes.

(vi) The Action plan will indicate steps to be taken to check different sources of pollution having speedy, definite and specific timelines for execution.

(vii) The Action plan should be consistent with the carrying capacity assessment of the non-attainment cities in terms of vehicular pollution, industrial emissions and

population density, extent of construction and construction activities etc. The carrying capacity assessment shall also lay emphasis on agricultural and indoor pollution in rural areas. Depending upon assessed carrying capacity and source apportionment, the authorities may consider the need for regulating, number of vehicles and their parking and plying, population density, extent of construction and construction activities etc. Guidelines may accordingly be framed to regulate vehicles and industries in non-attainment cities in terms of carrying capacity assessment and source apportionment.

(viii) The CPCB and SPCBs shall develop a public grievance redressal portal for redressal of public complaints on air pollution along with a supervisory mechanism for its disposal in a time bound manner. Any visible air pollution can be reported at such portal by email/SMS.

(ix) The CPCB and all SPCBs shall collectively workout and design a robust nationwide ambient air quality monitoring programme in a revised format by strengthening the existing monitoring network with respect to coverage of more cities / towns. The scope of monitoring should be expanded to include all twelve (12) notified parameters as per notification no. B-29016/20/90/PCl-L dated 18th November of CPCB. The Continuous Ambient Air Quality Monitoring Stations (AAQMS) should be preferred in comparison to manual monitoring stations. The CPCB and States shall file a composite action plan with timelines for its execution which shall not be more than three months.

1.4.3 Earlier, NGT had also issued various directions in OA No. 21 of 2014 titled as Vardhaman Kaushik V/s Union of India and Others for combating air pollution.

Chapter 2 – Vision, Mission and Strategy

2.1. Mission Tandarust Punjab

The Government of Punjab envisions to make Punjab the healthiest State with healthy people by ensuring the quality of air, water, food and a good living Environment.

2.2. Vision for Clean Air, Khanna

To restore the quality of air in Khannato the prescribed standards to ensure health of the people, ecological balance and socio-economic well-being of the people.

2.3. Mission Clean Air, Khanna

To prepare and implement a comprehensive action plan for clean Khanna:

(i) Creating awareness about the adverse impact of air pollution
(ii) Identifying the sources of airpollution, their apportionment
(iii) Identifying action steps related to Awareness, Enforcement, Infrastructure or Policy for control of various sources of Air Pollution
(iv) Designing effective systems for monitoring the progress of the implementation of action steps
(v) Ensuring effective monitoring of the quality of air
(vi) Mitigating adverse impact on health of the people due to air pollution.

2.4. Strategy for Clean Air, Khanna

The key elements of strategy for Clean Air campaign for Khanna will include:

(i) Identification of Government Stakeholders
(ii) Identification of Non-Government Stakeholders
(iii) Integration of Departmental plans – Creating synergies
(iv) Nodal Department
(v) Citizen Participation
(vi) Monitoring and Governance

2.5. Identification of Government Stakeholders

In order to combat the challenges of air pollution, all the Stakeholders will have to make concerted efforts. Following Departments and agencies have been identified along with their responsibilities:

(i) **Punjab Pollution Control Board**
  (a) Monitoring of air pollution control devices installed by industries
  (b) Up-gradation of existing air pollution control devices
  (c) Monitoring of ambient air quality and stack emissions
  (d) Provide canopies on the existing D.G sets

(ii) **Department of Local Government/ MC, Khanna**

(a) Development of engineered municipal solid waste dump site
(b) Improvement of road infrastructure for smooth traffic movement
(c) Regular and mechanical cleaning of roads
(d) Sprinkling of in the parks and maintenance of fountains
(e) Increasing green cover in city
(f) Upgrading traffic lights for smooth traffic movement
(g) Provide canopies on the existing D.G sets

(iii) **Department of Transport**

(a) Plan for effective traffic management
(b) Plan for phasing out old polluting vehicles
(c) Shift to cleaner fuels viz. CNG etc.
(d) Monitoring of vehicles without PUC certificate
(e) Banning of pressure horns

(iv) **Department of Police**

(a) Planning and enforcement of traffic management plan
(b) Checking of vehicles running without PUC certificate
(c) Impounding and challan of vehicles running without permission/ registration.

(v) **Department of Forests**

(a) Preparation of afforestation plan
(b) Organizing awareness camps for Greener City
(c) Providing green belt around the industrial areas

(vi) **Department of Industries and Commerce / PSIEC**

(a) Shifting of industries from non-designated areas
(b) Provision of environment infrastructure in Industrial Areas

(vii) **PWD (B&R)**

(a) Improving road conditions for smooth movement of traffic
(b) Increasing green cover on roadside under their jurisdiction

(viii) **Punjab State Council for Science and Technology**

(a) Evolving cost-effective cleaner technologies

(ix) **Department of Agriculture**

(a) Promotion of bio-methanization and compost facilities for agro waste
(b) To provide Machinery for in-situ management
(c) To create awareness about ill-effects of stubble burning
(d) To create awareness regarding alternative crops to break wheat-rice cycle.

(x) **District Administration**

(a) Coordination with all the Stakeholders promoting collaboration and resolving local issues

(b) Public Awareness Campaign

2.6. **Non-Government Stakeholders**

2.6.1. There is need to involve various Industry associations of Khanna/Mandi Gobindgarh in this plan. Following Industry Associations will be associated with the plan:

(i) President, Gobindgarh Steel Chamber of Commerce & Industries, Mandi Gobindgarh.
(ii) President, All India Steel Re-Rollers Association, Mandi Gobindgarh
(iii) President, Small Scale Steel Re-Rollers Association, Mandi Gobindgarh
(iv) President, Mandi Gobindgarh Induction Furnace Association, Mandi Gobindgarh

2.6.2. These association will help in the following activities:

Generic

(i) To stabilize the vehicular movement area within premises of the industries
(ii) To persuade the member industries to comply with emission norms by PPCB
(iii) To evolve more efficient machinery, boiler furnace and air pollution control devices which may be adopted by all the industries for better environment

Specific

(iv) To shift over the industries from coal / pet coke / furnace oil to PNG
(v) To shift over the industries from coal to PNG
(vi) To modify the existing APCD consisting of canopy hood to the new APCD designed by PSCST, Chandigarh with side hood collection system

2.6.3. Apart from Industry Associations, the support of various NGOs in the city such as Environmental Protection & Social Welfare Organisation (NGO), Khanna will be sought. These NGOs will assist in the following:

(i) To create awareness among the public regarding ill-effects of air pollution
(ii) To motivate residents of Khanna for adopting the practices to minimize the use of fresh water, planting more trees, to promote pooling by minimal use of private vehicles. Parking of vehicles in the designated zones, minimum use of electricity etc.
(iii) To give suggestions to District Level Committee to control or minimize the air pollution
(iv) To give feedback on enforcement activities

2.7. **Nodal Department**

The clean air plan for Khanna is part of State-wide campaign to control air pollution in non-attainment cities. In order to bring necessary impetus, support from other stakeholder departments, uniformity and consistency, there is need to have a Nodal Department. The Department of Science, Technology and Environment will be the nodal department for coordinating and monitoring activities of the plan. The Department has recently set up Directorate of Environment and Climate Change, which will provide necessary support at the headquarter for coordination and oversight and PPCB will provide necessary technical and field support.

2.8. **Integration of Departmental plans**

The Nodal Department will integrate plans of individual departments for control of pollution from various sources and prepare a comprehensive plan.

2.9. **Citizen participation**

Citizen participation will be key to the success of the plan. Effort will be made to seek citizen participation in various public awareness activities, feedback and support in various enforcement related activities. A strong social media and technology driven platform will be set up to seek citizens particularly youth participation.

2.10. **Design of Monitoring System**

2.10.1. Various measures envisaged under the action plan for control of pollution can be classified in the following categories:

(i) Public Awareness
(ii) Effective Enforcement
(iii) Creation of new Infrastructure
(iv) Maintenance related activities
(v) Policy Advocacy
(vi) Technology Support

2.10.2. Monitoring of various activities of the Action Plan will be key to achieve the outcomes envisaged under the Action Plan. Different kind of monitoring systems will be required for different categories of activities:

(i) Design of effective online platform including social media to disseminate air pollution related information and seek citizen feedback and participation in the campaign. It will have a monitoring mechanism to see the level of participation and measures to increase the same.

(ii) Design of effective online system to capture various enforcement activities by various agencies to monitor them, evaluate them and provide feedback and enforce accountability.

(iii) Design of an effective monitoring system to monitor the progress of various infrastructure related activities as envisaged under the plan.

(iv) Design of an effective monitoring system for policy advocacy within the Government for expediting formulation of various policies.

(v) Design of an effective monitoring system for various technological interventions to reduce the air pollution.

2.10.3. Directorate of Environment and Climate Change and PPCB will set up a dedicated team for design of monitoring system and setting up of IT platform for tracking progress of the plan.

2.11. **Governance**

The monitoring of progress, coordination of various activities, corrective measures required and fixing of accountability will be done by Air Quality Monitoring Committees at the District level under Deputy Commissioner, State Level under Principal Secretary, Environment and Apex Committee under Chief Secretary.

Chapter 3 – Current Status and Trends of Air Quality in Khanna

3.1. Monitoringof Air Quality

Khanna is an industrial hub in the District Ludhiana and has the second largest grain market in the Asia. The ambient air quality monitoring is being carried out regularly at 2 no. manually operated stations installed under National Air Monitoring Program (NAMP). The year wise data of PM_{10}, SO_2 and NO_x for the period 2014-18 is placed at **Annexure-A**. Further, the Board has also commissioned one Continuous Ambient Air Quality Monitoring Station (CAAQMS) at Khanna and the real time data of the same is being displayed at Samrala-Khanna Road. The AQI data of 2018 has been given in **Annexure-B.**

3.2. CPCB's norms for Air Quality

The CPCB on 18/10/2009 has revised National Ambient Air Quality Standards (NAAQS) which are reproduced as under:

S.N.	Pollutants	Time weighted average	Concentration of Ambient Air	
			Industrial, Residential, Rural and other areas	Notified Ecologically sensitive area
1	Sulphur Dioxide (SO_2) $\mu g/m^3$	Annual	50	20
		24 hours	80	80
2	Nitrogen Dioxide (NO_2) $\mu g/m^3$	Annual	40	30
		24 hours	80	80
3	Particulate Matter (size<10 µm) or PM_{10} $\mu g/m^3$	Annual	60	60
		24 hours	100	100
4	Particulate Matter (size<2.5 µm) or $PM_{2.5}$ $\mu g/m^3$	Annual	40	40
		24 hours	60	60
5	Ozone (O_3) $\mu g/m^3$	8 hours	100	100
		1 hour	180	180

6	Lead (Pb), µg/m^3	Annual	0.50	0.50
		24 hours	1.0	1.0
7	Carbon Monoxide (CO), mg/m^3	8 hours	02	02
		1 hour	04	04
8	Ammonia (NH_3), µg/m^3	Annual	100	100
		24 hours	400	400
9	Benzene (C_6H_6) µg/m^3	Annual	05	05
10	Benzo (a) Pyrene (BaP)-particulate phase only ng/m^3	Annual	01	01
11	Arsenic (As) ng/m^3	Annual	06	06
12	Nickel (Ni) ng/m^3	Annual	20	20

3.3. **Air Quality Index (AQI)**

3.3.1. Awareness of daily levels of air pollution is important to the citizens, especially for those who suffer from illnesses caused by exposure to air pollution. Further, success of a nation to improve air quality depends on the support of its citizens who are well-informed about local and national air pollution problems and about the progress of mitigation efforts. Thus, a simple yet effective communication of air quality is important. The concept of an air quality index (AQI) that transforms weighted values of individual air pollution related parameters into a single number is widely used for air quality communication and decision making.

3.3.2. The AQI system is based on maximum operator of a function (i.e. selecting the maximum of sub-indices of individual pollutants as an overall AQI). The objective of an AQI is to quickly disseminate air quality information (almost in real-time) that entails the system to account for pollutants which have short-term impacts. Eight parameters (PM_{10}, $PM_{2.5}$, NO_2,SO_2, CO, O_3,NH_3, and Pb) having short-term standards have been considered for near real-time dissemination of AQI.

3.3.3. The AQI has further been classified in six categories as shown below:

AQI	Quality	Impact on health
0-50	Good	Minimal impact
51-100	Satisfactory	Minor breathing discomfort to sensitive people
101-200	Moderate	Breathing discomfort to people with lungs, asthma and heart diseases
201-300	Poor	Breathing discomfort to most people on prolonged exposure
301-400	Very poor	Respiratory illness on prolonged exposure
>401	Severe	Affects healthy people and seriously impacts those with existing diseases.

3.3.4. Based on this, the CPCB evolved a Graded Response Action plan (GRAP) which is implemented in the NCR, Delhi when the air quality deteriorates and various steps have been mentioned in GRAP to be taken to immediately control the deterioration of the air quality.

3.4. **Trends of Quality of Air**

3.4.1. The Board has commissioned one no. Continuous Ambient Air Quality Monitoring Station (CAAQMS) at Khanna and the real time data of the same is being displayed at Samrala-Khanna Road. Annual average of AQI for the last year is given as under:

Year	PM_{10} ($\mu g/m^3$)	$PM_{2.5}$ ($\mu g/m^3$)	SO_2 ($\mu g/m^3$)	NO_x ($\mu g/m^3$)	AQI
2018	103.60	42.68	12.93	47.39	95

3.5. **Major parameters of concern**

The major concern of the air quality is PM_{10}. All other parameters are within the prescribed limits. The perusal of data in **Annexure-B** clearly indicates that air quality index of Khanna generally remains moderate (101-200) and sometimes satisfactory (51-100). The sources of pollution and their apportionment are given in the next chapter.

Chapter 4 – Sources of Air Pollution in Khanna

4.1. Major Sources

4.1.1. The following are the major sources of air pollution:

(i) Vehicular Emissions
(ii) Road Dust
(iii) Burning of Garbage and Biomass
(iv) Industrial Emissions
(v) Mining
(vi) Construction and Demolition Activities
(vii) Other Sources

4.1.2. Due to paucity of time, detailed studies regarding source apportionment and carrying capacity could not be done, however, the Board has made some projections based on its in-house projections for Khanna. The estimated contribution of various sources in air pollution is given as under:

1.	Industrial Emissions	40%
2.	Road Dust	30%
3.	Vehicular Pollution	20%
4.	Burning of Garbage and Biomass	5%
5.	Construction and Demolition Activities	4%
6.	Other Sources	1%

4.1.3. The source apportionment studies will be carried out in due course.

4.2. Vehicular Emissions

4.2.1. Transport sector is one of the significant contributors to air pollution in Khanna due to movement of heavy goods vehicles carrying raw materials and products of the industries located in and around the city and as the second largest grain market is located in Khanna, therefore, vehicles carrying produces of farmers are plying into the city from nearby Districts. At present about 16,000 vehicles (heavy transport vehicles, LMVs, cars & jeeps, two wheelers and three wheelers) are plying on the roads of Khanna. National Highway NH-1 passes through Khanna, which is connecting tourist destination like Amritsar and industrial hubs like Ludhiana and Jalandhar.

4.3. **Road Dust**

The particles of dust that deposit from the atmosphere and accumulate along road sides are called road dust particles. Two main sources of road dust are deposition of previously suspended particles (atmospheric aerosols) and displaced soil. Some of the factors contributing to road dust are:

(i) Emissions from the vehicular traffic,
(ii) Construction and demolition activities, corrosion of metals structures etc.
(iii) Presence of potholes on the road
(iv) Absence of metaled roads / stabilized roads / un-stabilized movement area within industries
(v) Presence of un-stabilized berms along the roads
(vi) Movement of overloaded transport vehicles
(vii) Grain market

4.4. **Burning of Biomass and Garbage**

4.4.1. There are only small patches of agricultural land within the Khanna city, however, the city is surrounded by agricultural area and a lot of biomass is generated during post harvesting paddy and wheat seasons. During wheat season biomass burning is lesser than paddy season as the farmers use the wheat crop residue as cattle fodder. The effect of biomass burning in the paddy season is augmented due to the cold climate conditions.

4.4.2. At present, Municipal solid waste generation of the city is estimated as 95 TPD, which is being dumped unscientifically in the present dumping site. The garbage burning increases during winter season as the general public tend to burn the waste for heating purposes.

4.5. **Industrial Emissions**

4.5.1. The main stationary sources of air pollution are the industrial units, which are emitting particulate matter, sulphur di-oxide and oxides of nitrogen etc. All the rolling mills, cupola furnaces and other units are using coal / furnace oil as fuel in their furnaces emitting the aforesaid pollutants, besides the process / fugitive emissions.

4.5.2. The category wise detail of air polluting industries situated inand around Khanna area are given as under:

Sr. No.	Category	Number of Units
1.	Induction Furnaces	16
2.	Steel Rolling Mills	93
3.	Cupola/ Foundry Units	07
4.	Forging Industry	02
5.	Lead Extraction Unit	01
6.	Milk Plant /Dairy unit	02
7.	Rice Shellers	51
8.	Cattle feed units	27

Sr. No.	Category	Number of Units
9.	Solvex plants	05
10.	Vanaspati unit	01
11.	Brick Kilns	06
12.	Pyrolysis plant	01
Total		**212**

4.5.3. It is pertinent to mention here that emission standards for most of the above industries are the most stringent for such type of industries i.e. 150 mg/Nm3.

4.6. **Mining**

Mining activities also contribute to the air pollution, however, in Khanna area, no mining activity is carried out due to absence of mining sites. As such, it has no contribution in the air pollution of Khanna.

4.7. **Construction and Demolition Activities**

Khanna area is a small city having population about 1,30,000. No major construction projects are being set up in the city. However, small construction activities are being carried out by the individual house holders / industrial units / commercial units and paving of streets by the MC on routine basis.

4.8. **Others**

4.8.1. Other than above mentioned sources, episodic incidents like Holi, Dushera, Diwali, Gurupuraband New Year etc. are celebrated by bursting crackers, spraying colours etc. which also contribute to the ambient air quality.

Chapter 5 –Control on Vehicular Emissions

5.1. Key Activities

5.1.1. The vehicles are major pollution contributor, producing significant amount of nitrogen oxides, carbon monoxides and other polluting gases and particulate matter. To minimize the pollution generated from the vehicles, various actions have to be taken, which have been classified into following categories:

(a). Public Awareness related,
(b). Enforcement related,
(c). Infrastructure related,
(d). Policy related

5.1.2. Some activities may have more than one category but they have been kept in the category where it has the major requirement. Following are the key activities for control on vehicular emissions:

Public Awareness

(i) CVE 1 - Public awareness campaign for control of vehicular emissions

Enforcement Related

(i) CVE 2 - Remote sensor-based PUC system
(ii) CVE 3 - Extensive drive against polluting vehicles
(iii) CVE 4 - Prevent parking of vehicles in non-designated areas
(iv) CVE 5 - Check fuel adulteration

Infrastructure Related

(i) CVE 6 - Widening of road and infrastructure for decongestion of road
(ii) CVE 7 - Introduce intelligent traffic systems
(iii) CVE 8 - Install weigh in motion bridges at the borders of cities
(iv) CVE 9 - Construction of expressways/ bypasses to avoid congestion

Policy Related

(i) CVE 10 – Phasing of vehicles more than 15 years old
(ii) CVE 11 – Promotion ofbattery-operated vehicles
(iii) CVE 12 – Introduction of CNG based public transport
(iv) CVE 13 – Retrofitting of particulate filters in diesel vehicles for BS-V fuels

5.1.3. Various actions to be taken for the above activities are given below. Further, the details such as baseline, target, timelineand milestones have been given in **Annexure – C**.

5.2. CVE 1 - Public awareness campaign for control of vehicular emissions

Public support is essential for clean air mission to be successful.As part of overarching mission of clean air, Khanna, the public must be made aware of ill effects of air pollution on health and contribution of vehicular emissions in the same. The public has to be motivated to play their role in curbing the air pollution. Following action shall be taken:

(i). Public awareness campaign in print and electronic media
(ii). Use of Social Media Facebook, twitter, Instagram
(iii). Jingles on air pollution on local radio and TV
(iv). Awareness drives in educational institutions
(v). Public meetings
(vi). Nukarnataks

5.3. **CVE 2 - Remote sensor-based PUC system**

The Department of Transport will implement remote sensor-based PUC system to eliminate the malpractices in the existing system of issuing PUCs. All PUC centres will be made online.

5.4. **CVE 3 - Extensive drive against polluting vehicles**

There is need to strictly enforce checking of PUC certificates so that unauthorized vehicles could be penalized. The traffic police shall place check points (Nakas) at differed locations and the performance of such check points shall be monitored. A whatsapp number shall be dedicated and publicized among general public so that complaints of public regarding polluting vehicles may be received and action taken.

Traffic Police and Department of Transport will be responsible for the activity.

5.5. **CVE 4 - Prevent parking of vehicles in non-designated areas**

Presently, vehicles are being parked in a haphazard manner and on the roads as well, which leads to traffic congestion, thus, causing vehicular pollution. Traffic police shall impound vehicles parked in non-designated areas. Traffic police shall compile the list of prominent areas of such violations and special attention shall be paid. CCTV cameras shall be installed in such areas to capture the evidence. Number of challans shall be monitored.

5.6. **CVE 5 - Check fuel adulteration**

Regular monitoring will be carried out to check adulteration of fuel and heavy fines may be imposed on the violators. Department of Food and Civil Supplies will be responsible and number of inspections carried out and action taken against the violators will be monitored on regular basis.

5.7. **CVE 6 - Widening of road and improvement of infrastructure to decongest roads**

The roads constructed within the city having traffic congestion shall be identified by the MC. The concerned department like PWD (B&R), Mandi Board and Municipal Council shall widen these roads suitably to decongest the traffic.

5.8. **CVE 7 - Construction of expressways/ bypasses to avoid congestion**

PWD (B&R) shall examine the need for any expressways/bye-passes to avoid congestions.

5.9. **CVE 8 - Introduce intelligent traffic systems**

The traffic lights installed in the area shall be synchronized in such a way so as to achieve minimal stoppage of vehicles for a stretch of at least 2 Km. The traffic lights shall be placed at various intersection, so as to avoid traffic jams and smooth operation of the vehicles. Municipal Council in consultation with Traffic Police shall identify such places and provide traffic lights.

5.10. **CVE 9 - Install weigh in motion bridges at the borders of cities**

Municipal Council shall set up weigh bridges at each entry and exit of the city to avoid entry of overloaded vehicles to prevent generation of excess emissions of gases and dust.

5.11. **CVE 10 – Phasing of vehicles more than 15 years old**

The Department of Transport will ensure phasing out of vehicles more than 15 years old.

5.12. **CVE 11 - Promotion of battery-operated vehicles**

The Department of Transport shall bring out the policy to promote battery operated vehicles.

5.13. **CVE 12 – Introduction of CNG based public transport**

The Department of Transport shall promote CNG based public transport.

5.14. **CVE 13 - Retrofitting of particulate filters in diesel vehicles for BS-V fuels**

The Department of Transport shall bring the policy for the same once BS-V fuels are introduced.

Chapter 6 – Control onRoad Dust

6.1. Key Activities

6.1.1. The particles of dust that deposit from the atmosphere and accumulate along road sides are called road dust particles. Two main sources of road dust are deposition of previously suspended particles (atmospheric aerosols) and displaced soil. Additionally, the emissions from the vehicular traffic, building construction and renovation, corrosion of metals structures etc. contribute directly to the road dust. To minimize the pollution generated from the dust emissions, following key activities are proposed:

Maintenance Related

(i) CRD 1 – Maintain potholes free roads for free-flow of traffic
(ii) CRD 2 – Water sprinkling
(iii) CRD 3 – Mechanical sweeping

Infrastructure Related

(i) CRD4 -Creation of green buffers along the traffic corridors
(ii) CRD5 - Water fountains at major traffic intersections
(iii) CRD 6 - Greening of open areas community places, schools and housing societies
(iv) CRD 7 - Blacktopping of metaled road including pavement of road shoulders

6.1.2. Various actions to be taken for the above activities are given below. Further, the details such as baseline, target, timeline, milestones have been given in **Annexure-D**.

6.2. CRD 1 – Maintain potholes free roads for free-flow of traffic

All the agencies such as MC/ PWD/ NHAI will put in place a system of regular inspections to identify the potholes and ensure its filled up. It shall be monitored on regular basis. A web based/ mobile app shall be set up for Public to lodge complaint against the pothole and it shall be monitored for repair.

6.3. CRD 2 – Water sprinkling

Municipal Council shall identify the dust prone roads and shall prepare schedule for regular sprinkling of water on these roads to suppress dust emissions. This activity shall be started immediately.

6.4. CRD 3 – Mechanical sweeping

Municipal Council shall procure adequate number of automatic sweeping machines for efficient and fast sweeping of the road / streets. The frequency of the sweeping shall be fixed appropriately by the Municipal Council.

6.5. **CRD 4 – Creation of green buffers along the traffic corridors**

Municipal Council shall identify the trees with the help of Department of Horticulture which may be grown along the roads without any obstruction to the traffic. These trees shall be planted at the suitable places. The maintenance of these trees shall be done by the Municipal Council.

6.6. **CRD 5 – Water fountains at major traffic intersections**

Municipal Council shall explore the possibility of setting up of the water fountains at important traffic junctions to reduce the emission level including dust at these points.

6.7. **CRD 6 – Greening of open areas community places, schools and housing societies**

In order to increase greenery in the city, the Municipal Council shall identify open areas/ lawns/ vacant lands including community places and schools in the city and these places be allocated to the NGOs or Industrial Associations for tree plantation and their maintenance. The activity of identification of the suitable sites shall be completed in a time bound manner and shall be allotted to the NGOs or Industrial Associations.

6.8. **CRD 7 – Blacktopping of metaled road including pavement of road shoulders**

Some of the roads of Khanna are unpaved, which are the source of dust and gaseous emissions. These roads shall be converted into metaled road and the berms along these roads shall be stabilized with interlocking tiles or any other method.

Chapter 7 – Control on Burning of Garbage and Biomass

7.1. Key Activities

7.1.1. There are only small patches of agricultural land within the Khanna city, however, the city is surrounded by agricultural area and a lot of biomass is generated during post harvesting paddy and wheat seasons. During wheat season biomass burning is lesser than paddy season as the farmers use the wheat crop residue as cattle fodder. The effect of biomass burning in the paddy season is augmented due to the cold climate conditions. To minimize the pollution generated from burning of garbage and biomass, following key activities are proposed:

Enforcement Related

(i). CBGB 1 –Control onopen burning of bio-mass in City
(ii). CBGB 2 – Controlon burning of municipal solid waste
(iii). CBGB 3 –Control on burning of agriculture waste and crop residue

7.1.2. Various actions to be taken for the above activities are given below. Further, the details such as baseline, target, timeline, milestones have been given in **Annexure-E**.

7.2. CBGB 1 – Control on open burning of bio-mass in City

The burning of biomass like leaves of the trees creates lot of smoke in the area particularly during winter season, as such, the open burning of these biomass must be stopped. Municipal Council shall deploy its staff to have a check on various areas so as to forbid the inhabitants for open burning of the biomass.

A whatsapp number shall provide to the publicalong with the setting up of the dedicated control room for receiving complaints of public through this system.

CCTV cameras shall be installed at the important locations to monitor such incidents.

7.3. CBGB 2 – Control on burning of municipal solid waste

Presently, Municipal Council has one municipal waste dumping site, which has not been developed scientifically for the disposal of the municipal solid waste and consequently it has become the source of burning of waste on this dump. Lot of smoke is generated which contribute to the air pollution index. Similarly, at the collection point and after sweeping the streets, the garbage collected may be burnt, instead of transporting to the dumping site.

Municipal Council shall identify and develop municipal waste dumping site as per the provisions of Municipal Solid Waste Rules, 2016 and the construction work of the said site shall be completed.

7.4. **CBGB 3 – Control on burning of agriculture waste and crop residue**

There are only small patches of agricultural land within the Khanna city, however, the city is surrounded by agricultural area and a lot of agricultural waste is generated during post harvesting paddy and wheat season. During wheat season stubble burning is lesser than paddy season as the farmers use the wheat crop residue as cattle fodder. Punjab Pollution Control Board shall engage Punjab Remote Sensing Centre, Ludhiana for real time monitoring and reporting of stubble burning incidents. The District Administration shall constitute District Level Committees to verify the reported sites and issue challans to the violators besides filing of proceedings u/s 133 CrPc. Necessary directions / instructions shall be issued by the District Administration u/s 144 IPC to restrict harvesting of crops after 6.00 p.m to 6.00 a.m during crop harvesting seasons and attaching of the super SMS with the combine harvesters.

Chapter 8 – Control onIndustrial Emissions

8.1. Key Activities

8.1.1. The main stationary sources of air pollution are the industrial units, which are emitting particulate matter, sulphur di-oxide and oxides of nitrogen etc. All the rolling mills, cupola furnaces and ceramic units are using coal / furnace oil as fuel in their furnaces emitting the aforesaid pollutants, besides the process / fugitive emissions. To minimize the pollution generated from the industries, following key activities are proposed:

Technology Intervention

(i) CIE 1 – Conversion to side-hood suction in furnaces
(ii) CIE 2 – Conversion to CNG/PNG from coal

Enforcement Related

(i) CIE 3–Conversion of natural draft brick kilns to induced draft
(ii) CIE 4 – Action against non-complying industrial units

Infrastructure Related

(i) CIE 5 – Shifting of industries from non-designated areas to industrial areas

8.1.2. CIE 6 - Various actions to be taken for the above activities are given below. Further, the details such as baseline, target, timeline, milestones have been given in **Annexure-F**.

8.2. CIE 1 – Conversion to side-hood suction in furnaces

PPCB with the technical support from Council for Science and Technology has improvised technology to provide for side-hood suction in furnaces to reduce the emissions. The side-hood suction shall be implemented in a time bound manner and shall be monitored by the Board monthly.

8.3. CIE 2 – Conversion to CNG/ PNG from Coal

A large number of units in Gobindgarh are using coal as source of energy. With the availability of CNG in the city, PPCB will motivate the industry to convert from Coal to CNG. The State government will be approached to reduce VAT to make it viable alternative.

8.4. CIE 3 - Conversion of natural draft brick kilns to induced draft

There is no brick kiln in the city. However, 6 nos. brick kilns are located within 10 km of out skirts of MC limits of Khanna. Out of these, one brick kiln has converted its conventional brick kiln into induced draft with zig-zag firing technology. Punjab Pollution Control Board has issued directions to the existing brick kilns of the State to convert their conventional brick kilns to induced draft technology. The brick kilns located in the area will be monitored for conversion to the new technology in a time bound manner.

8.5. **CIE 4 – Action against non-complying industrial units:**

The regular monitoring of industries is being carried out as per the policy of the Board. In case, any industry is found violating the provisions of the Air Act, 1981, action under the provisions of the said Act is initiated against the violating industries. The number of inspections carried out and action taken will be monitored regularly.

8.6. **CIE 5 – Shifting of industries from non-designated areas to industrial areas**

There are certain industries, which are located in non-designated areas and the Department of Industries and Commerce shall develop new areas to shift the industries from non-designated areas.

Chapter 9 – Control on Construction and Demolition activities

9.1. Key Activities

9.1.1. Khanna area is a small city having population about 1,30,000. No major construction projects are being set up in the city. However, small construction activities are being carried out by the individual house holders / industrial units / commercial units and paving of streets by the MC on routine basis. To minimize the pollution generated from the construction and demolition activities, following key activities are proposed:

(i) CCDA 1 –Enforcement of Construction & Demolition Rules.
(ii) CCDA 2 – Control measures for fugitive emissions
(iii) CCDA 3 – Ensure carriage of construction material in closed/covered vessels.

9.1.2. Various actions to be taken for the above activities are given below. Further, the details such as baseline, target, timeline, milestones have been given in **Annexure-G**.

9.2. CCDA 1 – Enforcement ofConstruction & Demolition Rules

The necessary provisions of the C&D Rules, 2016 shall be implemented in the city to ensure proper management of these wastes. Municipal Council shall identify suitable land for effective disposal of C&D waste. Municipal Council shall frame mechanism for challaning the violators found dumping the C&D waste on non-designated areas.

The enforcement will be monitored through the use of technology and regular review.

9.3. CCDA 2 – Control measures for fugitive emissions

Municipal Council shall develop a site for scientific disposal of C&D waste within six months. Municipal Council shall ensure that

(i) The builders provide proper curtains / sheets on the construction sites to avoid spreading of dust emissions into the environment.
(ii) No dust should be emitted during demolition.
(iii) No construction materials should be kept on the roads. The construction material inside the plots should also be kept in covered conditions and labour should be provided with all anti-pollution gears during the course of construction.

9.4. CCDA 3 – Ensure carriage of construction material in closed/covered vessels

The relevant enforcement authorities will ensure that the construction material to be transported through trucks / vehicles shall be covered with tarpaulin to avoid the dust emissions.

Chapter 10 – Control on Other Sources

10.1. Key Activities

10.1.1. Apart from various measures being taken to control various sources of pollution, following activities will also be undertaken to control the pollution:

Public Awareness

(i) COS 1–Dissemination of Air Quality Index

Infrastructure

(ii) COS 2 – Establish an Air Quality Management Division at SPCB HQ

(iii) COS 3 – Setup helpline in each city/town as well as SPCB HQ

Policy

(i). COS 4 - Coverage of LPG/PNG for domestic and commercial cooking

Enforcement

(i). COS 5 - Monitoring of DG sets and action against violations

10.1.2. Various actions to be taken for the above activities are given below. Further, the details such as baseline, target, timeline, milestones have been given in **Annexure-H**.

10.2. COS 1 – Dissemination of Air Quality Index

Punjab Pollution Control Board shall display the air quality index of the city at its prominent places for the awareness of the public including website, social media and print media.

10.3. COS 2 – Establish an Air Quality Management Division at SPCB HQ

There is need to strengthen technical capability of pertaining to air pollution. The Board will identify the requisite skill sets and number of technical staff required along with future roadmap for the Board's activities.

10.4. COS 3 – Setup helpline in each city/town as well as SPCB HQ

The Board shall set up a helpline system at headquarter and each city to receive the complaints from public and have effective feedback system.

10.5. COS 4 - Coverage of LPG/PNG for commercial cooking

Municipal Council shall identify the sources where the coal / wood are used as fuel at domestic and commercial cooking level. Municipal Council shall formulate a mechanism to eliminate the use of coal / wood in these activities. UjwalaYojna of the Central Government shall be facilitated to the beneficiaries.

10.6. **COS 5 - Monitoring of DG sets and action against violations**

Municipal Council shall identify the commercial activities where the DG sets have been set up without fulfilling the norms for control of emissions and noise. Time bound action plan shall be prepared by the Municipal Council for removal of these DG sets. Punjab Pollution Control Board shall identify the illegal DG sets manufacturers and necessary directions for their non-operation / closure shall be issued. Punjab Pollution Control Board shall identify the industries where the DG sets have been set up without fulfilling the norms for control of emissions and noise.

Chapter 11 –Graded Response Action Plan for Khanna

11.1. Graded Responses

In order to mitigate the impact of higher level of pollution when AQI crosses satisfactory level, Graded Response Action Plan has been prepared for Khanna for implementation under different Air Quality Index (AQI) categories namely, Moderate & Poor, Very Poor and Severe.

11.2. Agency Responsible for Graded Response

The concerned authorities responsible for taking action when AQI reaches various levels have been indicated against the proposed action. The authorities will work in coordination with and under the overall supervision of the District Level Committee.

11.3. Action in case of Severe AQI (Value between 401 to 500)

Following action shall be taken by the concerned authorities:

S.N.	Severe (AQI value becomes 401-500)	Agency responsible / Implementing Agency
1	Temporary closure of brick kilns, hot mix plant, induction furnaces, rolling mills etc.	PPCB
2	Stop construction activity	MC, Khanna
3	Alert in newspapers / local cable TV to advice people with respiratory and cardiac patients to avoid polluted areas and restrict outdoor movement.	MC, Khanna, Distt. Administration & PPCB
4	Sprinkling of water at the various dust emission points	MC, Khanna
5	Deploy Traffic police for smooth traffic flow at the identified vulnerable areas	Traffic Police
6	Stringently enforce / stop garbage burning in landfills and other places and impose heavy fines on person responsible.	MC, Khanna
7	To increase the frequency of mechanized sweeping on roads with heavy traffic and water sprinkling also on unpaved roads.	MC, Khanna
8	Stop entry of heavy good vehicles except essential commodities into Khanna	Traffic Police
9	To take decision regarding closing of schools	District Administration

11.4. **Action in case of Very Poor AQI (Value between 301 to 400)**

Following action shall be taken by the concerned authorities:

S.N.	Very Poor (AQI value becomes 351-430)	Agency responsible / Implementing Agency
1	Restraining the operation of air polluting industries i.e. induction furnaces, rolling mills, brick kilns etc. for 8 hours/day	PPCB
2	Banning of construction activities	MC, Khanna
3	Stop of garbage burning in the landfill areas or in the open fields	MC, Khanna
4	Water sprinklings at the dust emission points etc.	MC, Khanna
5	Strict vigil and enforcement of PUC norms	Traffic Police
6	Strict vigil and no tolerance for visible emissions from the vehicles and industries	PPCB and Traffic Police.
7.	Strictly enforce Supreme Court ban on fire crackers	MC, Khanna and Distt. Administration
8	Strictly enforce all pollution control regulations in the air polluting industries like induction furnaces, rolling mills, brick kilns etc.	PPCB

11.5. **Action in case of Poor AQI (Value between 201 to 300)**

Following action shall be taken by the concerned authorities:

S.N.	Poor (AQI value becomes 201-300)	Agency responsible / Implementing Agency
1	Strictly enforce garbage burning in landfill and other places and impose heavy fines on person responsible	MC, Khanna
2	Increase frequency of mechanized cleaning of road and sprinkling of water on roads. Identify road stretches with high dust generation.	MC, Khanna
3	Stop use of coal / firewood in open eateries	MC, Khanna
4	Strictly enforce rules for dust control in construction activities and close non-complaint sites.	MC, Khanna

5	Close / Strictly enforce all pollution control regulations in the air polluting industries like induction furnaces, rolling mills, brick kilns etc.	PPCB
6	Restricting air polluting industries i.e. induction furnaces, rolling mills, brick kilns etc. for 12 hours/day	PPCB

11.6. **Action in case of moderately polluted AQI (Value between 101 to 200)**

Following action shall be taken:

S.N.	**Moderately polluted (AQI value becomes 101-200)**	**Agency responsible / Implementing Agency**
1	Increasing the frequency of mechanized cleaning the roads etc.	MC, Khanna
2	Sprinkling of water at the dust emitting points	MC, Khanna
3	To stop open burning of garbage and municipal solid waste	MC, Khanna
4	Close / strictly enforce all pollution control regulations in the air polluting industries like induction furnaces, rolling mills, brick kilns etc.	PPCB

Chapter 12–Monitoring Requirements and Formats

12.1. Monitoring Requirements

12.1.1 Following are the key components of monitoring requirements of the Plan:

(i) Monitoring of activities for control on Vehicular Emissions
(ii) Monitoring of activities for control on Road Dust
(iii) Monitoring of activities for control on Burning of Garbage and Biomass
(iv) Monitoring of activities for control on Industrial Emissions
(v) Monitoring of activities for control on Construction and Demolition activities
(vi) Monitoring of activities for control on other sources

12.1.2 Further, various activities can be classified into one of the following categories:

(i) Public Awareness
(ii) Enforcement
(iii) New Infrastructure
(iv) Maintenance activities
(v) Policy Advocacy
(vi) Technology Support

12.2. Development of Monitoring System

12.2.1 To work out detailed formats and setting up online system to track progress of various activities, a dedicated team of PPCB and NIC is working on it.

12.2.2 The system will ensure that information is captured at source and transmitted to the System and the system will be able to analyse and report it in the prescribed format. The system will generate different reports for use at different levels. The System will also have dashboard to present the key indicators and metrics.

Chapter 13 – Governance and Supervision

13.1. Three Tier Monitoring

13.1.1. Monitoring will be done by the Departments concerned, which are executing or responsible for particular activities. In addition, there will be three level of Air Quality Monitoring Committees (AQMC) to review and monitor the status:

(i) AQMC at District Level under Deputy Commissioner
(ii) AQMC at State level under Principal Secretary, Environment
(iii) Steering Committee under Chief Secretary

13.1.2. PPCB will set up a dedicated team for supporting coordination and monitoring of the Action Plan. It will also develop suitable IT platform for monitoring purposes.

13.2. AQMC at District Level

District Level Committee will be constituted under the chairmanship of Additional Deputy Commissioner, Khanna and the monthly meeting of the District Level Committee will be conducted to discuss / monitor the progress of the activities to be performed under the Action plan. The committee shall involve civil society organization and their participation will be ensured for achieving various targets mentioned in the Action plan. The district level committee shall constitute the followings:

1	The Additional Deputy Commissioner, Khanna	Chairman
2	The Senior Superintendent of Police, Khanna	Member
3	The Environmental Engineer, Punjab Pollution Control Board, Regional Office, Fatehgarh Sahib	Convener
4	The Regional Transport Authority, Ludhiana	Member
5	The Divisional Forest Officer, Ludhiana	Member
6	Sub Divisional Magistrate, Khanna	Member
7	The Executive Officer, Municipal Council, Khanna	Member
8	The Executive Engineer, PWD (B & R), Ludhiana	Member
9	The District Town Planner, Ludhiana	Member
10	The Executive Engineer, Punjab Small Industries & Export Corporation, 18, Himalya Marg, Udyog Bhawan, Sector-17-A, Chandigarh	Member
11	The General Manager, District Industries Centre, Ludhiana	Member
12	The Asstt. Executive Engineer, Punjab Small Industries & Export Corporation, Khanna	Member
13	The District Agriculture Officer, Deptt. of Agriculture, Ludhiana	Member
14	The General Manager-cum- Project Director, NHAI, 17-L, Model Town, Ambala City.	Member

15	The Vertical Head – Projects, IRM Energy Pvt. Ltd., C.G. Road, Navrangpura, Ahmedabad 380009, Gujrat	Member
16	The President, Gobindgarh Steel Chamber of Commerce & Industries, Mandi Gobindgarh	Member
17	The President, All India Steel Re-Rollers Association, Mandi Gobindgarh	Member
18	The President, Small Scale Steel Re-Rollers Association, Mandi Gobindgarh	Member
19	The President, Mandi Gobindgarh Induction Furnace Association, Mandi Gobindgarh	Member

13.3. **AQMC at State Level**

13.3.1. State Level Air Quality Monitoring Committee (AQMC) will comprise of the following:

1	Administrative Secretary, Department of Environment	Chairman
2	Director, Local Government	Member
3	Director, Transport	Member
4	Director, Industries and Commerce	Member
5	ADGP, Traffic	Member
6	Director, Environment	Member
7	Chairman, PPCB	Member
8	Representatives of NGO/ Expert Members	Member
9	Representatives of NGO/ Expert Members	Member
10	Joint Director, Environment	Convener

13.3.2. The State level Committee would meet every month to review the progress of the action plan and take corrective measures and also escalate issued to the Steering committee for intervention.

13.4. **Steering Committee**

13.4.1. There will be a Steering Committee under Chief Secretary and comprising of Administrative Secretaries of relevant administrative departments for monitoring the progress, resolving issues and enforcing accountability.

13.4.2. The Committee will comprise of the following:

1	Chief Secretary	Chairman
2	Administrative Secretary, Environment	Member
3	Administrative Secretary, Local Government	Member
4	Administrative Secretary, Industries and Commerce	Member
5	Administrative Secretary, Transport	Member
6	Administrative Secretary, PWD	Member

7	ADGP, Traffic	Member
8	Director, Environment	Member
9	Chairman, PPCB	Member
10	Additional Secretary, Environment	Convener

Chapter 14 – Risk Mitigation Plan

14.1. Identification of Major Risks

Following are the major risks

(i) Lack of formal source apportionment study
(ii) Accuracy and completeness of baseline data, targets and milestones
(iii) Lack of formal analysis of implementation barriers

14.2. Source Apportionment Study

It is important to have the assessment of various sources and their contribution to the air pollution and accordingly focus on controlling those sources. Currently no such study has been done. In order to mitigate the risk, Punjab Pollution Control Board shall get source apportionment study of the city conducted to adjudge various sources contributing air pollution in the area and mitigation thereof. The same will be incorporated in the Action Plan.

14.3. Accuracy and completeness of baseline data, targets and milestones

The baseline data, targets and milestones are not very accurate or complete. During the course of implementation detailed surveys and analysis will be carried out and the baseline data, targets and milestones will be suitably updated. This will be done within next thirty days.

14.4. Lack of formal analysis of implementation barriers

Various activities included in the action plan need to be carefully analysed with respect to implementation challenges so that suitable remedial measures could be envisaged. Efforts will be made to study various barriers and improving the efficacy and effectiveness of the proposed activities by overcoming the shortcomings in the present system.

Annexure A – Trends in Air Quality of Khanna

1. Station atMarkfed Vanaspati, Khanna

Month	RSPM (µg/m^3)					NO_x (µg/m^3)					SO_2(µg/m^3)				
	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018
January	160	133	119	113	173	23	20	24	25	29	11	9	9	12	8
February	154	166	129	140	131	23	23	22	22	29	10	10	13	11	7
March	159	128	138	138	120	21	22	22	20	33	9	9	11	10	8
April	216	150	164	170	124	21	22	20	22	36	9	10	11	12	10
May	185	132	145	176	132	21	23	22	21	38	9	10	11	12	10
June	129	135	161	148	137	21	26	21	20	43	9	12	11	8	12
July	124	105	99	120	-	20	19	17	18	-	9	9	8	8	-
August	111	99	107	100	-	21	17	17	20	-	9	7	8	8	-
September	140	128	88	158	159	23	23	17	23	26	10	9	8	11	8

October	175	103	106	239	230	27	23	18	24	27	12	10	8	10	9
November	203	_	128	216	272	25	_	24	35	26	12	_	11	9	7
December	148	83	107	135	246	21	22	22	32	25	8	12	12	8	7
AnnualAvg.	**159**	**124**	**124**	**154**	**172**	**22**	**22**	**21**	**24**	**31**	**10**	**10**	**10**	**10**	**9**

2. Station atA.S. Secondary School, Khanna

Month	**RSPM (µg/m^3)**					**NO_x (µg/m^3)**					**SO_2(µg/m^3)**				
	2014	**2015**	**2016**	**2017**	**2018**	**2014**	**2015**	**2016**	**2017**	**2018**	**2014**	**2015**	**2016**	**2017**	**2018**
January	151	116	83	96	182	22	21	13	19	32	10	9	8	8	8
February	140	148	111	110	90	21	23	15	19	29	9	10	9	8	7
March	164	156	143	110	119	23	23	17	20	33	10	10	8	8	8
April	195	134	146	127	126	22	22	16	20	35	10	10	9	8	9
May	193	137	101	129	130	20	23	23	19	36	8	10	9	9	8

June	141	133	95	91	124	21	28	22	20	35	9	13	10	8	9
July	119	108	87	87	124	22	19	16	19	35	9	12	9	7	8
August	118	86	72	76	80	20	15	18	21	20	9	9	9	7	5
September	127	91	87	86	79	24	22	19	21	23	10	11	8	9	6
October	229	-	104	175	133	26	-	20	22	25	13	-	9	7	7
November	230	_	109	231	229	27	_	20	34	25	13	_	10	7	7
December	181	105	96	168	243	22	14	19	35	26	10	9	9	8	7
AnnualAvg.	**166**	**121**	**103**	**124**	**138**	**23**	**21**	**18**	**22**	**30**	**10**	**10**	**9**	**8**	**7**

Annexure B – AQIdata for the year 2018 depicting the air quality in Khanna

Month	AQI	Category
Apr-18	125	Moderate
May-18	120	Moderate
Jun-18	124	Moderate
Jul-18	49	Satisfactory
Aug-18	55	Satisfactory
Sep-18	54	Satisfactory
Oct-18	113	Moderate
Nov-18	111	Moderate

Dec-18	107	Moderate
Annual avg.	95	Moderate

Annexure C – Action Plan for Control on Vehicular Emissions

Sr. No.	Activity	Responsible Agencies	Base Line	Target to be achieved	Target Date	Milestones (Monthly / Quarterly)
1	CVE 1 - Public awareness campaign for control of vehicular emissions	Deptt. of Transport and Traffic Police	Presently, awareness is being done in the Educational Institutes under SadakSurakhyaAbhiyan	The public has to be motivated to play their role in curbing the air pollution	One year	1. Public awareness campaign in print and electronic media-Twice a month 2. Use of Social Media Facebook, twitter, Instagram-Regular 3. Jingles on air pollution on local radio and TV-Local FM Radio will be hired 4. Awareness drives in educational institutions-Monthly 5. Public meetings-Monthly 6. Nukarnataks-Quarterly
2	CVE 2 - Remote sensor based PUC system	Deptt. of Transport	Presently, manual system exists	All PUC centres will be made online	One year	1. Policy Decision that online system is to be installed. 2. Tendering to select the agency 3. Transition to the online system 4. Commissioning of the online system
3	CVE 3 - Extensive drive against polluting vehicles	Traffic police	No CCTV camera installed	Online system will be adopted for challaning the violators	One year	1. Installation of CCTV cameras along the road sides. 2. Purchasing of remote sensor based and CCTV equipped pollution checking equipment. 3. Linking of CCTV data with registration details of vehicles, so that challans be issued.

4	CVE 4 - Prevent parking of vehicles in non-designated areas	Department of Local Government, Municipal Council	1. No systematic parking arrangement exists. 2. No Transport Nagar exists	1. Provide adequate number of public parking. 2. To provide two additional transport nagar.	One year	1. Identification of sites for public parking and transport Nagar-One month. 2. DPR-Two months 3. Tendering-One month 4. Development of parking spaces-Eight months
5	CVE 5 - Check fuel adulteration	Department of Food and Civil Supplies	Manual system exists	Prepare a fool proof online system for monitoring on random basis	One year	1. Develop methodology-Six months 2. DPR-Two months 3. Tendering-One month 4. Execution/ Commissioning-Three months
6	CVE 6 - Widening of road and infrastructure for decongestion of road	Municipal Council	Widening of Roads/ Streets of Ward no. 1, 16, 27, 29, 3, 21, 23, 19, 24, 02, 18, 29, 11, 26, 32, 30, 4, 25, 14, 33, 20, 13, 22, 28, 10, 17, 12, 06, 31	Laying of Interlocking tiles at the cost of Rs. Rs. 12.25 Cr. approx.	One year	1. Identification-Done 2. DPR-Done 3. Tendering-Done 4. Work allotment-One month 5. Completion-Eleven months
		PWD/ Mandi Board	No such identification made	Widening of identified roads	One year	1. Identification-One month 2. DPR-One month 3. Tendering – One month 4. Completion-Nine months

		NHAI	Six lane highway already exists, but the berms of service roads are not maintained	To maintain service roads / berms regularly upto the mark	6 months	1. Identification-One month 2. Regular maintenance
7	CVE 7 - Introduce intelligent traffic systems	Traffic Police & Municipal Council	Presently, conventional traffic light exists	To replace existing conventional traffic lights with intelligent traffic systems.	One year	1. Exploration of intelligent Traffic lights 2. Replacement of traffic lights
8	CVE 8 - Install weigh in motion bridges at the borders of cities	NHAI, Municipal Council and PWD (B&R), Mandi Board	No such system exists	Provide weigh bridges at each entry and exit of the city.	One year	1. Identification-One month 2. DPR-Two months 3. Tendering-Two months 4. Completion-Nine months
9	CVE 9 - Construction of expressways/ bypasses to avoid congestion	Municipal Council & PWD (B&R)	Presently, six lane National Highway exists and no bye-pass	Providing bye-pass to connect Malerkotla Road-G.T. Road	One year	1. Identification-One month 2. DPR-One month 3. Tendering-One month 4. Completion-Nine months
10	CVE 10 – Phasing of vehicles more than 15 years old	Deptt. of Transport	Presently, very old vehicles could be seen plying on the roads of the city.	Phasing of vehicles more than 15 years old	One year	1. Identification-Six months 2. Strict implementation of the phasing out policy –Six months after identification

11	CVE 11 – Promotion of battery operated vehicles	Deptt. of Transport	Presently, most of the vehicles are running on diesel and petrol.	To introduce electric passenger vehicles	One year	1. Creating policy for battery operated vehicles. 2. Awareness among public regarding benefits of battery-operated vehicles. 3. To ensure availability of electric passenger vehicles on subsidized rates. 4. Providing public charging points for battery operated vehicles.
12	CVE 12 – Introduction of CNG based public transport	Deptt. of Transport/ Municipal Council	Presently, most of the vehicles are running on diesel and petrol. One no. mother station for CNG exists at Mandi Gobindgarh.	To provide adequate CNG dispensing station	One year after laying of pipeline	1. Awareness among public regarding benefits of CNG operated vehicles. 2. Commissioning CNG stations within one year after laying of pipelines. 3. Ensure availability of service centers for CNG operated vehicles.
13	CVE 13 – Retrofitting of particulate filters in diesel vehicles for BS-V fuels	Deptt. of Transport	Presently, India is implementing BS-IV standards for diesel vehicles	To implement latest BS standards for all the vehicles	One year	1. Awareness among public regarding latest BS standards and requesting public not to buy vehicles which are not complying with the BS standards. 2. To stop passing of vehicles which are not meeting with the BS standards.

Annexure D – Action Plan for Control on Road Dust

Sr. No.	Activity	Responsible Agencies	Base Line	Target to be achieved	Target Date	Milestones (Monthly / Quarterly)
1	CRD 1 – Maintain potholes free roads for free-flow of traffic	Municipal Council, PWD (B&R), Mandi Board, NHAI and PSIEC	Roads such as G. T. Road,Samrala Road, Malerkotla Road ,AmlohRoad,Service lanes, Bullepur Road, Rattanheri Road, Bhadla Road, Roads near GTB Market, Roads near Bus Stand, Grain Market internal roads, Lalheri road and Khamanon Road identified	Potholes free roads	Nine months	1. Identification-one month 2. Tendering-One month 3. Completion-Six months 4. Regular maintenance 5. A web based/ mobile app shall be set up for Public to lodge complaint against the potholes-Six months
2	CRD 2 – Water sprinkling	Municipal Council	Presently, no water sprinkling is being done	Regular sprinkling of treated wastewater to supress dust emissions.	Immediately	1. Identification-One month 2. Hiring of vehicles for sprinkling of water-Three months.
3	CRD 3 – Mechanical	Municipal Council	Presently, manual sweeping is done.	Mechanical sweeping of all	One year	1. Identification-One month 2. Tendering-Six months

	sweeping			the roads / streets of the city.		3. Purchasing-One month 4. Commissioning-Four months
4	CRD 4 -Creation of green buffers along the traffic corridors	Municipal Council, PWD (B&R), PSIEC &Deptt. of Forests	No such buffer exists	Provide buffers along roads / traffic corridors	One year	1. Identification of roads-Three months 2. Providing buffer-Nine months 3. Regular maintenance
5	CRD 5 - Water fountains at major traffic intersections	Municipal Council	No water fountains at intersection of roads	Exploring requirement and installation	One year	1. Identification-One month 2. Tendering-Two months 3. Development & Commissioning-Nine months
6	CRD 6 - Greening of open areas community places, schools and housing societies	Municipal Council	Parks in poor condition exists (12 no.)	All parks / open areas to be made upto mark	Six months	1. Identification-Done 2. Development-Six months 3. Regular maintenance
7	CRD 7 - Blacktopping of metaled road including pavement of road	Municipal Council, PWD (B&R), Mandi Board, NHAI and PSIEC	Focal Point Roads and designated industrial area roads, Service lanes near Khanna City Center and Atwal Palace Road are in	Blacktopping these roads	One year	1. DPR-One month 2. Tendering-Two months 3. Completion-Nine months

	shoulders		pathetic conditions			

Annexure E – Action Plan for Control on Burning of Garbage and Biomass

SrNo.	Activity	Responsible Agencies	Base Line	Target to be achieved	Target Date	Milestones (Monthly / Quarterly)
1	CBGB 1 – Control on open burning of bio-mass in City	Municipal Council	Complaint based check	Zero burning	Regular activity	Identification of sites, monthly review in District Level Air Quality Monitoring Committee meeting
2	CBGB 2 – Control on burning of municipal solid wastes	Municipal Council	Presently, the MC has no dumping site for MSW. Also no monitoring system is in place for checking of burning of MSW.	To develop scientific dumping site as per MSW Rules, 2016, to achieve no open burning of MSW.	Within six months and Regular	1. Development of dumping site as per MSW Rules, 2016-Three months. 2. To create awareness among the general public-Regular. 3. A whatsapp number shall be generated and publicized –One month 4. Setting up of the dedicated control room-Three months. 5. CCTV cameras at the important locations –Two months. 6. 100% collection of municipal solid waste from secondary collection centre and dumping of MSW at dedicated developed dumping site-Daily.
3	CBGB 3 – Control on burning of agriculture waste and crop residue	District Administration, Department of Agriculture, Police,	Identification of sites by PRSC (PAU) Regular	Zero stubble burning	Seasonal activity	1. Identification of sites 2. To create awareness among farmers regarding health effects of residue burning 3. Deptt. of Agriculture to provide subsidy for equipment/ machinery as per Govt. policy 4. PSPCL shall ensure electricity for in-situ management 5. Progress review in District Level Air Quality Monitoring

		PSPCL, Revenue Department & PPCB	monitoring under supervision of DC			Committee meeting

Annexure F – Action Plan for Control on Industrial Emissions

SrNo.	Activity	Responsible Agencies	Base Line	Target to be achieved	Target Date	Milestones (Monthly / Quarterly)
1	CIE 1 – Conversion to side-hood suction in furnaces	Punjab Pollution Control Board	Total 16 induction furnace require up gradation of their APCD. Out of which 06 have already up-graded their APCDs. 2 Induction furnaces are of capacity less than 1 TPH.	08 Induction furnaces are required to upgrade the APCD.	31-3-2019	-
2	CIE 2 – Conversion to CNG/PNG from coal	Punjab Pollution Control Board &Think Gas/ MC	No industry have converted their furnace from coal to PNG fuel	93 units will shift to PNG subject to reduction of VAT by State Govt.	One year after laying of pipelines	1. The matter to be taken with the Government to reduce VAT. 2. Providing pipeline for transportation of PNG-One year. 3. Procurement of instruments 4. Installation 5. Commissioning
3	CIE 3 - Conversion of natural draft brick kilns to induced draft.	Punjab Pollution Control Board	6 nos. brick kilns located within 5 km of MC limits. One brick kiln has already adopted induced draft technology.	5 nos. brick kilns yet to be converted	31-03-2019	-
4	CIE 4 – Action against non-complying industrial units	Punjab Pollution Control Board	Regular inspection as per policy of the Board	• Action against defaulting industries. • Checking the	Regular activity	Regular inspections by PPCB

				adequacy of APCD installed by the industries		
5	CIE 5 – Shifting of industries from non-designated areas to industrial areas	Municipal Council/ Deptt. of Town & Country Planning	30 industries exist in non-designated area	30 industries are required to be shifted to the designated area	To be shifted as per the provisions of notified Master Plan	As per the provisions of by-laws of notified Master Plan

Annexure G– Action Plan for Control on Construction and Demolition Activities

SrNo.	Activity	Responsible Agencies	Base Line	Target to be achieved	Target Date	Milestones (Monthly / Quarterly)
1	CCDA 1 – Enforcement of Construction & Demolition Rules.	Municipal Council	No site is identified for disposal of C&D Waste	Setting up of processing/ recycling plant for C&D Rules, 2016.	Three years	1. Identification-Three months 2. Land acquisition-One year 3. DPR-Three months 4. Tendering-Six months 5. Development & Commissioning-One year
2	CCDA 2 – Control measures for fugitive emissions	Municipal Council	At present, minimal measures being taken by the building contractors.	Preventive measures to comply with the C& D Rules	Regular activity	1. Identification of construction sites 2. Checking for compliance of C&D Rules 3. Challaning of violators
3	CCDA 3 – Ensure carriage of construction material in closed/covered vessels.	Municipal Council	At present non-documented activity being carried out	MC shall make record of C&D activities on day to day basis	Regular activity	Monthly review meetings at District Level

Annexure H – Action Plan for Control on Other Sources

Sr no.	Activity	Responsible Agencies	Base Line	Target to be achieved	Target Date	Milestones (Monthly / Quarterly)
1	COS 1 – Dissemination of Air Quality Index	Punjab Pollution Control Board	One CAAQMS installed.	--	--	Public awareness
2	COS 2 – Establish an Air Quality Management Division at SPCB HQ	Punjab Pollution Control Board	No such division exists	One required	One year	1. Develop methodology-Three months 2. Providing infrastructure-Six months 3. Implementation-Three months
3	COS 3 – Setup helpline in each city/town as well as SPCB HQ	Punjab Pollution Control Board	No such helpline exists	Providing helpline	One year	1. Develop methodology-Three months 2. Providing infrastructure-Six months 3. Implementation-Three months
4	COS 4 - Coverage of LPG/PNG for domestic and commercial cooking	Municipal Council	Domestic cooking- LPG Commercial cooking partially on LPG/ Wood/ Coal	Commercial cooking- LPG	One year	1. Identification-Two months 2. Awareness-Two months 3. Providing infrastructure-Six months 4. Implementation-Two months

5	COS 5 - Monitoring of DG sets and action against violations	Punjab Pollution Control Board for industries & MC for residential/ commercial areas.	Manual monitoring exists	Non-complying DG set should not be allowed	Six months	1. Identification-Three months 2. Implementation-Three months

ANNEXURE -R3/3

Item No. 30 Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Review Application No. 37/2025
(IA No. 864/2025)
In
Original Application No. 924/2019
With
(MA No. 126/2025)

Neeraj Goyal Applicant

Vs.

State of Punjab Respondent(s)

Date of hearing: 14.05.2026

CORAM: HON'BLE MR. JUSTICE PRAKASH SHRIVASTAVA, CHAIRPERSON
HON'BLE MR. JUSTICE ARUN KUMAR TYAGI, JUDICIAL MEMBER
HON'BLE DR. A. SENTHIL VEL, EXPERT MEMBER
HON'BLE DR. AFROZ AHMAD, EXPERT MEMBER

Applicant: Mr. A.R. Takkar, Senior Advocate with
Mr. Manan Takkar, Ms. Aastha Tyagi &
Ms. Saira Tagra, Advs. for Review Applicant

Respondents: None.

ORDER

1. Learned Senior Counsel for the applicant seeks adjournment to enable him to place on record the additional material. Prayer is allowed.

2. List on 28.08.2026.

Prakash Shrivastava, CP

Arun Kumar Tyagi, JM

Dr. A. Senthil Vel, EM

Dr. Afroz Ahmad, EM

May, 14, 2026
RA No. 37/2025 with
(MA No. 126/2025)
PN

ANNEXURE -R3/4

Item No. 01 Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Review Application No. 5/2026
In
Original Application No. 295/2023

Dimpal Kumar Applicant

Versus

State of Punjab and Ors. Respondent(s)

All India Steel Rerollers Association ---------- Review Applicant

Date of hearing: 18.05.2026

CORAM: HON'BLE MR. JUSTICE PRAKASH SHRIVASTAVA, CHAIRPERSON
HON'BLE DR. A. SENTHIL VEL, EXPERT MEMBER

IN CAMBER BY CIRCULATION

ORDER

1. The review application be listed for further consideration in the Court on 11.08.2026.

Prakash Shrivastava, CP

A. Senthil Vel, EM

May 18, 2026
dv

ANNEXURE-R-3/5

Government of Punjab
Department of Science, Technology & Environment
(STE Branch)

NOTIFICATION

No. 10/64/2020-STE4/469 Dated, Chandigarh: 04/10/2023

FUEL POLICY FOR THE INDUSTRIES OF STATE OF PUNJAB

In order to address the problem of air pollution in the State of Punjab in accordance with the provisions of the Air (Prevention & Control of Pollution) Act, 1981, the Govt. of Punjab in consultation with Punjab Pollution Control Board (PPCB) has declared whole of the State of Punjab as 'Air Pollution Control Area' under section 19(1) of the Air (Prevention & Control of Pollution) Act, 1981 vide Notification No. SO21/C.A.14/81/S.19/88 dated 02.03.1988;

And whereas, the Govt. of Punjab, vide Notification No.4/46/92-3ST/2839 dated 29.12.1993 has banned the use and burning of rubber scrap, tyre, oil sludge, acid sludge and loose rice husk as fuel, in the State of Punjab, as detailed below:

(I) Rubber in any form with effect from 1.4.1994;
(II) Process waste containing Sulphur and toxic substances with effect from 1.4.1994;
(III) Rice Husk (except in the form of fuel briquettes and use of rice husk in fluidized bed combustion) as fuel in the air pollution control area with effect from 1.4.1994.

And whereas, the Govt. of Punjab & Punjab Pollution Control Board, from time to time, are taking all such measures which are required for the reduction and control of air pollution in the State of Punjab including the regulation and use of such fuels which may or may have an adverse impact on the quality of environment in the State;

And whereas, the usage of coal, pet coke, furnace oil and other fuels in the boilers/ furnaces or in any other form by the industry, needs to be regulated due to presence of higher sulphur content leading to Sulphur Dioxide (SO_2) emissions in the ambient air, which may adversely affect the environment;

And whereas, the Hon'ble Supreme Court of India and the Hon'ble National Green Tribunal had also considered the matter relating to the use of pet coke and furnace oil and issued certain directions for compliance, whereupon the Central Pollution Control Board vide letter dated 23.8.2019 had issued directions under section 5 of the Environment (Protection) Act, 1986, to all the States and Union Territories including the State of Punjab for formulating and enforcing fuel policy regarding use of pet coke and furnace oil in the States/ UTs in light of various orders passed by SupremeCourt regarding use of Pet Coke and Furnace Oil in Writ Petition (C) no. 13029/1985;

And whereas, according to the provisions of the Section 19(3) of the Air (Prevention & Control of Pollution) Act, 1981, if the State Government after consultation with the State Pollution Control Board, is of the opinion that the use of any fuel, other than an approved fuel, in any air pollution control area or part thereof,may cause or is likely to cause air pollution, it may, by notification in the Official Gazette, prohibit the use of such fuel in such area or part thereof with effect from such date as may be specified in the notification;

And whereas, the State Government has considered the matter in the above background of the case in consultation with the Punjab Pollution Control Board and other stakeholder departments and is satisfied that the use of pet coke, furnace oil and other fuels is required to be regulated, so as to ensure that there is no adverse impact on the environment;

And whereas, the draft of Policy to prohibit the furnace oil and to regulate the use of pet coke and other fuels was considered at the highest level of the Government, wherein, the Hon'ble Chief Minister, Punjab has desired that final draft be put up after obtaining comments of all the stakeholders, concerned Departments/Agencies as well as general public;

And whereas, meetings/discussions were held with primary stakeholders (various Industrial Associations, Brick Kiln Associations, Thermal Plants operating in the State, M/s Guru Gobind Singh Refinery (Unit of HPCL Mittal Energy Ltd.), Talwandi Sabo Bathinda, Briquettes manufacturers, Brick kilns owners using briquettes & Boiler manufacturers for conversion of furnaces compatible for usage of alternative fuels). The suggestions/ inputs in the matter were also sought from the stakeholder departments/

reputed institutes (Department of Industries & Commerce/ Transport/Agriculture/Food Supplies & Consumer Affairs/Power/New and Renewable Energy Resources/PSIEC/ DECC/ PSCST/State Level Co-ordinator, IOCL/ Custom Commissioner-ate Amritsar/ Ludhiana, IIT Roorkee/Ropar/Delhi/TIET/CSIR-IIP & CPCB);

And whereas, after considering the suggestions/inputs of various stakeholders, the draft fuel Policy to prohibit the furnace oil and to regulate the use of Pet Coke and other fuels in the State was published by the Government of Punjab, Department of Science, Technology & Environment vide Notification No. STE-STEB-010/64/2020-STE (5/4) 455004 dated the 9th Nov, 2022, thereby inviting objections or suggestions on the proposal contained in the draft notification from all the stakeholders and persons likely to be affected thereby, within a period of 30 days from the date of publication of the said notification;

And whereas, the objections or comments received from various stakeholders including Industrial Associations/Individual Industries/CNG/PNG Supplier Companies and Government Departments within the stipulated period, were duly considered and amended policy by incorporating the suggestions/objections/ comments received was put and displayed on the website of the Punjab Pollution Control Board for inviting objections or suggestions, within a period of 15 days. A public notice was also published in leading newspapers/vernacular dailies on 15.07.2023 in this regard;

And whereas, the additional objections or comments received within the stipulated period were duly considered by the State Government;

Now, the Government of Punjab after consultation with the Punjab Pollution Control Board, in exercise of the powers conferred under section 19(3) of the Air (Prevention & Control of Pollution) Act, 1981, hereby, issue the following fuel policy and guidelines for the prohibition of furnace oil, regulation of the use of pet cokeand for promoting the cleaner fuels in the State of Punjab:

Guidelines for regulation and monitoring of Imported Pet Coke (IPC)

(I) The guidelines issued by the Government of India, Ministry of Environment, Forest & Climate Change vide office memorandum No. Q-18011/54/2018-CPA dated 10.09.2018 for regulation and monitoring of imported pet coke in India in compliance to the directions of the Hon'ble Supreme Court of India in Writ Petition (Civil) No. 13029 of 1985 in the matter of M.C Mehta v/s Union of India and Others and in the exercise of the powers conferred underthe Environment (Protection) Act, 1986 shall be applicable.

(II) The import of pet coke for use as fuel is prohibited.

(III) The import of pet coke is allowed to be used by the industries namely cement, lime kiln, calcium carbide and gasification for use as feedstock or in the manufacturing process only on actual user basis as per the conditions stipulated below:

a) Pet coke importing industries namely, cement, lime kiln, calcium carbide and gasification shall obtain the consent and registration from the State Pollution Control Board (SPCB).

b) Consent issued by the State Pollution Control Board shall clearly specify the quantity permitted for import and its use on a per month and per annum basis.

c) Only registered industrial units with valid consent from State Pollution Control Board as per clause (a) shall be permitted to directly import pet coke and consignment shall be in the name of user industrial units for their own use only.

d) Import of pet coke for the purpose of trading shall not be permitted.

e) Authorized importers of Pet coke shall furnish opening and closing stock of imported pet coke to the State Pollution Control Board on quarterly basis.

f) The State Pollution Control Board shall develop an electronic record systemfor uploading of consents, registration and record of use of imported Pet coke by industrial units, as mentioned above and the Board shall share this data with the Central Pollution Control Board on quarterly basis.

(IV) The Supreme Court of India has further allowed the use of pet coke vide various orders passed in Writ Petition (Civil) no. 13029 of 1985 as under:

a) Import of needle pet coke is allowed for use in graphite electrode industry (order dated 6.9.2018);

b) Calcined Pet Coke (CPC) domestic as well as imported can be used as raw material for anode making in aluminum industry with revised BIS specifications and subject to condition that imported raw material cannot exceed 0.5 MT per annum in total (order dated 9.10.2018);

c) Raw Pet Coke (domestic and imported) can be used as feed stock forproducing Calcined Pet Coke (CPC) and the quantity for this purpose cannotexceed 1.4 MT/annum in total (order dated 9.10.2018);

(V) Anyone using pet coke in consequence to the orders of Hon'ble Supreme Court given in point (IV) above shall comply with all conditions laid by Hon'ble Supreme Court for using such pet coke as well as notified by the PPCB from time to time.

Guidelines for use of Pet Coke for Boilers/ Furnaces

(I) The industry shall provide well designed two stages desulphurization i.e. at combustion stage and of flue gas emissions and install adequate air pollution control device so as to contain the Particulate Matter (PM) and gaseous emissions specifically Sulphur Dioxide (SO_2) as per the limits mentioned below:

a) Particulate Matter (PM): as prescribed by the MoEF&CC depending upon the source (Boiler or type of industry)

b) Sulphur Dioxide (SO_2): 400 mg/Nm^3 Wherever, any industry specific standards are prescribed by the MoEF&CC/CPCB/State Govt./PPCB same shall prevail.

c) Mitigation measures to contain SO_2, NO_X, particulate matter and other parameters shall remain applicable for Thermal Plants and other industries for which industry specific standards/guidelines have been laid down by the MoEF&CC/Central Government.

(II) The industry shall install online monitor for SO_2 with the stack equipped with an alarm system to alert the boiler/APCD operator, in case, the concentration of SO_2 increases beyond the prescribed standard of 400 mg/Nm^3 so as to take necessary mitigation measures to bring the SO_2 emission within the prescribed limits.

(III) The industry shall provide a stack of height calculated by using the formula $H=14Q^{0.3}$, where Q is the emission rate of SO_2 in kg/hr and should be calculatedby using the volume of flue gas emissions and the standards for SO_2 (400 mg/Nm^3) or 30 meter, whichever is higher.

(IV) The industry shall provide adequate and appropriate treatment to the bleed off/ purge wastewater being discharged from the scrubber. The sludge produced in the recirculation tank of the scrubbing liquor shall be disposed of in an environmentally sound manner.

(V) The industry shall follow the standard operating practices prescribed by MoEF&CC/CPCB/PPCB issued from time to time to contain SO_2, particulate matter and other parameters within the prescribed limit.

Prohibition on the use of Furnace Oil and alternate fuels

(I) Furnace oil and any other liquid oil containing high Sulphur contents (exceeding 1.8% by weight) shall not be allowed to be used as fuel.

(II) Only specified liquid fuels marketed and supplied by the oil companies authorized by the Government of India, including Low Sulphur Heavy Stock (LSHS), Light Diesel Oil (LDO) and Propane, Butane etc. having sulphur content not exceeding 1.8% by weight shall be allowed.

(III) No oil company shall supply furnace oil and any liquid fuel having high sulphur content in the State except the liquid fuels/ oil allowed at Sr. No. (II) above.

(IV) The industry shall provide a stack of adequate height calculated by using the formula $H=14Q^{0.3}$, where Q is the emission rate of SO_2 in kg/hr. Where providing all stacks are not feasible using above formula, a minimum stack height of 11 meters is to be provided considering the emission standards for SO_2 as 400 mg/Nm^3.

(V) The industry shall follow the standard operating practices prescribed by MoEF&CC/CPCB/PPCB issued from time to time and provide appropriate and adequate emission control/treatment systems so as to contain SO_2, particulate matter and other parameters within the prescribed limit.

(VI) Carbon Black Feed Stock (CBFS) or its sub types including acetylene black, channel black, furnace black, lamp black and thermal black etc. shall not be usedas fuel in boilers, furnaces, brick kilns or anywhere as a source of energy generation.

Cleaner and Eco-Friendly Fuels

(I) State Government/PPCB in its endeavor to save natural resources shall take appropriate steps for replacement of its conventional natural energy resourceslike coal, wood etc. in phased manner with cleaner fuels (CNG/PNG/LPG/CBG/

electricity/solar/wind etc.), biomass fuels and fuels having low sulphur content in industrial units as well as in brick kilns, wherever possible.

(II) Upon the availability of supply of CNG / PNG / CBG etc. in various geographical areas of the state by the respective licensees authorized by the Petroleum and Natural Gas Regulatory Board (PNGRB), the State Government in consultation with the State Pollution Control Board shall issue appropriate directions and timelines to the industries and other stakeholders for conversion to such cleaner fuels considering techno-economic and legal feasibility.

(III) Use of bio-mass specifically paddy stubble in raw form, torrefied form, briquettes, palettes, or any other modified form including blending with other acceptable fuels shall be encouraged for their use as fuel for boilers/ furnaces in controlled/regulated conditions as approved by the State Pollution Control Board on case to case basis.

(IV) Renewable energy sources like solar/ wind energy etc. shall be incentivized, wherever possible by the concerned departments.

(V) Provisions of notification issued by the Department of Science, Technology & Environment vide notification no. 10/512/2021-STE(3)/2075 dated 27.8.2021 as amended and subsequent notifications issued by various departments of the Government of Punjab with regard to the encouragement of the usage of paddy straw as fuel shall be applicable.

(VI) All industrial units using solid fuel and located within one hundred km from a solid waste based Refused Derived Fuel (RDF) plant shall make arrangements to replace at least five percent of their fuel requirement by RDF so produced (torrified, non-torrified, fuel briquettes, pellets or loose form as per feasibility), as prescribed under the Solid Waste Management Rules 2016.

(VII) Due to dynamics of cost and availability of fuels based on international markets, State Government in consultation with PPCB shall be empowered to permit usageof alternative fuels for a limited period based on techno-economic feasibility as perthe prevailing scenario to ensure the sustainability of industrial sector in the State.

And whereas, this Fuel Policy of the State shall be subject to the compliance of further orders of the Hon'ble Supreme Court of India in WP(C) no. 13029 of 1985, judgements and orders passed by Hon'ble National Green Tribunal or any other judicial/ quasi-judicial authority from time to time, office memorandums, guidelines and notifications issued by the Ministry of Environment, Forest & Climate Change (MOEF&CC), Central Pollution Control Board (CPCB) and the Commission for Air Quality Management in National Capital Region (NCR) and Adjoining Areas (CAQM), State Government or Punjab Pollution Control Board including those issued under National Clean Air Programme (NCAP) and under the action plans prepared by the State/Central Government for the clean air.

Needless to say that any order already passed or to be passed by the Hon'ble Supreme Court of India, Hon'ble High Court or Hon'ble National Green Tribunal shall supersede any provision of this policy, if such provision is not in consonance with such order.

In case of failure to comply with the provisions of this notification, action in accordance with the provisions laid down under Air (Prevention & Control of Pollution) Act, 1981, Environment (Protection) Act, 1986 and under other relevant environmental laws shall be taken against the violators.

That provisions of Air (Prevention & Control of Pollution) Act, 1981 shall be applicable on this policy.

Dated. 04/10/2023
Chandigarh

Secretary to Government of Punjab,
Department of Science, Technology & Environment

Endst.No. 10/64/2020-STE4/470 **Dated.** 04.10.2023

A copy of the above is forwarded to the Special Principal Secretary to the Chief Minister, Punjab forinformation.

Secretary

Endst.No. 10/64/2020-STE4/471-480 **Dated.** 04.10.2023

A copy of the above is forwarded to the following for information and necessary action:

1. The Chief Secretary, Punjab.
2. The Special Chief Secretary Department of Agriculture& Farmers Welfare, Govt. of Punjab, Chandigarh.
3. The Principal Secretary, Department of Power, Govt. of Punjab, Chandigarh.
4. The Principal Secretary, Department of Industries & Commerce, Government of Punjab, Chandigarh.
5. The Principal Secretary, Department of Food, Civil Supplies and Consumers Affairs, Government of Punjab, Chandigarh.
6. The Secretary, Department of New and Renewable Energy Sources, Government of Punjab, Chandigarh.
7. The Secretary, Department of Transport, Government of Punjab, Chandigarh.
8. The Chairman, Punjab Pollution Control Board, Patiala.
9. The Chief Executive Officer, Punjab Bureau of Investment Promotion, Chandigarh.
10. The Director, Directorate of Environment & Climate Change, Punjab.

Secretary

Endst.No.10/64/2020-STE4/481 Dated.04.10.2023

A copy of the above is forwarded to the Controller, Department of Printing & Stationary,Punjab to print the 100 copies of this notification.

Secretary

Endst.No.10/64/2020-STE4/482 Dated.04.10.2023

A copy of the above is forwarded to the Chairman, Central Pollution Control Board, New Delhi for information and necessary action.

Secretary

Endst.No.10/64/2020-STE4/483 Dated.04.10.2023

A copy of the above is forwarded to all the Deputy Commissioners of the State of Punjab for information and necessary action.

Secretary

TRUE COPY

ADVOCATE

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

SPEED POST/EMAIL

ANNEXURE -R3/6

EQ-11/2/2022-AQM-HO-CPCB-HO/19354

March 12, 2026

To

The Member Secretary

All SPCBs/PCCs (as per list)

Sub: Advisory to permit use of alternative fuels – reg.

Sir/Madam,

In industrial units, hotels, restaurants and other enterprises where Consent to Operate (CTO) is applicable, the type of fuel to be used is normally specified while granting CTO to ensure that emissions remain within the prescribed norms.

However, in view of the extraordinary situation arising due to supply constraints in the approved/prescribed fuel sources such as Piped Natural Gas (PNG)/Liquefied Petroleum Gas (LPG) etc. the SPCBs/PCCs may take a view, in consultation with the concerned State Government/UT Administration and also taking into consideration, the instructions issued by Courts or appropriate authorities in this regard, to permit the temporary use of alternate fuels such as biomass, RDF pellets, etc. in place of PNG by such industries/hotels/restaurants in the State/UT for such period as deemed appropriate but not exceeding one month from the date of issuance of this advisory.

Further, in cases where there is a limitation in availability of such alternate fuels, the use of kerosene/coal could also be considered as permissible by the concerned SPCB/PCC, during this period only, as an alternate fuel and in consultation with the State Government / UT Administration.

This issues with the approval of Chairman, CPCB.

Yours faithfully,

(Bharat Kumar Sharma)

Member Secretary

'परिवेश भवन' पूर्वी अर्जुन नगर, दिल्ली - 110032.
Parivesh Bhawan, East Arjun Nagar, Delhi - 110 032.
दूरभाष /Tel : 43102030, 22305792, वेबसाइट/Website: www.cpcb.nic.in

Copy to:

1. PPS to Secretary, MoEF&CC
   Indira Paryavaran Bhawan,
   Jorbagh Road, New Delhi – 110 003 ... For kind information of Secretary, EFCC, please

2. PPS to Secretary, MoP&NG
   Ministry of Petroleum & Natural Gas,
   Kartavya Bhawan - 03, Janpath Road,
   New Delhi – 110001 For kind information of Secretary, P&NG, please

3. PPS to Chairperson, CAQM
   17th Floor, Jawahar Vyapar Bhawan,
   STC Building, Tolstoy Marg,
   New Delhi – 110001 ... For kind information of Chairperson, CAQM, please

4. PPS to Chairman, CPCB ... For kind information of CCB, please

5. PPS to Joint Secretary (CP), MoEF&CC
   Indira Paryavaran Bhawan,
   Jorbagh Road, New Delhi – 110 003 ... For kind information of JS(CP), please

(Bharat Kumar Sharma)

List:

1. The Member Secretary
   All SPCBs/PCCs

TRUE COPY
ADVOCATE

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

EQ-11/2/2022-AQM-HO-CPCB-HO/574-613

April 15, 2026

To

The Member Secretary
All SPCBs/PCCs (as per list)

Sub: Advisory issued w.r.t. permitting use of alternative fuels-reg.

Ref.: CPCB letter no. EQ-11/2/2022-AQM-HO-CPCB-HO/19354-19394 dated March 12, 2026

Sir/Madam,

This has reference to above referred advisory dated 12.3.2026 (copy enclosed for ready reference) issued by CPCB on permitting the temporary use of alternate fuels such as biomass, RDF pellets, etc. in place of PNG by industries/hotels/restaurants in the State/UT for such period as deemed appropriate but not exceeding one month from the date of issuance of the said advisory.

It is to inform that the said advisory for temporary permission period of one month is further extended for another one month i.e. till May 12, 2026. Rest other contents in the aforesaid advisory dated 12.3.2026 shall remain the same.

This issues with the approval of Chairman, CPCB.

Yours faithfully.

(Bharat Kumar Sharma)
Member Secretary

Encl.: As above

Copy to:

1. PPS to Secretary, MoEF&CC
   Indira Paryavaran Bhawan,
   Jorbagh Road, New Delhi – 110 003 ... For kind information of Secretary, EFCC, please

2. PPS to Secretary, MoP&NG
   Ministry of Petroleum & Natural Gas,
   Kartavya Bhawan - 03, Janpath Road,
   New Delhi – 110001 For kind information of Secretary, P&NG, please

3. PPS to Chairperson, CAQM
   17th Floor, Jawahar Vyapar Bhawan,
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5. PPS to Joint Secretary (CP), MoEF&CC
   Indira Paryavaran Bhawan,
   Jorbagh Road, New Delhi – 110 003 ... For kind information of JS(CP), please

(Bharat Kumar Sharma)

List:

1. The Member Secretary
   All SPCBs/PCCs

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ADVOCATE

ANNEXURE -R3/8

Cabinet approves Scheme for Promotion of Surface Coal/Lignite Gasification Projects with a financial outlay of Rs.37,500 crore

Posted On: 13 MAY 2026 3:29PM by PIB Delhi

The Union Cabinet chaired by the Prime Minister Shri Narendra Modi has approved a Scheme for Promotion of Surface Coal/Lignite Gasification Projects with a financial outlay of Rs.37,500 crore.

The Scheme marks a major step towards accelerating India's coal/lignite gasification programme, advancing the national target of gasifying 100 Million Tonnes (MT) of coal by 2030, strengthening energy security, and reducing dependence on imports of key products such as LNG (more than 50% imported), urea (~20% imported), ammonia (~100% imported), and methanol (~80–90% imported).

In a significant accompanying reform, the Government has also extended coal linkage tenure up to 30 years under the "Production of Syngas leading to Coal Gasification" sub-sector in the Non-Regulated Sector (NRS) linkage auction framework, providing long-term policy certainty for investment in coal gasification projects.

Salient Features of the Scheme:

- Total financial outlay of Rs.37,500 crore to incentivize new surface coal/lignite gasification projects for production of syngas and its downstream products, targeting gasification of approximately 75 Million Tonne of coal/lignite.
- Financial incentive provided at a maximum of 20% of the cost of Plant and Machinery.
- Selection through a transparent and competitive bidding process, with an evaluation framework benchmarking project cost, coal input, and syngas output.
- Incentive disbursed in four equal instalments, linked to project milestones.
- Financial incentive for any single project capped at **Rs.5,000 crore**; for any single product (except Synthetic Natural Gas and Urea) capped at **Rs.9,000 crore**; and any single entity group capped at **Rs.12,000 crore** across all projects.
- Incentive under this Scheme is in addition to, and does not restrict access to, incentives under the commercial coal mining regime or schemes of other Central/State Government ministries.
- The Scheme is technology-agnostic; adoption of indigenous technologies is encouraged.

Strategic and Economic Benefits:

- **Expected Investment Mobilisation:** Rs.2.5- 3.0 lakh crore
- **Energy Security & Import Substitution:** Diversified use of coal resources and substitutes imports of LNG, urea, ammonia, ammonium nitrate, methanol, and coking coal, insulating India from global price volatility and geopolitical supply-chain disruptions and advancing the Atmanirbhar Bharat and Make in India objectives.
- **Employment Generation:** The Scheme is projected to create around 50,000 (Direct + Indirect) jobs across 25 projects in coal-bearing regions.
- **Revenue to Governments:** Coal/lignite utilization is expected to generate Rs.6,300 crore annually from 75 Million Tonne of gasification envisaged under the Scheme, plus downstream revenue from GST and other levies.
- **Technology Ecosystem:** Strengthens India's domestic surface coal gasification capability by advancing indigenous technologies and minimising reliance on foreign EPC contractors.

Background:

India holds one of the world's largest coal reserves (~401 billion tonnes) and lignite reserves (~47 billion tonnes). Coal accounts for over 55% of the country's energy mix. Gasification converts coal/lignite into 'synthesis gas' (syngas), a versatile feedstock for producing fuels and chemicals domestically, enabling India to substitute high-value imports and insulate itself from global supply disruptions and price volatility.

India's import bill for key substitutable products LNG, urea, ammonium nitrate, ammonia, coking coal, methanol, DME and others stood at approximately Rs.2.77 lakh crore in FY2025, a vulnerability further exposed by the ongoing geopolitical situation in West Asia.

Building on the National Coal Gasification Mission (2021) and a Rs.8,500 crore scheme approved in January 2024 (under which 8 projects worth Rs.6,233 crore are under implementation), the new Scheme builds on this momentum with significantly enhanced support.

***

MJPS

(Release ID: 2260621) Visitor Counter : 2341

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ADVOCATE

ANNEXURE -R3/9

Coal Gasification- Overview

Need for Coal Gasification: Abundant indigenous Coal Source

752

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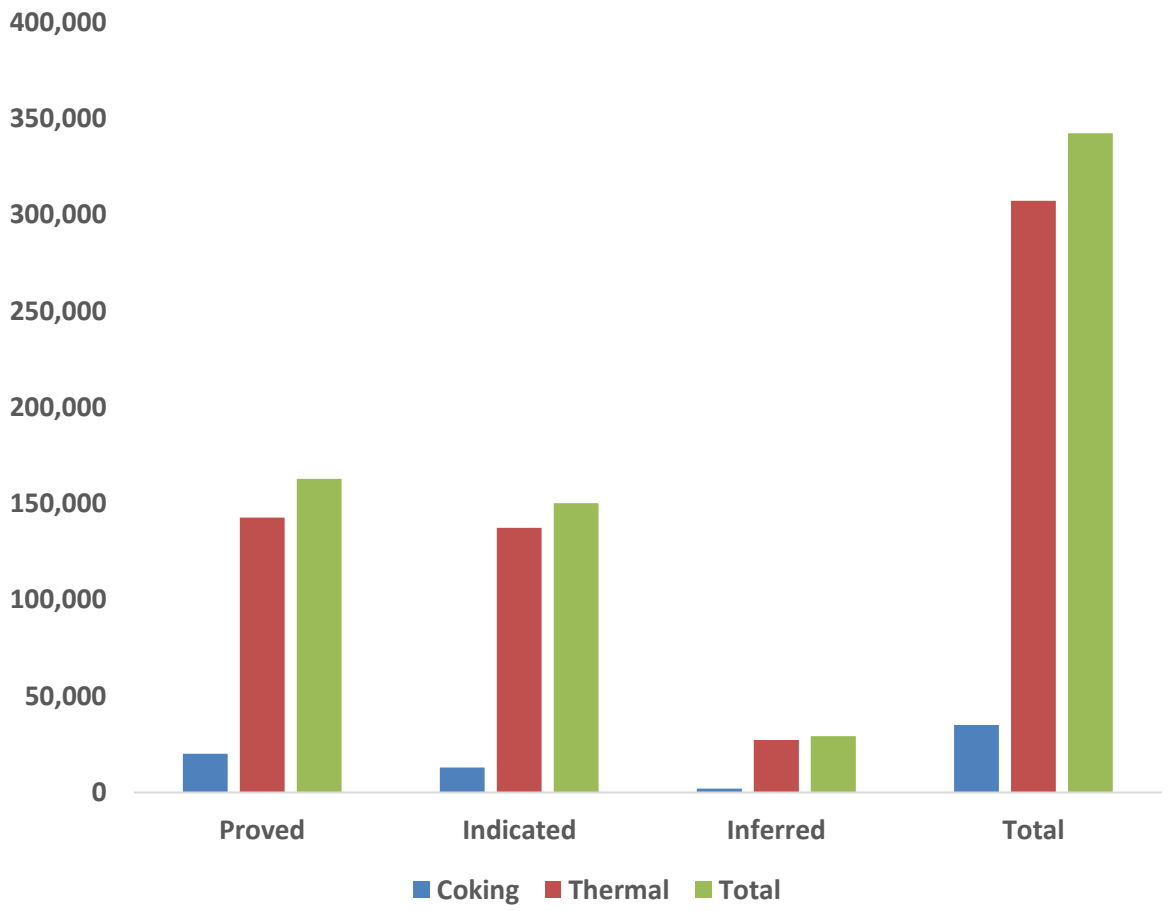
India can monetize abundantly available coal reserves through gasification to cater the growing energy and chemicals needs of the country

Coal Resources in India (Million tons)



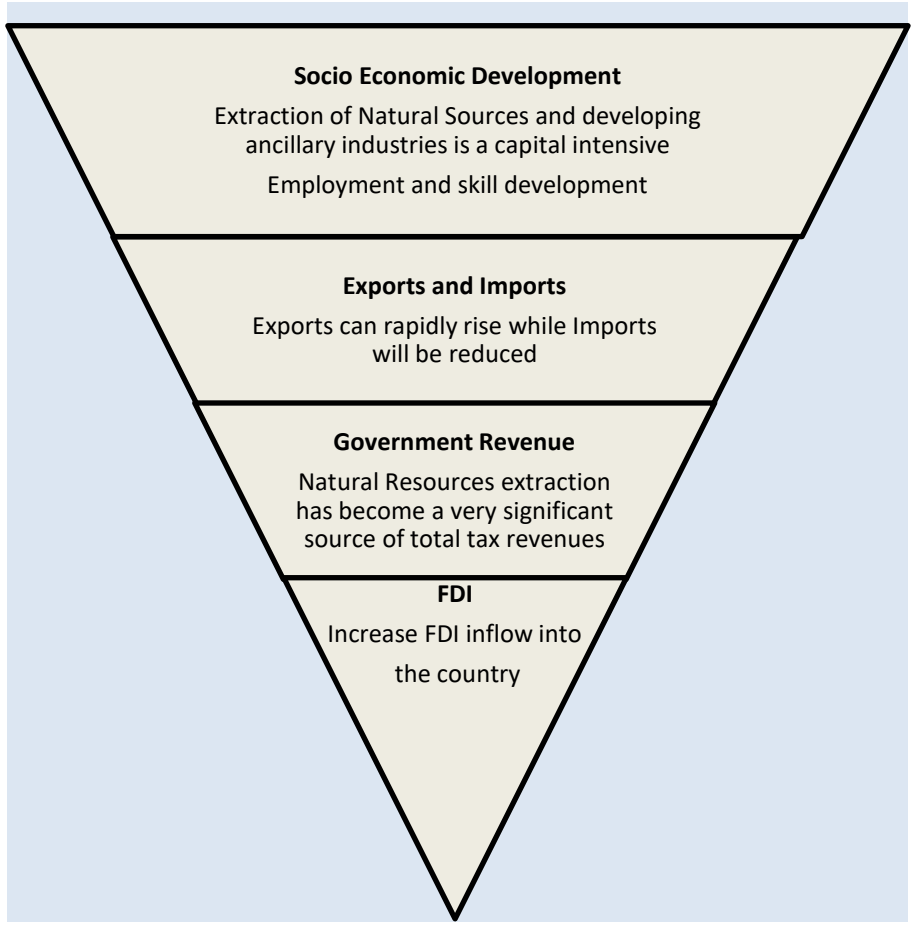
Source: GSI Coal Inventory 2020

Key Takeaways

- It is evident that India has huge reserves of coal, it would be beneficial for India if it finds a sustainable way of using these reserves as the world including India is gradually transitioning away from coal toward cleaner fuels in the wake of climate change
- The use of domestic coal reserves becomes even more important, especially when India does not have other sources of fuel – crude oil and natural gas, 82% and 45% of the requirement of those fuels is met through imports. This exposes India to the vagaries of price volatility and supply insecurity.
- India will continue to depend on coal for its future energy needs at least till 2050 as per several reports.
- Since coal has to be used for coming 2 to 3 decades, there is an urgent need to make use of coal as green as possible

Need for Coal Gasification: Optimal utilization of indigenous natural resources is critical for long term economic growth and competitive advantages

Natural resources hold significant potential to contribute to development of an economy

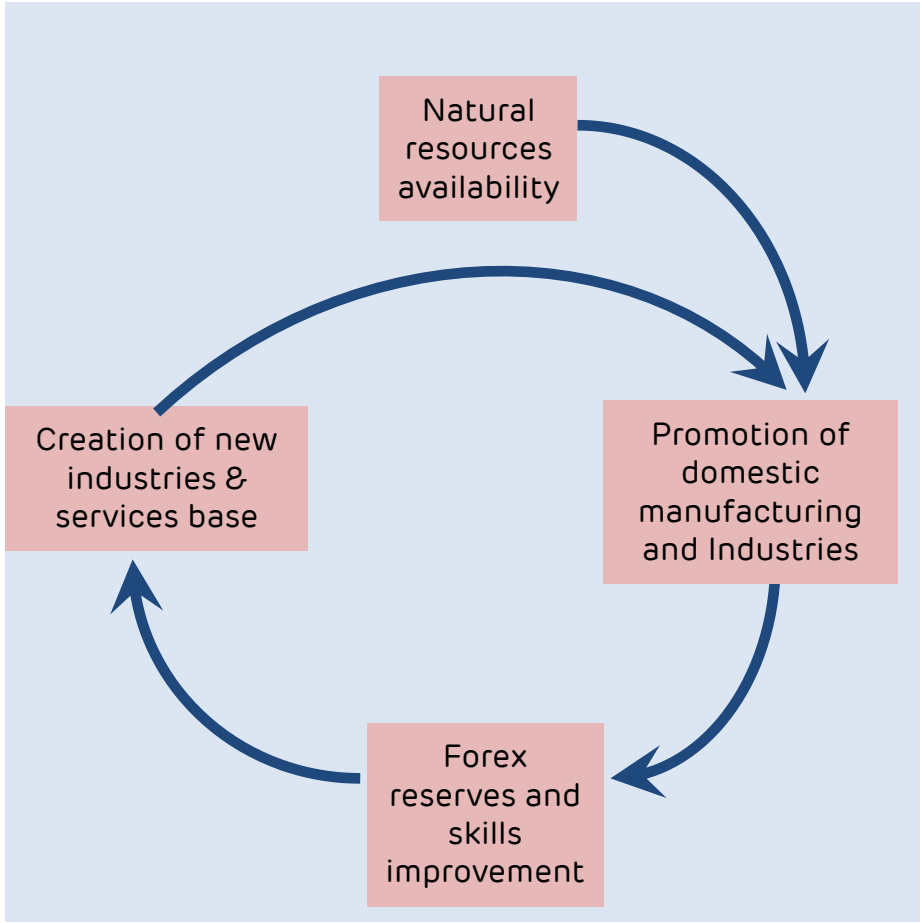


Timely exploitation of Natural resources have helped countries in creating long term economic drivers

E.g.

- Shale gas revolution in US
- **Coal to Chemicals in China**

Optimal utilization of resources can result in long term economic growth



China is monetising Indigenous coal resources to meet Energy, Chemical and Petrochemical demands

Methanol

- Role of Coal Gasification in Methanol: China has become by far the largest producing country in the world, representing 54% of world methanol capacity (~80 MTPA) and 48% of world methanol production in 2018
- China is the incremental methanol supplier to the world. Around 70% of China methanol is produced from coal
- China has significantly Increased Methanol Blending in fuels over the last few years which now stands at **21 MMTPA.**
  - ✓ Methanol direct blending with Gasoline **(8.5 MMTPA)**
- Direct blending now stands at 8.5 MMTPA or 9% of transport fuel demand
- While M15(Methanol-15%, Gasoline 85%) is the main methanol blend available in major cities and provinces. Other blends like M25, M30, M85 and M100 are also being used

Coal to Chemicals China

- China produces more than 90% of its ammonia through coal gasification
- Higher self-reliance in energy supply and lower risk of oil and gas supply from abroad are the major drivers of coal gasification related industries
- China has been pushing for coal gasification in a major way by adopting proven western-developed gasifiers to gain operational experience
- It is the only country in the world, where large-scale coal gasification related industries play a significant role in economic development
- Role of Coal Gasification in Ammonia/Urea: NH3 capacity is approx. 70 MTPA (~30% of the world) and urea capacity is approx. 80 MTPA (~40% of the world).
- Role of Coal Gasification in Ethylene Glycol (EG): Capacity of coal-based EG is approx. 2.5 MTPA (~30% of China total).
- Role of Coal Gasification in Methanol to Olefin (MTO): Capacity of coal-based Olefin is approx. 13mt/a (~25% of China's total).

Coal Gasification- Advantages

755

Reduce dependence on Imports

- Strategic importance due to abundant availability of indigenous coal resource
- Reduce dependence on imported energy sources, chemicals and feedstock for a variety of products

Self Reliance- Atmanirbhar Bharat

- Widespread implementation & promotion of technology can make India "Atmanirbhar" in several value-added products
- Mega coal to chemicals plant complexes at coal pit-heads can bring in regional economic prosperity as well as help meeting the gaps in interior states of the country

Low Carbon Emissions

- To promote initiatives for sustainable, gainful & maximum utilization of national coal reserves
- CO2 and other polluting gases can be separated, captured in cheaper way and utilized for other industrial uses

Recently, coal gasification has gained momentum with series of key events and govt. initiatives

Sep'18	GOI announced its first coal gasification-based fertilizer plant at Talcher, expected to be commissioned by 2023-24.
Aug'19	NCCCR&D has been launched at IISc by the Department of Science & Technology (DST). Government allows 100% FDI in coal mining
Sep'19	CIL Announced 3 coal gasification project for coal to Methanol. PM's Impetus to Clean Coal Gasification
May'20	MoC announces to incentivize gasification/liquification through rebate in revenue share for commercial block auctions.
Aug'20	GOI forms a steering committee under NITI Aayog to look into coal gasification.
Sep'20	India aims for 100 million tons (MT) coal gasification by 2030 with investments worth over Rs. 4 lakh crores
Sep'21	MOC constitutes Task Force and Expert Committee to Prepare Road Map for Coal based Hydrogen Production

National Coal Gasification Mission

100 MT Coal Gasification Target by 2030

- Indian government aims for 100 million ton (MT) coal gasification by 2030, with investments worth over Rs. 4 trillion.
- In order to encourage the use of clean sources of fuel, the government has provided a concession of 20% on revenue share under commercial coal block auctions.
- A Steering Committee has been constituted regarding Surface Coal Gasification under the chairmanship of Dr. V.K. Saraswat and members from the Ministry of Coal.
- CIL has also planned to set up at least 3 gasification plants (besides Dankuni) on BOO basis through global tendering and has signed an MoU with GAIL for marketing synthetic natural gas.

Other factors and challenges slowing investments- To be addressed by Govt. and Industries

Key Challenges

Coal Related

- Low Grade, high ash coal
- Large Quantity of fines due to improper mining
- Monetisation of Coal fines
- Variation in quality due to unavailability of dedicated source
- Inadequate coal beneficaiton facilities

Environment Related

- Huge quantity of waste, black water generation
- Costly waste treatment for ZLD
- Costly systems for CO2, H2S removal
- Ash storage and disposal

Technology Related

- Availability of proven gasification technology suitable for Indian poor-quality Coal
- Costly & Complex coal feed preparation technology
- High technology cost affects Syngas & downstream products costs & Project viability
- Costly large capacity Cryogenic ASU plants required for Oxygen gas supply
- Lack of experienced EPC / LSTK and O&M Manpower contractor
- Due to demand / price fluctuations, only poly-generation route configuration is viable

Reduce dependence on Imports

- Coal gasification is yet to get recognition as "New Business Opportunity"
- Recognition of coal gasification as Infrastructure sector
- Modification in 'Coal Distribution Policy' to accommodate Coal Gasification including Producer Gas Plants using coal
- Declaration of a separate Sector for facilitate allocation of coal
- Earmarking coal sources/blocks to supply right quality of coal
- Fixation of Norms by a scientific institute for coal allocation to accommodate support units and considering type of gasifier, washability characteristics of coal, coal specifications & grade

Suggested Key Initiatives by the Govt to make Coal Gasification a Success

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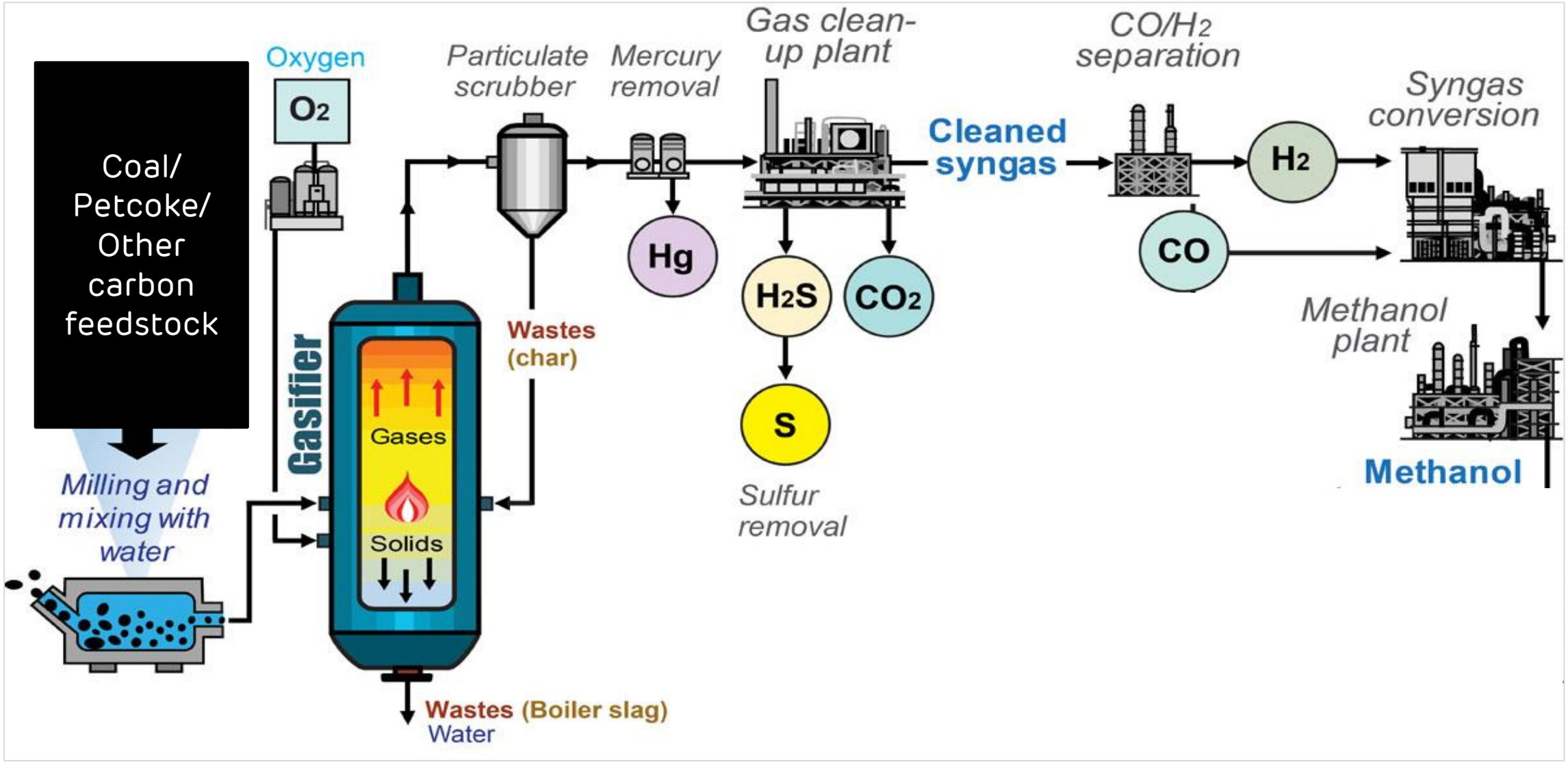
'Dedicated, closeby Coal Mines' to be earmarked for Coal Gasification Projects (to be awarded through Auction Linkage) for better Coal Quality consistency , sustained Supply & closer Mining & Transportation Cost control.
Viability gap funding, Infrastructure status Financial Incentives from Govt to support very high Capex of Gasification Projects needed to improve Viability of 'Energy Security' (Clean) Projects.
Level playing field Exemption from currently applicable Cess / Duties on Coal Feedstock prices to be provided for Environment - friendly Coal Gasification Projects due to its Clean Technology adaptation
'National Policy on Coal Gasification & Liquefaction' should be urgently formulated and promulgated for faster and smooth implementation of Coal Gasification based Projects.
Schemes for **'Blending Methanol, DME with Gasoline & LPG'** respectively to be implemented at the earliest. Policy framework for all by products of coal gasification.

Coal Gasification- Process Unit

760



Suitability of Gasification Technologies to Indian coal

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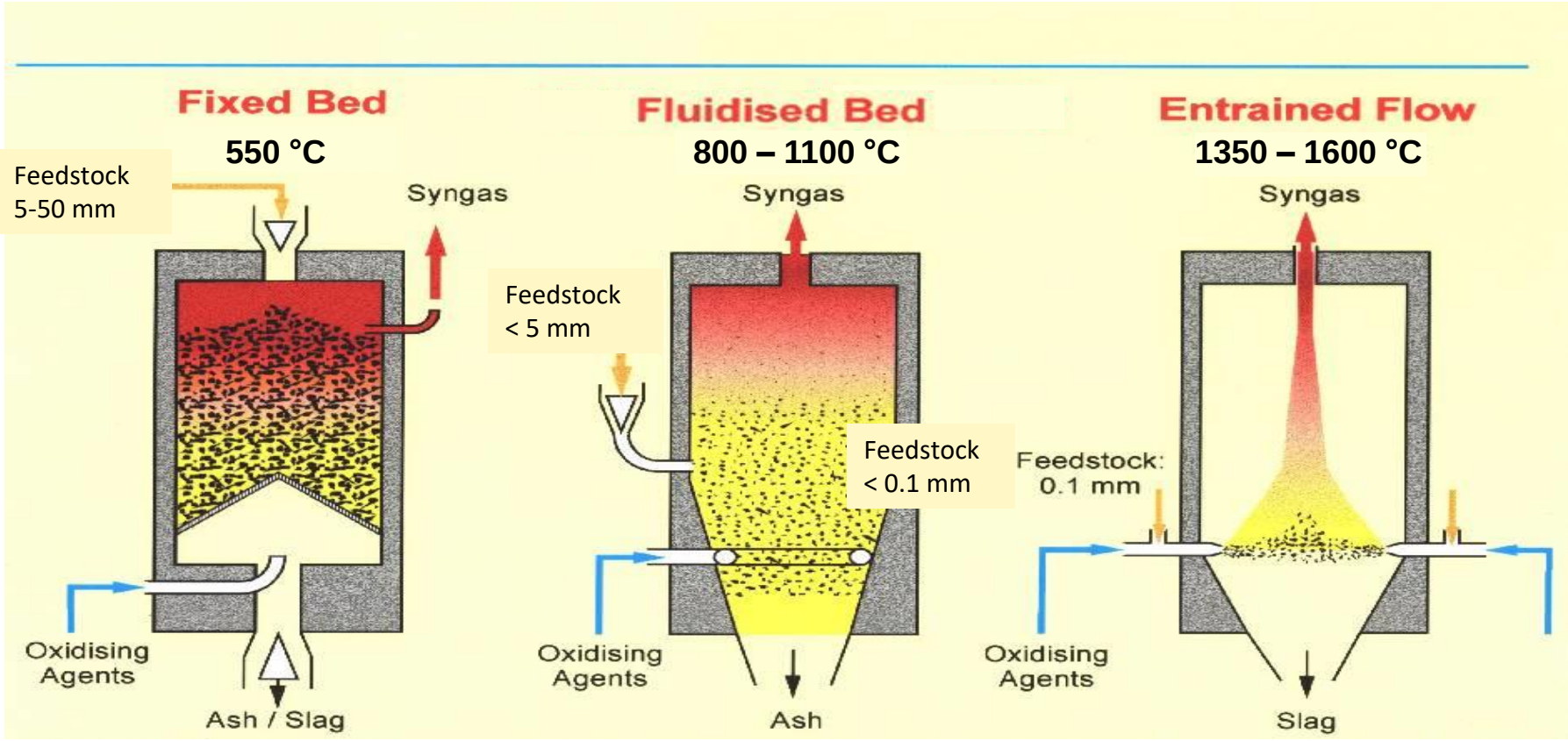
Suitable for high ash Indian coals (>35% Ash)

- FIXED BED
  - LURGI
  - SASOL
  - SEDIN
- FLUIDISED BED
  - U-GAS
  - HTW

- ENTRAINED FLOW
  - GE
  - Shell
  - E-Gas
  - Chinese Slurry Feed
  - Chinses Dry Feed

Best Suitable for Petcoke/Coal blends Or Coal (<30% Ash)



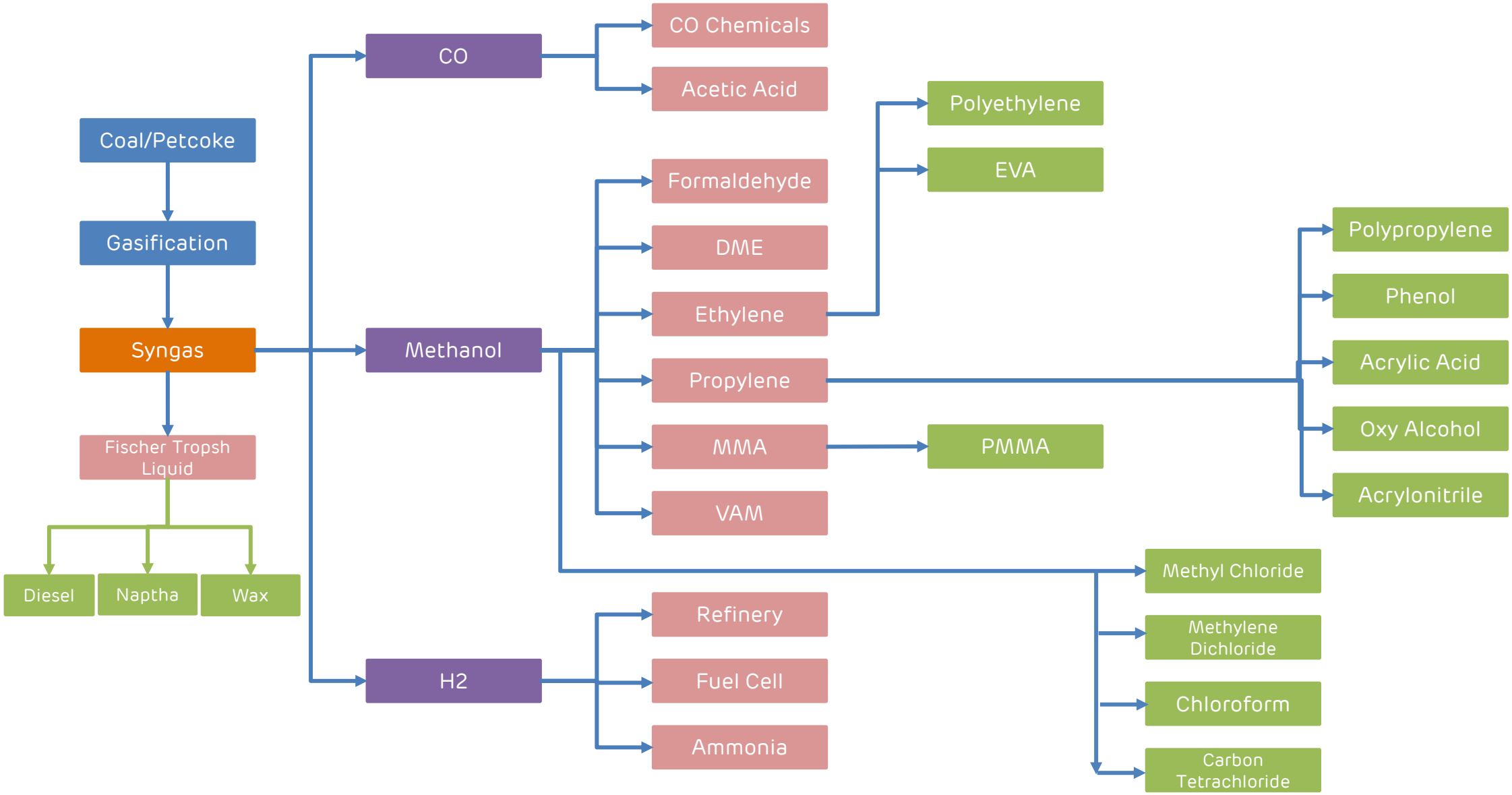
Specifications of available technologies

762

Parameter	Lurgi	GE	SHELL
Gasification type	Fixed Bed	Entrained flow	Entrained flow
Type of feed	Coal	100% Coal, 100% Petcoke, Petcoke &coal blend	100% Coal, 100% Petcoke, Petcoke &coal blend
Type of syngas cooling	Syngas cooler	Syngas cooler, bottom quench	Syngas cooler, bottom quench
Feed type	Dry feed	Slurry	Dry feed
Wall	Jacketed	Refractory	Membrane Wall
Pressure(bar)	30	65, 85	40-45
Outlet syngas Temp	~550 ^{0}C	~1500 ^{0}C (SG)/ ~240 ^{0}C (quench)	~1600 ^{0}C (SG)/ ~210 ^{0}C (quench)
Feed size suitability	5-50 mm	<100 µm	<100 µm
Ash range	25% to 35%	<30%	<30%
Minimum Ash/Flux required	-	2-3 %	8 %
H2/CO ratio	~1.6	~0.6	~0.5
No. of gasifiers	114	>100	>23
No. of burners	no burners	single	multi burner

Gasification Products

763

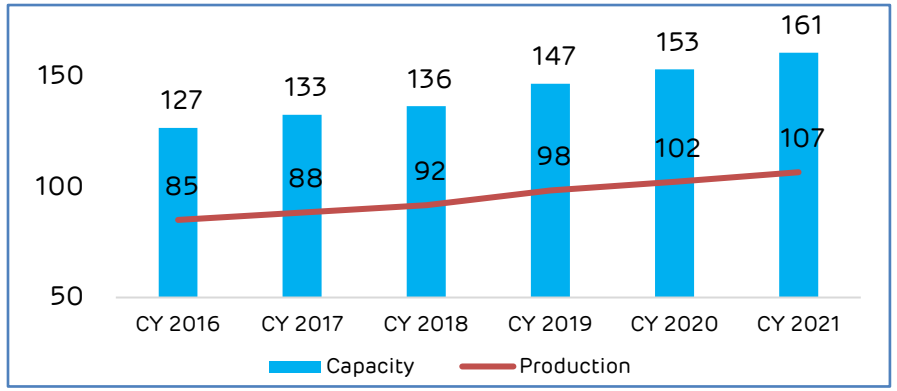


Methanol Market Overview

764

Market Overview

- Global Capacity (2021): 161 MMTPA.
- Expected CAGR: 4.5 -5%
- Production level is at 67% of the capacity.
- Asia and China are the major supplier as well as consumer of Methanol.

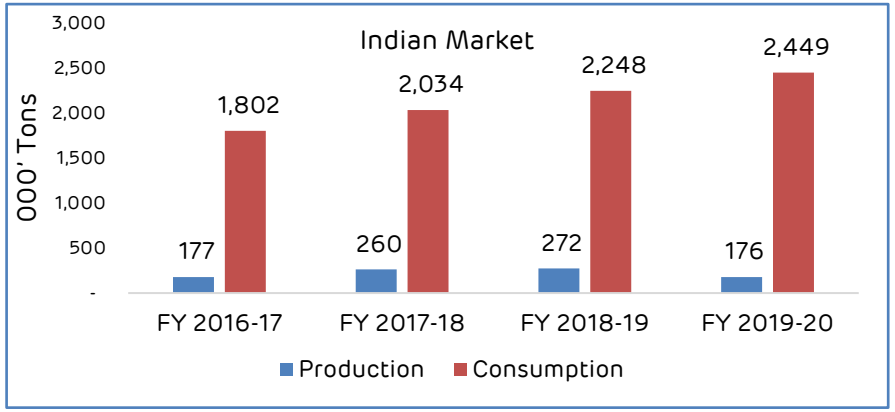


Top Producer of Methanol In India

Company	Location	Capacity (MTPA)
GNFC	Bharuch, GJ	160000
Deepak Fertilizers	Taloja, MH	10000
Rama Petrochemicals	Patalganga, MH	60000
RCF	Trombay, MH	49500
Assam Petrochemicals	Namrup, AS	40000
National Fertilizers	Nangal, AP	19500
Total		**429000**

Indian Market

- Indian demand is mainly met through import. Total demand is approx. 2.5 million tons, out of which around 90% is being import.
- Installed Capacity: 4.74 Lakh tons
- Major Import are from Middle East countries – Qatar and UAE



Benefits of meeting the needs of Fuels, Chemicals through Methanol & Downstream value chain of Coal Gasification

220 Bn $	of Foreign exchange saved by Indigenous production over the project life of 20 years
>150000	Direct and In-direct Employment Generation

Supply security for Enhanced Energy , Fertilizer & Chemicals

Revenue to the Govt. over the project life as Taxes, Duties, Coal Royalty etc.

- ✓ Clean Technology: 99% Recovery of Sulphur in coal as saleable Sulphur; CO2 in ready to capture form
- ✓ Methanol 15 (M15) in petrol will reduce pollution by 33% and diesel replacement by methanol will reduce by more than 80 %.

NITI Aayog's Methanol Economy Program

- NITI Aayog's **'Methanol Economy'** programme is aimed at reducing India's oil import bill, greenhouse gas (GHG) emissions, and converting coal reserves and municipal solid waste into methanol.

- Blending of **15% methanol** in gasoline can result in at least **1-5% reduction** in the import of gasoline/crude oil, which will bring down GHG emissions by 20%, thereby improving the urban air quality.

- Creation of **5 million** jobs through methanol production/application and distribution services.

- Rs 6000 crore can be saved annually by blending **20% DME** (Di-methyl Ether, a derivative of methanol) in LPG. This will help the consumer in saving between **INR 50-100 per cylinder**.

- Under R&D, work is in progress to set up coal-to-methanol plants in the country using indigenous technology, which is being developed by **BHEL** (Hyderabad and Trichy), **Thermax**, and **IIT Delhi**.

- An R&D project has also been sanctioned by the Department of Biotechnology to **IISc Bengaluru** and **Praj Industries** Pune to produce methanol from biomass. Phase-I of the production of syngas from biomass was demonstrated in January 2019.

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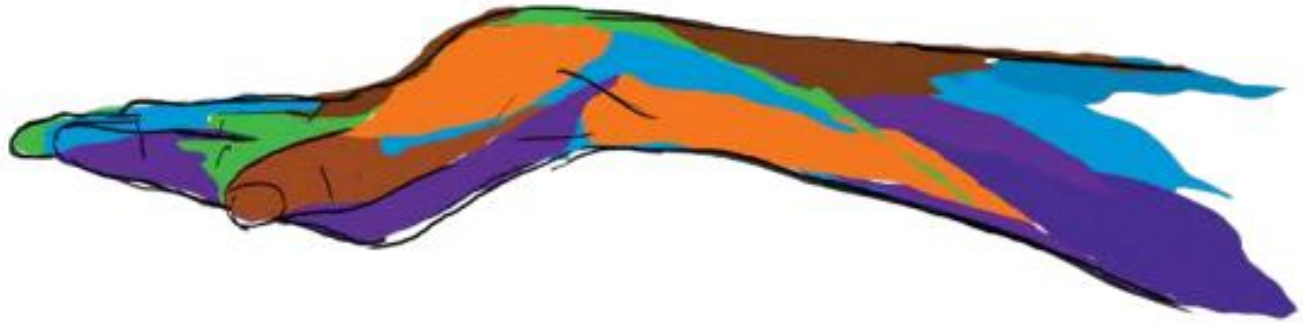
Growth
with
Goodness



Impact of Geo Political crisis in Middle east on Gas Supplies - Amar Ispat Udyog

3 messages

Gagandeep Singh Mohan <gagandeep.s@think-gas.com> Tue, 3 Mar 2026 at 5:28 pm
To: info.amarispatudyog@gmail.com <info.amarispatudyog@gmail.com>
Cc: Vineet Kumar <Vineet.Kumar@think-gas.com>, Rajesh K <Rajesh.K@think-gas.com>

Dear Valued Customer,

You would be aware of the ongoing geo-political crisis in Iran and the wider Gulf region. The rapidly escalating situation has affected LNG supplies from the Middle East, especially LNG volumes transported through the Strait of Hormuz, resulting in reduction of about 20% of the global LNG supplies and about 50% of India's LNG imports. We are in receipt of supply curtailment notices from our upstream RLNG/LNG suppliers which will result in restricted supplies of natural gas for the time being.

Though THINK Gas is trying to manage the situation with its gas portfolio, we might be faced with a situation where we may be constrained to restrict supplies to end consumers if supplies are further reduced.

We are closely monitoring the situation and making efforts to arrange alternate supplies, which might be at higher prices based on the prevailing supply-demand scenario. We will keep you posted on further developments.

While we will be exploring all available options to ensure supplies are not affected, as a matter of abundant caution, we encourage our customers having dual fuel facilities to explore sourcing alternate fuels to meet any contingencies.

We request our valued customers to extend their cooperation during these challenging times until the situation stabilizes.

Regards,
Gagandeep Singh Mohan
Manager - Marketing & Business Development
[M]: +91 86998-08783 | [O]: 0161-5277000

THINK Gas Ludhiana Pvt. Ltd.
3rd Floor, Near Gate No. 2, Dhanraj Complex, Punjab Agriculture University,
Ferozepur Road , Ludhiana, Punjab – 141001 | https://think-gas.com/ <https://think-gas.com/>

Gagandeep Singh Mohan <gagandeep.s@think-gas.com> Fri, 6 Mar 2026 at 9:53 pm
To: info.amarispatudyog@gmail.com <info.amarispatudyog@gmail.com>
Cc: Vineet Kumar <Vineet.Kumar@think-gas.com>, Rajesh K <Rajesh.K@think-gas.com>

Dear Valued Customer,

In continuation to our email dated 03rd March, 2026 regarding ongoing geo-political crisis in Iran and the wider Gulf region, we would like to update that our Upstream Suppliers have invoked Force Majeure under our gas supply contracts.

We are trying our best to manage supplies to our customers from our portfolio. However, owing to curtailment in upstream supplies, we are compelled to regulate supply to our downstream customers at 100% of Daily Contracted Quantity (DCQ) without any upward flexibility effective from 06:00 Hrs on 7th March 2026.

You are requested to strictly adhere to the revised supply regulation and any overdrawl beyond 100% DCQ from 7th March 2026 shall be invoiced at 200% of the applicable contract price during the supply period until any further notice.

We are continuously working with our upstream suppliers and alternate sources to normalize the supplies at the earliest opportunity. Hence, we request our valued customers to cooperate with THINK Gas in these difficult times till the situation normalize.

[Quoted text hidden]

[Quoted text hidden]

Gagandeep Singh Mohan <gagandeep.s@think-gas.com> Wed, 11 Mar 2026 at 11:01 am
To: info.amarispatudyog@gmail.com <info.amarispatudyog@gmail.com>
Cc: Vineet Kumar <Vineet.Kumar@think-gas.com>, Rajesh K <Rajesh.K@think-gas.com>

Dear Valued Customer,

This is in continuation to our earlier communications regarding the geo-political situation in the Middle East and the resultant curtailment in gas supplies to India. Despite the challenges till now we have managed to maintain gas supplies to all our customers at 100% for the past week.

However, Government of India vide Order No: CG-DL-E-10032026-270784 dated 09-03-2026 has invoked provisions of the Essential Commodities Act, 1955 to order curtailment of gas supplies to industrial customers of CGD entities such as TG/AGP from 6 am on 11-03-2026. Accordingly, we are constrained to restrict supplies to your unit to 80% of average consumption for the past six months, which in your case is 31.92 MMBtu/Day.

We request you to cooperate with us by restricting your offtake as per the above-mentioned levels so that we can serve all customers uniformly. Since our upstream supplies are restricted, we are not in a position to provide supplies beyond 80% levels as mentioned above. Any overdrawl above mentioned restricted levels shall be charged at the rate of $34.29 per MMBtu (exclusive of Tax). Considering that we are constrained to send this communication at a very late hour, the overdrawl charges will be applicable from 12-03-2026 so that you can adjust your production plan or make alternate arrangements.

We are actively engaging with Government agencies to try and get the restrictions diluted at the earliest. But till such time we request customers to kindly appreciate the hardships being faced by the Government agencies and gas suppliers in maintaining a reasonable level of supplies in such challenging circumstances and cooperate with us.

Assuring you of our commitment to always providing best services.

Regards,
Gagandeep Singh Mohan
Manager - Marketing & Business Development
[M]: +91 86998-08783 | [O]: 0161-5277000

THINK Gas Ludhiana Pvt. Ltd.
3rd Floor, Near Gate No. 2, Dhanraj Complex, Punjab Agriculture University,
Ferozepur Road, Ludhiana, Punjab – 141001
https://think-gas.com/

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901 KB

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ADVOCATE

ALL INDIA STEEL REROLLERS ASSOCIATION

(Registered Under the Societies Registration Act. 1860)

Regional Office (North)
G. T. Road, Near Bhodey Kanda,
Bhadla Road, MANDI GOBINDGARH-147301 (Pb.)
M. : 098556-58060, E-mail : aisramgg@gmail.com

AISRA/MGG/2026-27/012 09 May, 2026

To,

Mr Ashisht Mittal
GM (commercial & Marketing)
4th Floor, 08 Block, Near Sola Bridge,
S.G. Highway, Thaltej, Ahmedabad,
Gujarat 380054, IndiaSubject:

Sub: Urgent Clarification Regarding PNG Shortage -reg

Respected Sir,

1. Kindly refer to our email dated 14.03.2026 and reminder email dated 21.03.2026 (copies attached). Despite repeated requests, no response has yet been received by the Association.

2. The clarification regarding the short supply of PNG is urgently required for the smooth functioning of PNG-based industrial units. The member industries are already suffering due to the reduced gas supply which, because of the daily consumption formula being applied, is practically causing an operational impact of nearly 30–40% on a daily basis. Such reduced supply is insufficient for our member units to complete their production activities efficiently.

3. Under these circumstances, it is requested that the following may kindly be clarified urgently:-

a) How long is the present shortfall in PNG supply expected to continue?

b) Whether your department is planning to release new PNG connections despite the shortage being faced by the existing industrial units.

c) In such a situation, clarification is also required as to how IRM proposes to manage the supply for new connections while existing units are already facing shortages.

Contd.....2/-

Head Office :
Sagar Apartments, 6, Tilak Marg, New Delhi-110001
Telephones : 65363874, 23389957, Fax : 011-23383142
E-mail : aisra2003@yahoo.com, aisra2003@gmail.com

Regional Office (East) :
Chatterjee International Centre,
12-A (4th Floor), 33-A, J.N. Road, Kolkatta-700071,
Phone : 033-22881885

4. As already communicated in our earlier correspondence, the presently connected industrial units are facing serious operational difficulties due to inadequate gas supply. In these circumstances, the basis and justification for granting new PNG connections during the ongoing shortage period also require clarification.

5. It is further requested to clarify the proposed supply criteria for the new connections. Specifically, whether the new consumers will also receive gas supply on a proportionate shortfall basis like the existing units, or whether they will be provided uninterrupted / 100% supply. In case the new connections are granted better supply conditions while the existing PNG consumers continue to face shortages, the same would be against the spirit of fairness and the understanding under which the existing PNG users have been operating in the region. Therefore, a clear clarification in this regard is requested.

6. An expeditious reply on the above subject is requested please. In case no response is received, it shall be deemed that there is no clarification or statement from your good office on the issues raised herein.

With Best Regards,

(Vinod Vashisht)
National President
M : 7837100415

TRUE COPY
ADVOCATE

IRM ENERGY LIMITED
SEPARATE BALANCE SHEET AS AT MARCH 31, 2022

(Unless otherwise stated, all amounts are in Million Indian Rupees)

Particulars	Note No.	As at March 31, 2022	As at March 31, 2021
ASSETS			
Non-current assets			
(a) Property, plant and equipment	3.1	2,848.19	2,307.99
(b) Capital work-in-progress	3.2	522.84	197.02
(c) Intangibles assets	3.3	26.54	26.48
(d) Right to Use Assets	3.4	129.43	71.47
(e) Intangibles under Development	3.5	1.93	1.93
(f) Financial assets			
(i) Investments	4A	114.82	64.01
(ii) Loans	5A	77.42	-
(iii) Other financial assets	5B	181.75	42.23
(g) Other non-current assets	6	88.31	95.19
(h) Current Tax Asset (Net)		-	-
		3,991.23	2,806.32
Current assets			
(a) Inventories	7	17.16	8.05
(b) Financial assets		-	-
(i) Investments	4B	102.78	13.76
(ii) Trade receivables	8	227.12	111.86
(iii) Cash and cash equivalents	9A	591.49	257.52
(iv) Bank balances other than (iii) above	9B	405.56	156.74
(v) Loans		-	-
(vi) Other financial assets	10	26.50	6.09
(c) Other current assets	11	44.17	23.40
		1,414.78	577.42
Total Assets		5,406.01	3,383.74
EQUITY AND LIABILITIES			
Equity			
(a) Equity share capital	12	293.70	289.99
(b) Other equity	13	2,001.47	888.69
Total equity		2,295.17	1,178.68
Liabilities			
Non-current liabilities			
(a) Financial Liabilities	14A	1,867.60	1,581.82
(i) Borrowings		-	-
(ii) Trade payables	16	303.45	193.09
(iii) Other financial liabilities	17A	9.35	7.00
(b) Provisions	19	147.12	93.58
(c) Deferred tax liabilities (Net)		2,327.52	1,875.49
Current liabilities			
(a) Financial Liabilities	14B	158.32	51.69
(i) Borrowings	15		
(ii) Trade payables		2.43	11.21
- total outstanding dues of micro enterprises and small enterprises		248.50	89.39
- total outstanding dues of creditors other than micro enterprises and small enterprises	16	228.00	147.45
(iii) Other financial liabilities	17B	0.41	0.11
(b) Provisions	18	61.41	29.72
(c) Other current liabilities		84.25	-
(d) Current tax liabilities (Net)		783.32	329.57
Total Equity and Liabilities		5,406.01	3,383.74

See accompanying notes to the financial statements

As per our report of even date
For Mukesh M Shah & Co.
Chartered Accountants
Firm Registration No: 106625W

MUKESH M. SHAH & CO. CHARTERED ACCOUNTANTS 7, Hariraga Chambers, Nehru Nagar, Ambawadi Ahmedabad-15

Harsh Kejriwal
Partner
Membership Number : 128670
Ahmedabad, Dated : 19th May, 2022

For and on behalf of the Board

M. Sahu
Chairman

Karan Kaushal
CEO

Vinod Jain
Director

Harshal Anjaria
CFO

Shikha Jain
Company Secretary

Ahmedabad, Dated : 19th May, 2022

IRM ENERGY LIMITED

SEPARATE PROFIT AND LOSS STATEMENT FOR THE PERIOD ENDED MARCH 31, 2022

(Unless otherwise stated, all amounts are in Million Indian Rupees)

Particulars	Note No.	For the year ending March 31, 2022	For the year ending March 31, 2021
REVENUE :			
Revenue from Operations	20	5,461.42	2,118.09
Other Non-operating Income	21	30.50	7.33
		5,491.92	**2,125.42**
EXPENSES :			
Purchases of stock-in-trade of natural gas	22	2,492.27	770.86
Changes in Inventories of Finished goods, Work-in-progress and Stock-in-Trade	23	(9.96)	(0.20)
Excise Duty on Sale of Compressed Natural Gas		389.98	222.44
Employee Benefits Expense	24	71.58	41.11
Finance Costs	25	220.77	158.55
Depreciation and Amortisation expense	26	150.37	120.00
Other Expenses	27	653.27	351.79
		3,968.28	**1,664.55**
Profit before Tax		1,523.64	460.87
Tax Expense			
- Corporate Tax	28	334.50	89.89
- Deferred Tax	28	53.54	19.72
		1,135.60	**351.26**
Profit for the year			
Other Comprehensive Income			
i. Items that will not be reclassified to profit or loss			
a. Remeasurements of the defined benefit asset		(0.15)	0.18
b. Income tax related to this items			-
		(0.15)	**0.18**
		1,135.75	**351.08**
Total comprehensive income			
Earnings Per Share (Face Value of Rs. 10 each)	34		
Basic		38.92	12.47
Diluted		38.92	12.47

See accompanying notes to the financial statements

As per our report of even date
For Mukesh M Shah & Co.
Chartered Accountants
Firm Registration No: 106625W

MUKESH M. SHAH & CO. * CHARTERED ACCOUNTANTS * 7, Heritage Chambers, Nehru Nagar, Ambawadi Ahmedabad-15

Harsh Kejriwal
Partner
Membership Number : 128670
Ahmedabad, Dated : 19th May, 2022

For and on behalf of the Board

M. Sahu
Chairman

Karan Kaushal
CEO

Vinod Jain
Director

Harshal Anjaria
CFO

Shikha Jain
Company Secretary

Ahmedabad, Dated : 19th May, 2022

CASH FLOW STATEMENT AS AT MARCH 31, 2022

(Unless otherwise stated, all amounts are in Million Indian Rupees)

Particulars		For the period ending	
		Mar- 2022	Mar- 2021
A. Cash flow from operating activities			
Net profit before tax and extraordinary items		1,523.64	460.70
Adjustment for:			
Interest Income		(29.29)	(7.03)
Interest and Finance Charges		220.77	158.55
Provision for Income		(11.83)	(1.83)
Depreciation and Amortisation expense		150.37	120.00
Operating profit before working capital changes		**1,853.66**	**730.39**
(Increase)/Decrease in Other Assets		(413.78)	(292.01)
(Increase)/Decrease in Inventories		(9.11)	(1.10)
(Increase)/Decrease in Trade Receivable		(115.26)	(63.06)
Increase/(Decrease) in Trade Payables		150.33	28.50
Increase/(Decrease) in Financial Liabilities		130.08	63.28
Increase/(Decrease) in Other Liabilities		2.61	124.25
Cash generated from operation		**1,598.53**	**590.26**
Direct taxes paid (incl TDS)		(218.37)	(91.47)
Cash flow before extraordinary items		1,380.16	498.79
Net cash from operating activities	(a)	**1,380.16**	**498.79**
B. Cash flow from investing activities			
Interest Income		28.75	6.46
Investment		(139.84)	(76.27)
Inter Company Loan		(77.42)	-
Purchase of Fixed Assets (incl. capital work in progress)		(1,008.68)	(464.39)
Net cash used in investing activities	(b)	**(1,197.18)**	**(534.19)**
C. Cash flow from financing activities			
Proceeds from equity shares issued		15.73	43.55
Proceeds from Banks Borrowings		375.69	172.10
Interest and Finance Cost		(193.54)	(136.67)
Lease cost		(11.90)	(9.33)
Stamp duty on issue of shares		-	(1.13)
Dividend		(35.00)	-
Proceeds from preference shares issued		-	34.14
Net cash from financing activities	(c)	**150.99**	**102.67**
Net increase / (decrease) in cash and cash equivalents (a+b+c)		333.97	67.27
Cash and cash equivalents — opening balance		257.52	190.25
Cash and cash equivalents — closing balance		591.49	257.52
Reconciliation of cash and cash equivalents with the Balance sheet:			
Cash and cash equivalents at the end of the year comprises			
(a) Balance with banks			
Balance in Current Accounts		591.17	257.27
(b) Cash on hand		0.32	0.25
		591.49	**257.52**

Notes:

(i) The cash Flow statement reflects the cash flows pertaining to continuing operations.

(ii) The cash Flow statement has been prepared under the "Indirect Method" as set out in IND AS - 7 Cash Flow Statement"

(iii) Disclosure of changes in liabilities arising from financing activities, including both changes arising from cash flows and non-cash Changes

MUKESH M. SHAH & CO. 7, Heritage Chambers, Nehru Nagar, Ambawadi Ahmedabad-15 CHARTERED ACCOUNTANTS

Particulars	As at March 31, 2021	Cash Flows	Change in fair value/accruals	As at March 31, 2022
Non Current Borrowings	[illegible]	285.78	-	1,867.60
Current maturity of Non-Current borrowings	51.69	56.64	-	108.33
Current Borrowings	-	49.98	-	49.98
Total	1,633.51	392.40	-	2,025.91

As at March 31, 2021

Particulars	As at March 31, 2020	Cash Flows	Change in fair value/accruals	As at March 31, 2021
Non Current Borrowings	1,449.25	132.57	-	1,581.82
Current maturity of Non-Current borrowings	-	51.69	-	51.69
Current Borrowings	-	-	-	-
Total	1,449.25	184.26	-	1,633.51

See accompanying notes to the financial statements

As per our report of even date

For Mukesh M Shah & Co.
Chartered Accountants
Firm Registration No: 106625W

Harsh Kejriwal
Partner
Membership Number : 128670
Ahmedabad, Dated : 19th May, 2022

MUKESH M. SHAH & CO. CHARTERED ACCOUNTANTS 7, Heritage Chambers, Nehru Nagar, Ambawadi Ahmedabad-15

For and on behalf of the Board

M. Sahu
Chairman

Karan Kaushal
CEO

Vinod Jain
Director

Harshat Anjaria
CFO

Shikha Jain
Company Secretary

Ahmedabad, Dated : 19th May, 2022

IRM ENERGY LIMITED

Statement of changes in equity

(a) Equity Share Capital

(Unless otherwise stated, all amounts are in Million Indian Rupees)

Particulars	No. of Shares	INR
Equity Shares of INR 10/- each, Issued, Subscribed and Fully Paid-up:		
As at April 01, 2020	2,71,25,000	271.25
Add: Issued during the year	18,74,471	18.74
As at March 31, 2021	2,89,99,471	289.99
Add: Issued during the year	3,70,206	3.70
As at March 31, 2022	2,93,69,677	293.70

(b) Other equity

(Unless otherwise stated, all amounts are in Million Indian Rupees)

Particulars	Equity component of compound financial instruments	Reserves and Surplus				Other Comprehensive Income		Total
		General reserve	Securities Premium	Share Application Money	Profit and Loss account	Remeasurement of defined benefit plans	Equity instruments through other comprehensive income	
Balance as at 31 March 2020	173.47	-	18.57	-	284.80	(0.49)	-	476.34
Profit for the year	-	-	-	-	351.26	-	-	351.26
Equity Component of Preference Shares	37.58	-	-	-	-	-	-	37.58
Remeasurements of the defined benefit asset (net of tax)	-	-	-	-	-	(0.18)	-	(0.18)
Share Application Money Received	-	-	-	-	-	-	-	-
Dividend Distribution Tax	-	-	-	-	-	-	-	-
Corporate Dividend	-	-	-	-	-	-	-	-
Stamp duty on issue of shares	-	-	(1.13)	-	-	-	-	(1.13)
Share Premium	-	-	24.81	-	-	-	-	24.81
Balance as at 31 March 2021	211.05	-	42.25	-	636.06	(0.67)	-	888.68
Profit for the year	-	-	-	-	1,135.60	-	-	1,135.60
Equity Component of Preference Shares	-	-	-	-	-	-	-	-
Remeasurements of the defined benefit asset (net of tax)	-	-	-	-	-	0.15	-	0.15
Share Application Money Received	-	-	-	-	-	-	-	-
Dividend Distribution Tax	-	-	-	-	-	-	-	-
Corporate Dividend	-	-	-	-	(35.00)	-	-	(35.00)
Stamp duty on issue of shares	-	-	-	-	-	-	-	-
Share Premium	-	-	12.04	-	-	-	-	12.03
Balance as at 31 March 2022	211.05	-	54.29	-	1,736.66	(0.52)	-	2,001.47

As per our report of even date
For Mukesh M Shah & Co
Chartered Accountants
Firm Registration No: 106625W

Harsh Kejriwal
Partner
Membership Number : 128670
Ahmedabad, Dated : 19th May, 2022

MUKESH M. SHAH & CO. CHARTERED ACCOUNTANTS 7, Heritage Chambers, Nehru Nagar, Ambawadi Ahmedabad-15

For and on behalf of the Board

M. Sahu
Chairman

Karan Kaushal
CEO

Harshal Anjaria
CFO

Vinod Jain
Director

Shikha Jain
Company Secretary

Ahmedabad, Dated : 19th May, 2022

TRUE COPY
ADVOCATE

ALL INDIA STEEL REROLLERS ASSOCIATION

(Registered Under the Societies Registration Act. 1860)

Regional Office (North)
G. T. Road, Near Bhodey Kanda,
Bhadla Road, MANDI GOBINDGARH-147301 (Pb.)
M. : 098556-58060, E-mail : aisramgg@gmail.com
E-mail : aisramgg@rediffmail.com

AISRA/PPCB/2020-2023/026 Dated 21.09.2022

To,

Dr. Adarsh Pal Vig, Chairman PPCB
Vatavaran Bhawan Nabha Road, Patiala-147001

Sub: - **REQUEST TO ACCORD PERMISSION TO USE ALTERNATE FUELS IN LIEW OF PNG TO SAVE THE INDUSTRY-regarding**

Respected Sir,

1. All India Steel Re-Rollers Association (AISRA) and Small Scale Steel Re-rollers Association (SMASRA) are an apex bodies having approx 250 members at Mandi Gobindgarh and Khanna . Equally these associations are promoting Re-Rolling industry with latest technology, rendering all assistance of schemes from concerned departments for improving energy efficiency fields for their sustainability and survive by organizing meetings / seminars for betterment.

2. Now, the present situations with the steel sector at Mandigobindgarh and khanna are very horrible as the industry at this sector is now lying on ventilator and taking last breaths to survive or sustain as to why the industry totally doing unsecure business and working on lowest capacity without margin due to non-control on rising of PNG rates and as on date more than 170 industries of Mandigobindgarh shifted to PNG and due to nonstop hiking in rates all industrialists facing hardness and decided to close their units because they are unable to compete with the coal using industry within state and nearby states. The production cost is increased three times (i.e. start rate of PNG was 18/-per scm and as on date it is 60/-per scm) . As all these problems discussed so many times in the proceeded meeting also.

Head Office :
Sagar Apartments, 6, Tilak Marg, New Delhi-110001
Telephones : 65363874, 23389957, Fax : 011-23383142
E-mail : aisra2003@yahoo.com, aisra2003@gmail.com
Website : www.allindiasteelra.com

Regional Office (East) :
Chatterjee International Centre,
12-A (4th Floor), 33-A, J.N. Road,
Kolkatta-700071,
Phone : 033-22881885

3. In view of the above it is humbly submitted to please accord permission to allow the industry to use alternate fuels in kind of **ALL KIND OF LIQUOD OIL , GASES AND GASIFIER** to save the industry from closure process and monopoly of City Gas Suppliers.

4. An expeditious action on the subject matter is requested please.

With Best Regards,

(Vinod Vashisht)
National President
(M) : 7837100415

Copy to :-

Sh. Krunesh Garg, Member Secy, PPCB
msppcb@gmail.com

Smt Anuradha Sharma, EE PPCB,

TRUE COPY
ADVOCATE

ALL INDIA STEEL REROLLERS ASSOCIATION

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Regional Office (North)
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Bhadla Road, MANDI GOBINDGARH-147301 (Pb.)
M. : 098556-58060, E-mail : aisramgg@gmail.com
E-mail : aisramgg@rediffmail.com

AISRA/MGG/2024-25/013 DT : 03.07.2024

To,

Sh. Anurag Verma, IAS,
Chief Secretary Government of Punjab

Sub : **REQUEST TO SAVE STEEL CLUSTER MANDIGOBINDGARH/KHANNA**

Resp. Sir,

As you very much aware that last year when the rates of PNG were so increased and was out of reach/ non viability of the industry. In the meantime association submits this serious issue with state and an extension for one year was granted as relief. We are so sincere to shift on PNG for which our units had already invested big expenditures for modification their furnaces for utilization of PNG. Due to some major issues which are still pending is the reason as to why industry not been shifted is as follows :-

- **PROVISIONS FOR TECHNICAL EXPERT COMMITTEE IN NEW STATE GOVT FUEL POLICY**
- **MONOPOLY AND NON TRANSPARENCY IN PRICES OF GAS BY THE SUPPLIER COMPANIES.**
- **MISLEADING FACTS FLLED BY MR. DIMPLE KUMAR AND ASSOCIATION CHALLENGED.**

Contd.....2/-

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12-A (4th Floor), 33-A, J.N. Road,
Kolkatta-700071,
Phone : 033-22881885

Meeting to review the natural gas prices applicable for customers of Mandi Gobindgarh and Khanna held with Ministry of Petroleum and Natural Gas on 03.07.2024

On all issues related with gas prices , area wise distribution of suppliers and similarity / transparency is held with ministry of petroleum and natural gas and we hope positive output may come very soon and next meeting may held in the last week of July, 2024 after negotiations with the gas companies about advance agreement with fixed rates. Association submitted the following suggestions in the ministry meeting by saying that before making mandatory the use of PNG where pipe lines have been laid as follows:-

(a) There must be a regulatory to control the commercial prices.

(b) The difference of prices district/area should be almost at par like other petroleum products.

(c) Commercial carriers should be partially converted to common carriers to control their monopoly and mechanism to compensate them on that account should be developed.

(d) Provision for long term contract should be encouraged (should be the compulsory part) So that companies and consumers should both be benefited.

(e) Now if a consumer uses more than 50000 kg daily he can contract with any co. In the area.

If any group (5 or 6 persons) contacts for more than 50000 kg daily he should also be entitled for the same benefit, no doubt the first preference should be of the allotted distributor but if he does not match the rates contact may be done with anyone.

(f) The PNG should be brought under GST instead of vat to eliminate the huge difference of vat exist in difference states from 3.5% to 18%.

Three example of monopolistic nature of distributor district wise After imposing mandatory PNG in the month of May 2021 in mandi gobindgarh cluster, in which 167 units industries who were using coal were shifted to PNG gladly because the rates were so feasible and it was approx @Rs.21/per scm. But supplier companies immediately started increasing rates speedy and it reaches to approx Rs 58/-per scm **within 14 months from the date of start. Increased rated broken the back bone of the shifted industry because production cost was very high rather than coal users and in result 30 to 40 industries closed their shutters.**

(g) At present, the Carbon Credit System is going on a global level and is very complicated for the MSME to take the benefit of that.

Our suggestion is that there should be a Carbon Credit System implemented under the guidelines of the center to develop mechanisms for the state-wise carbon credit system in their own states. This will help in providing equal playfield for all the industries who are using cleaner fuel like PNG and who are not using the same.

(h) Guidelines of the agreement of supplier Gas companies with the industry (consumer) to make it friendly for both. Now the agreement is one sided in favor of the supplier, in case you asked for some amendment to the agreement, while taking the supply for them, they don't agree to that, even though that is not against the interests of their supplier.

(i) A Committee or PRO may be appointed in the GAIL to advise the consumer if they want to go for their supply as a group one supplier where the common carrier has been declared or is going to be declared

APEAL.

In view of the above , it is submitted that whole industry of Mandigobindgarh and khanna is derisions to switch on with clean fuel but without monopoly in rates. Association having meetings with the Ministry of Petroleum and Natural Gas, we hope positive results may come soon, also we are party in the Mr dimple Kumar case in NGT and also preparing to file petition in the Supreme Court.

Sir, it is our humble request that till the above process is completed, it may take 4 to 5 months more, it is requested that the notices recently issued by PPCB with financial harsh (Penalties and bank guarantees) to industry may please be deferred to save the industry.

With Best Regards,

(Vinod Vashisht)
National President
M : 78371-00415

TRUE COPY
ADVOCATE

Fwd: Think Gas PNG Price revision w.e.f March 16th, 2026 - Amar Ispat Udyog

1 message

AMAR ISPAT UDYOG <info.amarispatudyog@gmail.com> Mon, 11 May, 2026 at 13:29
To: jagmohan.data@icai.org <jagmohan.data@icai.org>

---------- Forwarded message ---------
From: **Gagandeep Singh Mohan** <gagandeep.s@think-gas.com>
Date: Sun, Mar 29, 2026 at 1:58 AM
Subject: Think Gas PNG Price revision w.e.f March 16th, 2026 - Amar Ispat Udyog
To: info.amarispatudyog@gmail.com <info.amarispatudyog@gmail.com>, AMAR ISPAT UDYOG <amarispatudyog555@gmail.com>
Cc: Vineet Kumar <Vineet.Kumar@think-gas.com>, Rajesh K <Rajesh.K@think-gas.com>

Dear Sir/Madam,

We request your continued attention to provisions mentioned in our previous communications informing you about our "Notice of Force Majeure Event under your Gas Sale Agreement" and the restriction of gas supplies to your unit to 80% of Average consumption for the past six months aligned with the Natural Gas (Supply Regulation) Order, 2026 issued vide Gazette Notification S.O. 1232(E) dated 9th March, 2026.

Till such restriction of gas supplies is applicable, you are requested to actively monitor your gas offtake against such provisions. Any gas quantity that you consume in excess of restricted level (i.e. 80% of average consumption for the past six months) shall continue to be invoiced at the Overdrawl Price till further notice.

The prevailing Overdrawl Price effective from 16 March 2026 is mentioned below:

Particulars	Unit	Value
Basic Overdrawl Price	US$/MMBTU	22.72
State VAT %	%	3.30%
State VAT value	US$/MMBTU	0.75
Overdrawl Price (inclusive of VAT)	US$/MMBTU	**23.47**

Note: Any revision in Overdrawl Price shall be notified from time to time

We are actively monitoring the geopolitical situation as well as the directions issued by the Government of India. We shall keep you duly informed of any material change in the supply situation or any revision to the Government Order that may affect the Natural Gas supply to your facility.

Regards,

Gagandeep Singh Mohan

Manager - Marketing & Business Development

[M]: +91 86998-08783 | [O]: 0161-5277000

THINK Gas Ludhiana Pvt. Ltd.

3rd Floor, Near Gate No. 2, Dhanraj Complex, Punjab Agriculture University,

Ferozepur Road , Ludhiana, Punjab – 141001 | https://think-gas.com/

THINK GAS

Stepping Ahead Together AG&P Pratham I THINK GAS

PSL-16MAR26-Amar Ispat Udyog.pdf
646 KB

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ADVOCATE

ANNEXURE -R3/16

Source Apportionment study of PM in

Khanna

Prepared By

Prof. Mukhesh Khare

Prof. Arvind Nema

Dr. Sri Harsha Kota

(Department of Civil Engineering

Indian Institute of Technology Delhi)

Sponsoring Organization

Punjab Pollution Control Board

Disclaimer

All the input data required to develop emission inventory for the city was provided by the Punjab Pollution Control Board, and IIT Delhi's team is not responsible for the quality of input activity data used in this study.

Acknowledgement

This report is a part of the project titled “Action Plan to Mitigate Particulate Matter in seven non-attainment cities of Punjab using Emission Inventory and Source Apportionment”. This project was sponsored by the Punjab Pollution Control Board to Indian Institute of Technology Delhi.

We are grateful to Prof. Adarsh Pal Vig (Chairman, PPCB), Prof. Satwinder Singh Marwaha (Ex-Chairman, PPCB), Er. G.S. Majithia (Member Secretary, PPCB) and Er. Krunesh Garg (Chief Environmental Engineer, PPCB Jalandhar) for promptly addressing all the queries and heading to all the concerns and requests.

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Executive Summary

This study addresses the pressing issue of air pollution, which significantly affects public health, ecosystems, and the economy. Commissioned by the Punjab Pollution Control Board (PPCB) and conducted by the Urban & Regional Air Quality Management Group at IIT Delhi, the study focuses on identifying the primary sources of particulate matter (PM_{10} and $PM_{2.5}$) in Khanna and proposing actionable measures to mitigate their impact. Rapid urbanization and industrialization in Khanna, coupled with its proximity to the industrial hub Mandi Gobindgarh. The increased use of fossil fuels and industrial activities have further exacerbated air pollution, necessitating a detailed scientific study to understand the sources of pollution, their contributions, and to formulate effective policies for air quality improvement.

The primary objective of the study is to estimate the contribution of various sources, such as vehicular emissions, domestic activities, and road dust, to the air quality in Khanna. This involves analyzing diurnal and seasonal trends of particulate matter, preparing an exhaustive emission inventory of pollutants within the municipal boundary, performing source apportionment of PM using emission inventory and dispersion modeling, identifying pollution hotspots, and providing city-specific and hotspot-specific action plans. A bottom-up approach was adopted to develop an emission inventory for PM_{10} and $PM_{2.5}$, with a resolution of 300m x 300m. Data collection involved comprehensive surveys conducted by PPCB, covering domestic emissions, food joints, crematoria, brick kilns, DG sets, construction activities, industrial emissions, vehicular emissions, and road dust. Dispersion modeling using AERMOD was employed to understand the dispersion and concentration of pollutants across different parts of the city.

The source apportionment analysis revealed that the major sources of PM2.5 in Khanna were vehicular emissions (40%), road dust (35%), and industrial emissions (12%). For PM_{10}, road dust was the predominant source (60%), followed by vehicular emissions (17%) and industrial activities (12%). Industrial emissions from various industries, including steel mills and rice shellers, were substantial contributors to air pollution. Vehicular emissions, particularly from heavy-duty vehicles, were identified as a significant source of PM levels, while road dust, due to heavy traffic and poorly maintained roads, emerged as a major contributor to PM10. Other sources such as domestic activities, crematoria, and construction contributed less significantly but were still notable. The study identified pollution hotspots in areas with heavy traffic, industrial activities, and proposed an action plan to mitigate air pollution in these areas. Key recommendations include traffic management measures such as introducing CNG-based buses, restricting older vehicles, and improving public transport. Regular road maintenance, including cleaning, repairing potholes, and paving roads, was

recommended to reduce dust. Promotion of clean energy sources, such as LPG and electric crematoria, along with green energy alternatives, was emphasized. Industrial regulation was suggested to ensure compliance with emission norms and adoption of cleaner technologies. Additionally, public awareness campaigns were recommended to educate the public about pollution and its health impacts.

The study acknowledges several limitations, including the accuracy and representativeness of survey data, seasonal variations in emissions, and the exclusion of non-municipal sources. Despite these limitations, the study provides a comprehensive overview of the pollution sources and offers actionable recommendations for improving air quality in Khanna. The findings and recommendations from this study are crucial for policymakers and engineers in developing effective control strategies for reducing air pollution in Khanna and other similar cities in India. Aligning with the National Ambient Air Quality Standards (NAAQS) established by the Central Pollution Control Board (CPCB), the study offers insights into the contributions of different source types responsible for emitting specific pollutants. It also serves as a valuable reference for creating emission inventories for other cities facing similar challenges.

In conclusion, the "Source Apportionment Study of the City Khanna" provides critical insights into the city's air pollution sources and offers a roadmap for mitigating their impact. By implementing the recommended actions, significant improvements in air quality can be achieved, benefiting public health and the environment. The study highlights the need for continuous monitoring, data collection, and updating of emission inventories to effectively manage and control air pollution. It underscores the importance of a collaborative approach involving government agencies, industries, and the public to address the complex issue of air pollution and to ensure a cleaner, healthier environment for the residents of Khanna.

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1. INTRODUCTION

Urban air quality issues have emerged as a major concern impacting quality of life. Air pollution not only have adverse effect on health, but it also causes great harm to ecosystem and economy. Rural to urban migration, growth in mobility, stubble burning, increase in power and industrial production are some of the common factors that have led to deterioration of air quality in urban centres. Detailed scientific studies are required for identification of major sources of air pollution and their contribution to the ambient air quality of a region, so that proper policies can be formulated and implemented.

The complexities of sources and their impact on receptors are interlinked with source, strength, meteorology, elevation of release, atmospheric transformations etc. Strategies for sector specific pollutants need to be drawn from scientific evidence which are concrete and clear. These facts can be derived from the use of multitude of techniques such as emission inventory (EI), dispersion modelling and receptor modelling. In present study emission inventory approach is adapted to identify air pollution sources and their respective contribution.

Emission Inventory is a structured collection of information about emissions of pollutants in a specified area. EI permits allocation of emitted pollutants to the originating sources. A quality EI 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, EI is used for air quality modeling for developing air pollution control strategies for attaining air quality standards and environmental clearance.

Policymakers and researchers face challenges in forming effective air quality management strategies in absence structured EI. An EI is a fundamental knowledge for understanding local and regional air pollution, its transport, and impacts. Emission inventories with highly resolved temporal and spatial information are urgently needed to combat the increasing urban and regional air pollutions.

1.1 Need for Study

Rapid urbanization and industrialization have resulted in increased load on the environment. The ever-increasing demand of production has led to increased use of fossil fuels and their derivatives. The anthropogenic emissions result in altering the atmospheric conditions which in turn impact the local weather and climate. The effect of air pollution is not only limited to its source of generation

but also effects the composition, chemistry, and life cycles in downwind regions. The problem of air pollution is more pronounced in developing countries, and they face huge challenge in controlling and finding mitigation measures. Recent WHO report indicated that about 6.7 million people die prematurely every year because of air pollution, while many more suffer from breathing ailments, heart disease, lung infections and even cancer in developing countries. India, being a developing country, is no such exemption. India was the fifth most polluted country in 2019 and accounts for almost two-thirds of the world's most polluted cities (based on $PM_{2.5}$ levels).

Khanna city is one of the top polluted cities of Punjab, India. It is situated along the N.H.1 (Grand Trunk Road) and is adjacent to the steel city Mandi Gobindgarh. These two factors affect the ambient air quality of Khanna. Livelihood of people is mostly dependent on agriculture and industry. The concentration of pollutants depends not only on the amounts which are emitted from contamination sources but also on the capacity of the air to either retain or scatter these pollutants.

Khanna city experiences intricate weather patterns and atmospheric variations throughout the seasons, leading to fluctuations in concentration and temporary spatial and temporal shifts in air pollution. Understanding and quantifying emissions from various sources in Khanna is a crucial step toward enhancing air quality. This research aims to assist policymakers and engineers in developing effective control strategies for reducing air pollution in cities across India that share similar patterns. By aligning with the National Ambient Air Quality Standards (NAAQS) established by the Central Pollution Control Board (CPCB), this study can offer insights into the contributions of different source types responsible for emitting specific pollutants. The significance of this endeavour is in tandem with the broader vision of the Government of Punjab, encapsulated in the **'Mission Tandrust Punjab.'** This ambitious initiative strives to foster a healthier and more sustainable living environment for the people of Punjab, encompassing the realms of air, water, and food quality. Furthermore, it can serve as a valuable reference for creating emission inventories for other cities facing similar challenges.

1.2 Possible Sources of Air Pollution in Khanna

An emission inventory has been prepared for PM_{10} and $PM_{2.5}$ pollutants with a resolution of 300m × 300m. The activity data is collected between November 2019 to December 2022. It is to be noted that the study area is strictly within the municipal (MC) limits. The major sources identified in the study area are -

1. Domestic
2. Construction and Demolition

3. Food Joint
4. Open Eat Out
5. Crematoria
6. DG sets
7. Industry
8. Vehicular emissions
9. Road Dust
10. Brick Kiln

1.2.1. Domestic Emission

Khanna city lies adjacent to Mandi Gobindgarh which is known as the steel city of Punjab. Hence, the effect of industrialization is seen in this as well. As per the data provided by PPCB, a total number of 26522 houses are there in the city that is distributed in 33 wards. About 42.5% houses use LPG as fuel and 57.5% houses are dependent on use of wood and cow dung along with LPG as a fuel for cooking purpose. Domestic emissions per ward were estimated based on fuel consumption from data available for each household and total number of households in that ward. The data for the remaining wards were extrapolated.

1.2.2. Food Joints & Open Eat Outs

Food Joints & Open Eat Outs are neglected sources of emissions during source apportionment study however their contribution to pollutants may be significant. A total number of 252 food joints and 398 open eat outs are present in Khanna city. Majority open eat outs uses LPG as fuel with few depending on kerosene as fuel. In present study the emissions from these sources are estimated based on data provided by PPCB.

1.2.3. Crematoria

The cremation of human bodies with wood (a religious practice) is also a reason for air pollution in the city. As per the data provided by PPCB, there are around 4 crematoriums in the city.

1.2.4. Brick Kilns

A brick kiln is a traditional method of baking bricks in an insulated chamber or clamp, which is like a large oven, by stacking unbaked bricks with fuel under or among them and then setting the fuel on fire. The fuel generally used in brick kilns for baking include wood, sawdust, agricultural residue,

industrial waste, and bye-products like used rubber tyres, pet-coke, etc. Apart from solid fuels, bricks are also fired from natural gas, diesel, bio- gas, producer gas, etc. resulting in harmful emissions impacting the ambient air quality and human health. In present study emissions from brick kilns have been estimated and only those brick kilns are considered as a source in the dispersion which are within the MC limits.

1.2.5. DG sets

Frequent power cuts lead to the use of DG sets for commercial and personal use. The low maintenance and use of lower grade of fuel lead to increase in emission from this source.

1.2.6. Construction and Demolition Activities

Khanna area is a small city having population about 3.1 lakh. As per the data provided by PPCB, there were only four construction sites reported in year 2019 in the city. There were no other major construction projects being carried out in the city. However, small construction activities are being carried out by the individual house holders / industrial units / commercial units and paving of streets by the MC on routine basis.

1.2.7. Industrial Emissions

Khanna being adjacent to Mandi Gobindgarh have industrial pollution as one of the major stationary sources. Khanna industries include Induction Furnaces, Steel Rolling Mills, Cupola/ Foundry Units, Forging Industry, Lead Extraction Unit, Milk Plant /Dairy unit, Rice Shellers and Solvex plants. Emissions from all these industries contribute significantly towards air pollution (Department of Science Technology and Environment, 2019)

1.2.8. Vehicular Emissions

Transport sector is one of the significant contributors to air pollution in Khanna city due to movement of heavy goods vehicles carrying raw materials and products of the industries located around the city. Therefore, heavy movement of light and heavy goods/commercial vehicles carrying raw materials and products can be seen. Other category of vehicles such as 2W, 3W, 4W, Bus and others (tractors, JCBs etc.) are also found to be plying on the roads of Khanna. Khanna is also connected to tourist destination like Amritsar and industrial hubs like Ludhiana and Jalandhar via NH-1 (National Highway) which may increase the contribution of vehicular sector to the air pollution.

1.2.9. Road Dust

Road Dust is expected to be the one of the major contributors to PM in the air quality of Khanna. Being adjacent to Mandi Gobindgarh a heavy movement of the HCVs and LCVs can be seen plying in the city. Therefore, road dust could be a significant contributor to the air pollution. Presence of potholes on the road poorly, partially paved surfaces, movement of overloaded transport vehicles adds up to the problem.

1.3 Scope of Work

The scope of this project for IITD is to use the data provided by PPCB to carry out requisite analysis. Neither validation nor commenting on accuracy of the data provided by PPCB is in the scope of this project. Further, estimating contribution from non-municipal boundary sources to the city and inclusion of atmospheric chemistry in modelling is out of scope of this project.

1.4 Objectives of the study

The main objective of the proposed project is to estimate the contribution of various sources, such as vehicular emissions, domestic, road dust etc. on the air quality of the city and suggest measures to prevent and reduce pollution loads in the city. It is proposed to meet this main objective through the following sub objectives:

i To analyse the diurnal and seasonal trends of Particulate matter.

ii To prepare an exhaustive emission inventory of criteria pollutants from various sources within the municipal boundary of the city.

iii Source apportionment of PM over the region of Khanna city using the emission inventory developed based on the activity data provided by PPCB and dispersion modelling using the USEPA's AERMOD.

iv To identify the hotspots for PM in the city.

v To provide city specific and hotpot specific action plans for Khanna region.

1.5 Dispersion Modeling

Dispersion modeling for atmospheric pollutants is a mathematical simulation to know how the pollutants disperse in ambient air. The models are generally used to estimate the concentration of pollutants emitted from different sources such as industry, vehicles, burning of biomass etc. in downwind regions and can also be used to predict future concentration of these pollutants. These models find great use in policy making with a viewpoint of predicting and managing ambient air quality. These models are generally used to determine whether existing or new industries are in compliance with National Ambient Air Quality Standards (NAAQS). In the present study, modelling will be done for entire Khanna city and hotspots will be identified by running stimulations in AERMOD.

AERMOD extended from is American Meteorological Society (AMS) and the United States Environmental Protection Agency (EPA) Regulatory Model (AERMOD). It is a steady-state plume model which is applicable to rural or urban areas, flat or complex topography, different release heights, various combinations of pollutant sources. It is based on the Gaussian approach of dispersion modelling. The primary input data for the model are emission, geometrical, meteorological and background data. It is very sensitive to the meteorological parameters like temperature, wind characteristics and cloud cover and surface attributes of the model space. AERMOD handles meteorological and terrain data in separate pre-processors known as AERMET and AERMAP respectively.

The growth and structure of the PBL is driven by the fluxes of heat and momentum, which, in turn, depend upon surface effects. The depth of this layer and the dispersion of pollutants within it are influenced on a local scale by surface characteristics such as surface roughness, albedo, and available surface moisture.

AERMET uses wind direction, solar radiation, and other meteorological data as inputs and after processing the meteorological data it creates outputs in form of SFL and PFL file that act as inputs for the AERMOD. AERMAP manages elevation of the terrain and generates contours maps and grids associated with receptors. Using SFL and PFL files along with emissions taken from emission inventory of the study area, simulations have been carried out. The results obtained would help us in developing and understanding how particulate matter is being dispersed over Khanna and what sources are responsible for elevated particulate matter concentration.

2. Air Quality Status

Based on the $PM_{2.5}$ and PM_{10} concentration data provided by PPCB, time series analysis was performed to understand the trend of data. In the present study variation in concentration of $PM_{2.5}$ and PM_{10} particles have been analysed for year 2019. Figures 1 and 2 represent the variation in monthly concentration of $PM_{2.5}$ and PM_{10} using box - whiskers plot. It can be observed from these two figures the concentration of $PM_{2.5}$ and PM_{10} particles were relatively higher during October to December. This is to be noted that these concentrations are a result of complex atmospheric interactions of the emissions in out of the city boundaries and the meteorological conditions prevailing in the study region and the nearby areas This also indicates that stubble burning of rice has more impact on ambient air quality as compared to the burning of wheat stubble and this, can be attributed to higher ash content in the rice stubble as compared to the wheat stubble. Also, the harvesting period of rice is winter season that impacts the emission dispersion due prevailing inversion conditions. The potential for health effects, are pronounced during this season. From the extreme ends of box-whisker plot it can also be noted that there was decrease in concentration value in month of December, but it was not that prominent. Graph also represents that PM_{10} concentration was higher during wheat stubble burning period as well, but no such rise was seen in $PM_{2.5}$ concentration. Month of June also experienced high PM_{10} concentration level.

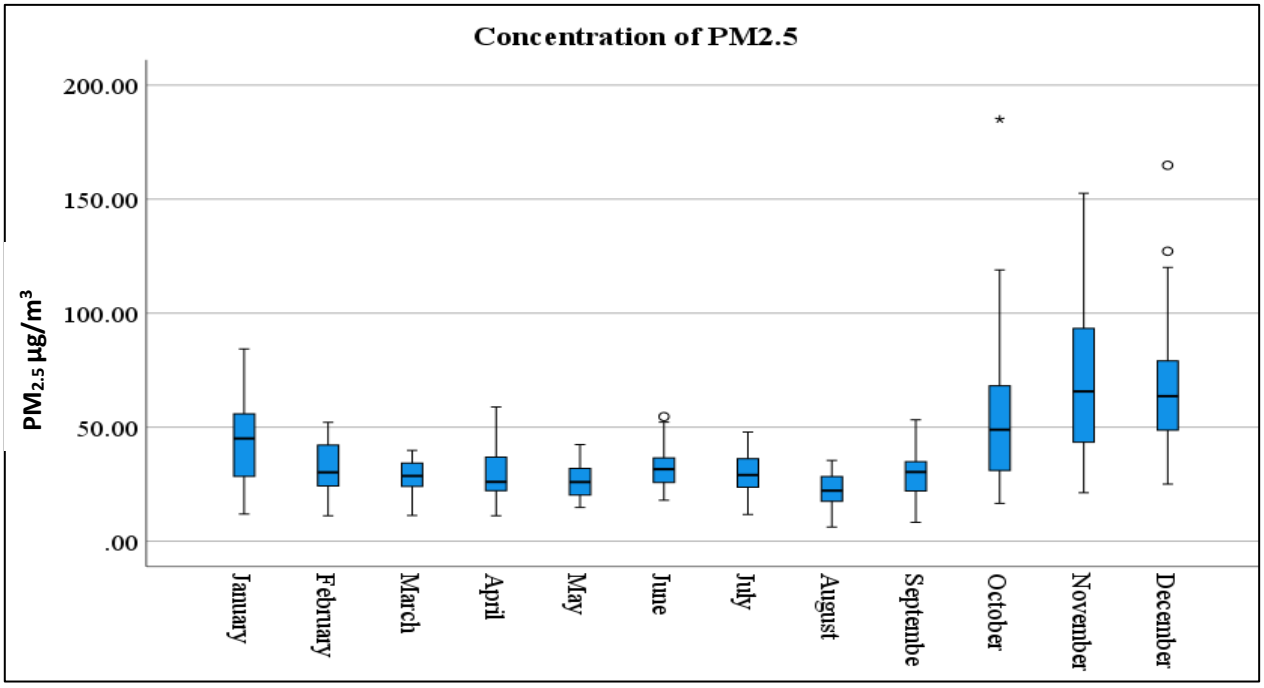


Figure 1 Monthly variation in concentration level of PM2.5 for year 2019

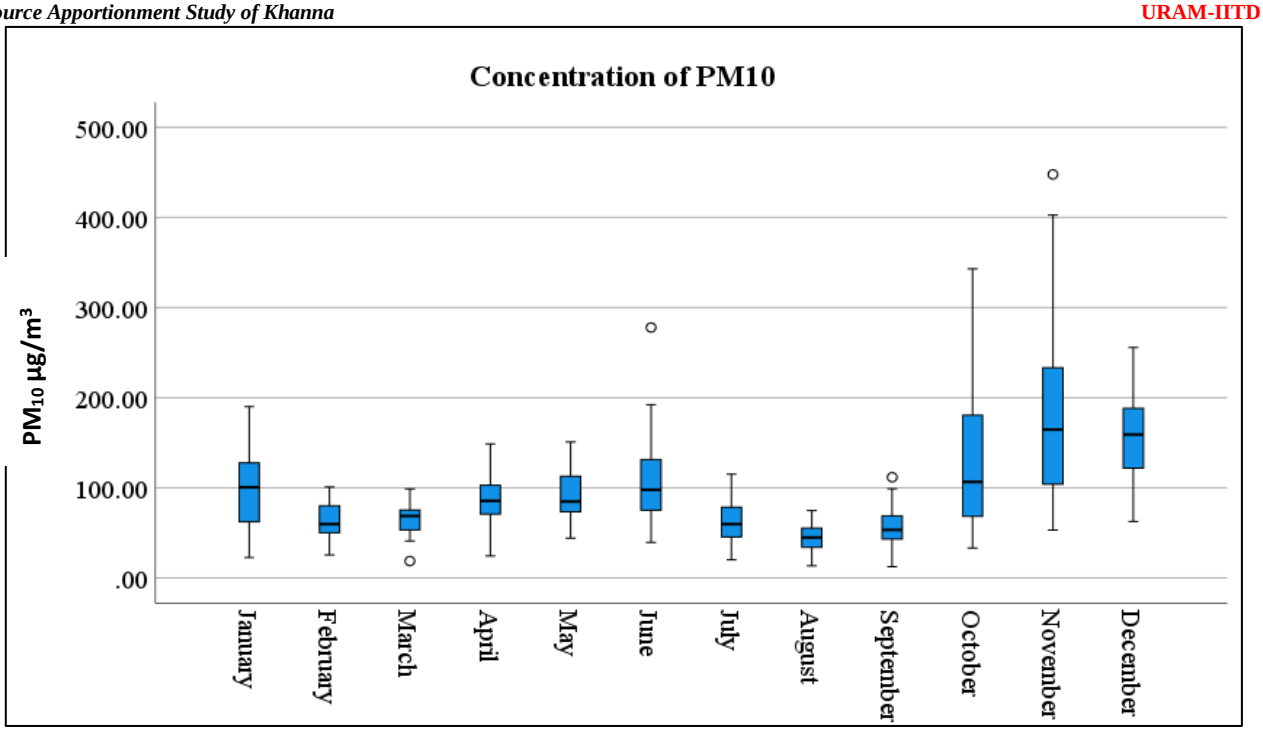


Figure 2 Monthly variation in concentration level of PM_{10} for year 2019

Further, the year is divided into five sets to understand the seasonal pattern. The time series graphs are plotted from 1st January to mid-April (period 1), 15th April to 27th May (period 2), 28th May to 22nd September (period 3), 23rd September to 24th November (period 4) and 25th November to 31st December (period 5) as shown in Figure 3 to 7. It is observed that there is a sudden rise in pollutant level during stubble burning periods.

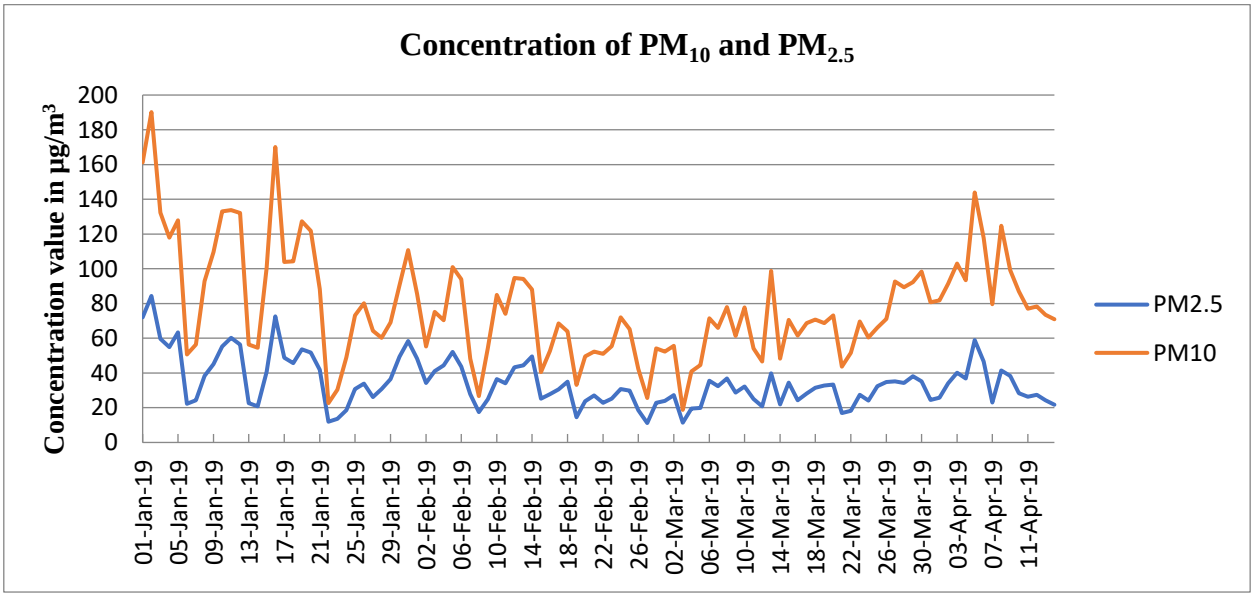


Figure 3 Concentration level of PM10 and PM2.5 particles during period 1

The concentrations of PM_{10} and $PM_{2.5}$ crossed the recommended limits set by National Ambient Air Quality. The highest value reported for $PM_{2.5}$ was 185 µg/m^3 and that for PM_{10} was 448 µg/m^3.

Same trend in the concentration values of PM_{10} and $PM_{2.5}$ can be observed in Figure 3. It can be noted that the average value of $PM_{2.5}$ particle concentration was 34.5 µg/m^3 during period 1, whereas for PM_{10} it was 78.39 µg/m^3. Sudden peaks occurred with a maximum $PM_{2.5}$ value of 84.33 µg/m^3 and PM_{10} value of 190 µg/m^3. Most of the time concentration of $PM_{2.5}$ particle was within the recommended limits, minimum value of 11.17 µg/m^3 but the concentration level of PM_{10} particle was quite high throughout the season.

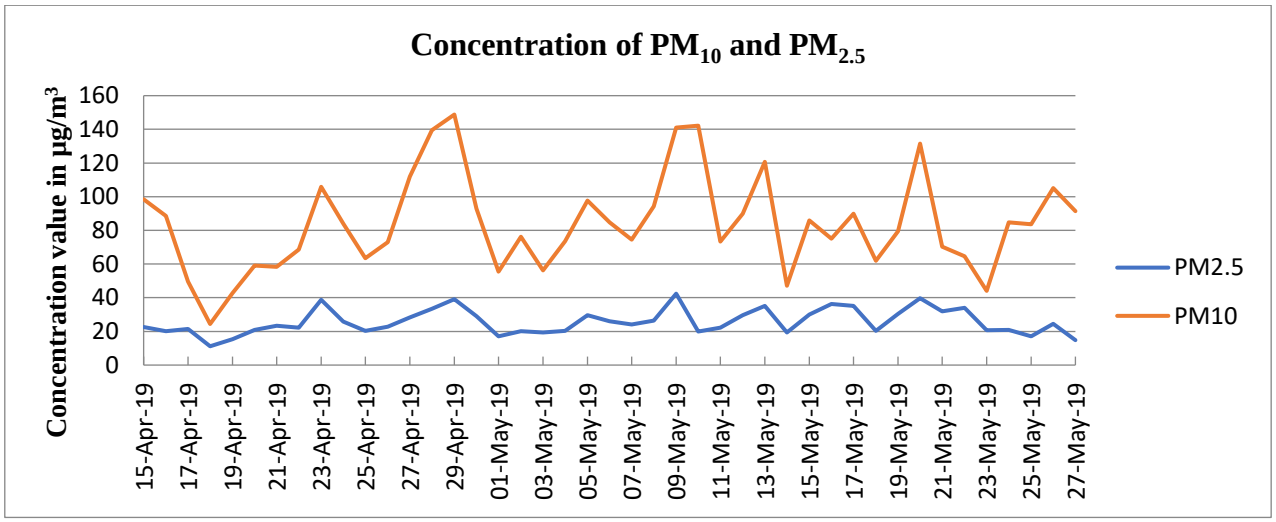


Figure 4 Concentration level of PM_{10} and $PM_{2.5}$ particles during period 2

The mean concentration of $PM_{2.5}$ particles remained to be 25.61 µg/m^3, with maximum and minimum values to be 42.4 µg/m^3 and 11.17 µg/m^3. The mean, maximum and minimum concentration of PM_{10} particle was 84 µg/m^3, 149 µg/m^3 and 24.39 µg/m^3 respectively as shown in Figure 4. The minimum value of the particles was within the recommended limit. Indicating that there is not much effect of wheat stubble burning on ambient atmosphere, all the other sources of emissions remaining constant. This may also be due to better dispersion conditions during this period.

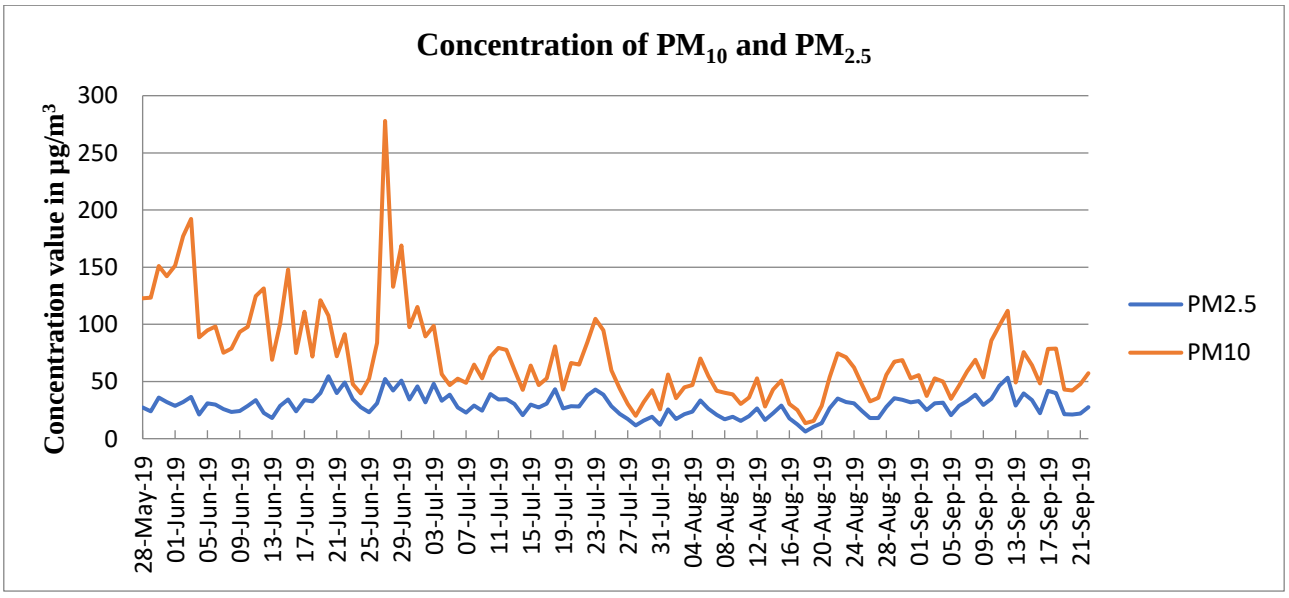


Figure 5 Concentration level of PM_{10} and $PM_{2.5}$ particles during period 3

From figure 5 it can be noted that mean concentrations of $PM_{2.5}$ and PM_{10} remained to be 29.13 µg/m^3 and 72 µg/m^3 respectively, during the period 3. Sudden peaks were observed with the highest value of 54.65 µg/m^3 and 278 µg/m^3 for $PM_{2.5}$ and PM_{10} respectively. Concentration value decreased for both the particles during 27 July to 8th September, one of the reasons for this could be that the July, August and first half of September constitute the South-West monsoon season in Khanna. During this season 51% of time PM_{10} concentration exceeded recommended limits and rest of the time it was within recommended limits with minimum value to be 13.5 µg/m^3. Whereas for $PM_{2.5}$ only 10% of time concentration exceeded recommended limits.

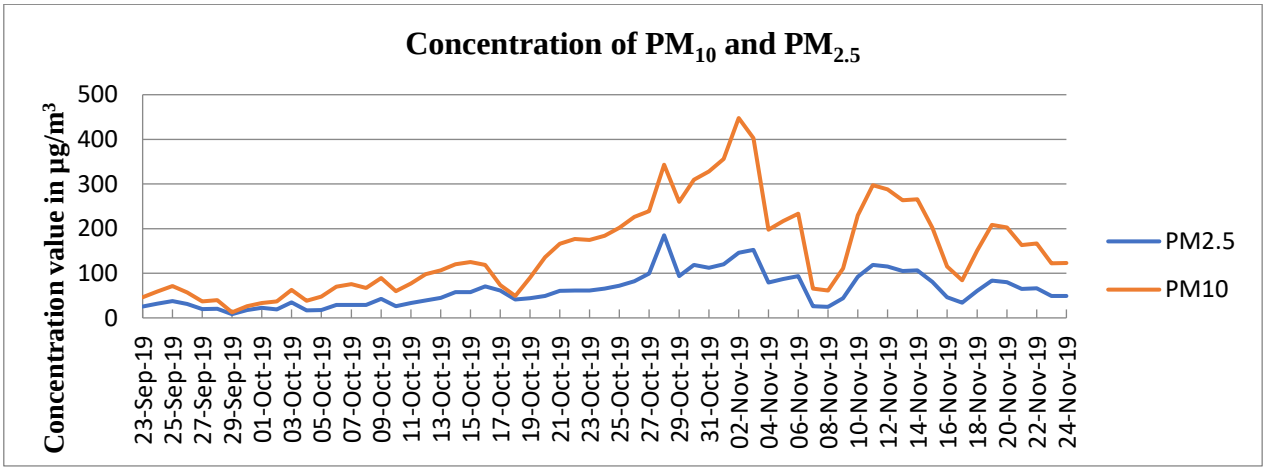


Figure 6 Concentration level of PM10 and PM2.5 particles during period 4

Sudden rise in PM_{10} and $PM_{2.5}$ concentration level can be observed in the figure 6, which clearly indicates the contribution of rice stubble burning to ambient air quality. It can also be noted that concentrations for both PM_{10} and $PM_{2.5}$ in winter season was more compared to all the other seasons with maximum value of 448 µg/m^3 and 185 µg/m^3 respectively. Inversion conditions occurring during winter season which do not let pollutants to disperse can also be the reason for high concentrations.

In inversion condition the cooler air is trapped under the warm air above that forms a kind of atmospheric cover.

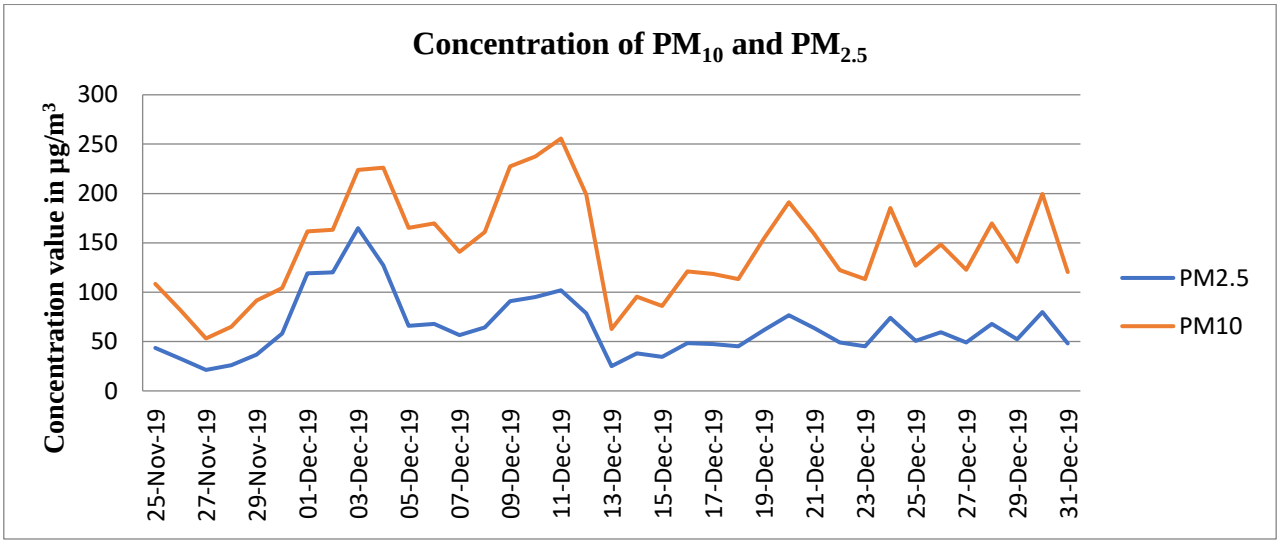


Figure 7 Concentration level of PM_{10} and $PM_{2.5}$ particles during period 5

Figure 7 depicts high concentration value in first half of December for both the particles, the value decreased during second half of the month, but decrease was not prominent. Maximum and minimum values reported were 256 µg/m^3 and 53.17 µg/m^3 respectively for PM_{10} and that for $PM_{2.5}$ were 165 µg/m^3 and 21.2 µg/m^3 respectively. The average value remained to be 145 µg/m^3 and 64.5 µg/m^3 for PM_{10} and $PM_{2.5}$ during this period

3. EMISSION INVENTORY

An emission inventory is an important tool for the identification of pollutant sources and estimation of emissions emitted from these sources. It is a quantitative and detailed compilation of air pollutants released in a particular timeframe over a specified geographic location. Inventories provide an aid to policy planning and play a crucial role in developing pollution mitigation plans. These also help to keep in check the pollutants emitted to be under the specified national standards. It is crucial to understand the strength of a source, which depends upon the location, elevation, frequency and duration of emission (CPCB, 2011). Emission estimation further can be used for dispersion modelling.

Keeping this in mind, emission inventory of PM_{10} and $PM_{2.5}$ for the city of Khanna has been developed to account for the emission of air pollutants from various sources. The emission inventory for the city of Khanna city has been developed. The major sources covered in the city are –

1. Domestic
2. Construction and Demolition
3. Food joints
4. Open eat outs
5. Crematoria
6. DG Sets
7. Industry
8. Vehicular
9. Road dust

3.1 Methodology/ Approach of study

There are generally two approaches for building up emission inventories, either bottom – up approach or top – down approach. The top - down approach uses the statistical and demographic data available for a larger scale area such as a country. This method is appropriate when site -specific data is unavailable and is based on using proxy parameters such as population and is scaled down to the level of smaller geographic area such as a city. This approach may give inaccurate results as the extrapolation may be of dubious credibility. The bottom- up approach quantifies emissions using quality data of a particular source type. Emissions are estimated for individual sources and then summed up to obtain city/state/country level estimates. This requires site specific information on

emission sources, activity level and emission factors and the results are more accurate than top – down approach and therefore we have used this approach for our study.

The following steps have been employed as represented in figure 8, in the construction of the emission inventory using the bottom - up approach:

1. Conducting a general reconnaissance survey of the city which helps in identifying a tentative list of air pollution sources
2. Conducting a stakeholder meeting with various departments which aims at apprising them with the project objectives and seeking their help to collect the activity data.
3. Conducting source specific survey to collect the activity data
4. Collating emission factors from relevant literature especially the native literature
5. Estimation of source wise emissions from various sources using empirical equations from literature
6. Preparing gridded emission inventory using 300 m $\times$ 300 m resolution
7. This emission inventory is then fed into the dispersion model along with the meteorological conditions estimated using Weather Research and Forecasting (WRF) model to calculate the PM concentrations
8. Hotspots were identified and a detailed action plan is suggested for air pollution mitigation.

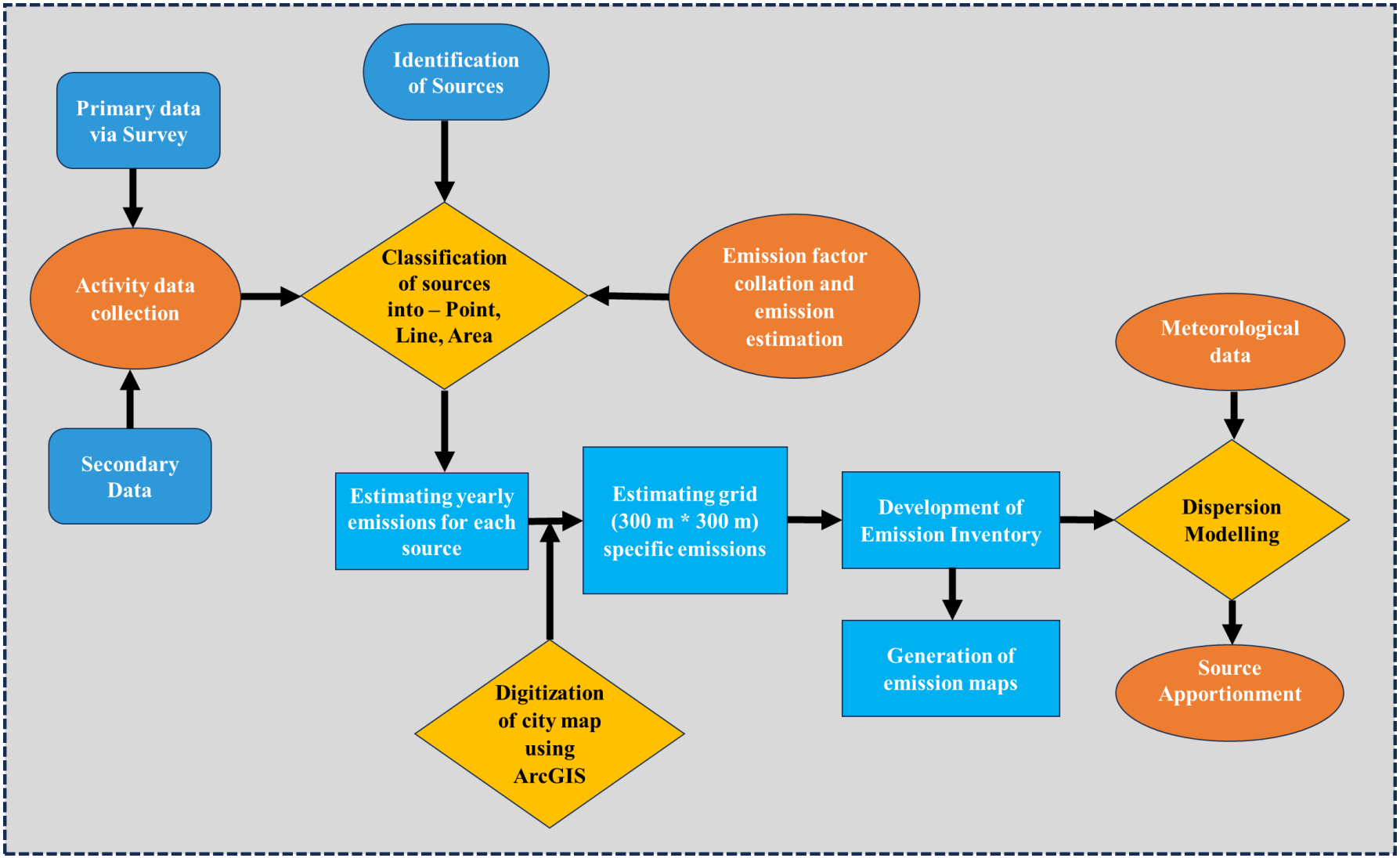


Figure 8 Overall framework for the study

The development of emission inventory started with the survey of the Khanna city to identify sources of emissions and studying the traffic flow pattern of the city, along with the identification of busy intersection with heavy traffic inflow. This was done to ascertain survey spots for vehicular count. Surveys were conducted by PPCB officials to collect fuel usage data for identified pollution sources within the MC limits. Suitable emission factors were taken from literature depending upon fuel type and source type and substituted in empirical equations using activity data and emission factor for emission estimation:

$$\textit{Emissions} = \textit{Emission factor} * \textit{Activity data}$$

$$E = A \times EF \times (1\text{-}ER/100)$$

Where:

E = Emissions

A = Activity rate

EF = Emission factor, and

ER = Overall emission reduction efficiency, %

Where Emission Factor is a representative value that attempts to relate the quantity of a pollutant released in the atmosphere with an activity associated with the release of that pollutant. These provide the relationship between amount of pollution released and raw material processed, or units produced (Tsagatakis, 2019). It is quantified as the mass of emission emitted per unit of activity. Activity data refers to the specific process of generation of emissions. It considers the type of emission source (point, line, and area) and is inclusive of factors such as population, household number, the type and quantity of fuel used, frequency of emission generation events etc (Gibe & Cayetano, 2017).

3.2 Data Collection

As per PPCB “The information for activity data was obtained by conducting primary survey, answered through personal interviews, household survey, traffic count survey, collecting data from industries etc. This gives a reliant database, complemented by a secondary source of information which aids in quantification of the total pollutant emission. Data collection was done by the PPCB team. Data for sources such as domestic, food joints, construction was collected ward wise. Door to door survey of households was conducted. Petrol pump surveys were done at numerous locations to ascertain the vehicle composition on the roads of Khanna city. These locations were determined based on the influx of traffic volume studied during the site visit. Road dust sampling was also done at few

locations. Data from industries was collected by visiting the industrial units physically. Where data was not available appropriate surrogate data has been used."

Table 1 Emission factors used in the study

Source	Fuel	Unit	PM 10	PM 2.5	Reference
Cremation		kg/ton	18.5	9.1	TERI, 2020 https: //ppcb.punjab.gov.in /sites/default/ files/ documents/ N_8278_ 1625047519404. pdf
Domestic/ Food joints/ Open eat outs	Wood	g/kg	6.77	4.6	
	Coal	g/kg	4.04	8.26	
	LPG	g/kg	0.35	0.35	
	Cow Dung	g/kg	10.5	4.4	
	Diesel	ng/j	113.305		
Construction	TSP = 1.2 tons/acre-month		0.35*TSP Emission	0.06*TSP Emission	
DG-sets		g/kwh	1.34	1.139 (85% of PM_{10})	
MSW		g/kg	11.9	9.8	
Brick Kiln	Biomass	g/kg	0.26	0.13	

Source	**Vintage**	**Years**	**5**	**10**	**15**	ARAI, 2008
Vehicles	2W	g/km	0.015	0.035	0.035	
	3W	g/km	0.0364	0.0455	0.035	
	Buses (diesel)	g/km	1.075	1.213	0.091	
	4 wheelers (petrol)	g/km	0.002	0.006	2.013	
	4 wheelers Cars (Diesel)	g/km	0.015	0.06	0.008	
	HCV (Diesel)	g/km	1.24	1.96	0.06	
	LCV (Diesel)	g/km	0.475	0.475	1.96	
	Others	g/km	1.24	1.24	0.475	

Fuel	**Unit**	**S**	**TSP**	**PM 10**	**PM 2.5**	**Reference**
Coal /Coke/Carbon/ Charcoal	MT	0.5		2.3*A	0.6 * A	USEPA AP-42 (www3.epa.gov/ttn/chief/ap42/ch01/final/c01s01.pdf)

Biomass/Husk/Jute/ Wood	MT			17.3	11.764 [$PM_{2.5}$/PM_{10} = 0.68]	CPCB (https://cpcb.nic.in/NGT/Annexure_3.1_27.02.2018.pdf)
HSD	kL	1.0	0.25	0.15 [PM_{10}/TSP= 0.6]	0.10 [$PM_{2.5}$/TSP= 0.4]	NEERI, 2019 (https://www.wbpcb.gov.in/writereaddata/files/SA_Kol-How_Final%20Report.pdf)
Diesel	kL		0.25	0.15 [PM_{10}/TSP= 0.6]	0.10 [$PM_{2.5}$/TSP= 0.4]	NEERI, 2019 (https://www.wbpcb.gov.in/writereaddata/files/SA_Kol-How_Final%20Report.pdf)
LDO	kL	1.8	0.25	0.15 [PM_{10}/TSP= 0.6]	0.10 [$PM_{2.5}$/TSP= 0.4]	NEERI, 2019 (https://www.wbpcb.gov.in/writereaddata/files/SA_Kol-How_Final%20Report.pdf)
Petrol	kL		0.25	0.15 [PM_{10}/TSP= 0.6]	0.10 [$PM_{2.5}$/TSP= 0.4]	NEERI, 2019 (https://www.wbpcb.gov.in/writereaddata/files/SA_Kol-How_Final%20Report.pdf)
F.O./Furnace oil	kL	4.0	1.25 *S + 0.38 = 5.38	3.228 [PM_{10}/TSP= 0.6]	2.152 [$PM_{2.5}$/TSP = 0.4]	NEERI, 2010 (https://cpcb.nic.in/displaypdf.php?id=TXVtYmFpLXJlcG9ydC5wZGY=)
Kerosene	MT			0.61	0.024 [PM2.5/TSP = 0.4]	CPCB (https://cpcb.nic.in/NGT/Annexure_3.1_27.02.2018.pdf)
LPG	kL			0.21	0.2037 [PM2.5/PM10 = 0.97]	CPCB (https://cpcb.nic.in/NGT/Annexure_3.1_27.02.2018.pdf)

Note: The emission factors were taken from the US EPA's AP42 document (https://www.epa.gov/air-emissions-factors-and-quantification/ap-42-compilation-air-emissions-factors), TERI (2020), ARAI (2008) and SAFAR (2018), Datta & Sharma (2016)

3.3 Study area

The city of Khanna has an area of 25.32 sq. km. The map available from Municipal Corporation of Khanna as shown in figure 9 was digitised and ward area estimated. The entire city was divided into grids of 300m × 300m resolution. The ward map of the city has been prepared in the Projected Coordinate System - WGS_1984_UTM_Zone_43N and uses GCS_WGS_1984 projection as well.

To visualise the emissions, and understand their geographic distribution, gridded emission inventory has been developed. ArcMap ver10.7 tool of ArcGIS software has been employed for this purpose.

Gridded emission inventories translate the data estimated into a spatially resolved data, which aids in its visualisation. The representation of inventories in a gridded structure helps us to identify the emission output from various sources in a particular area. It is important to understand the emission load a source is generating, it is equally important to determine the hotspots generated in the city from these sources. These further help in the execution of source specific policies meant for pollution reduction.

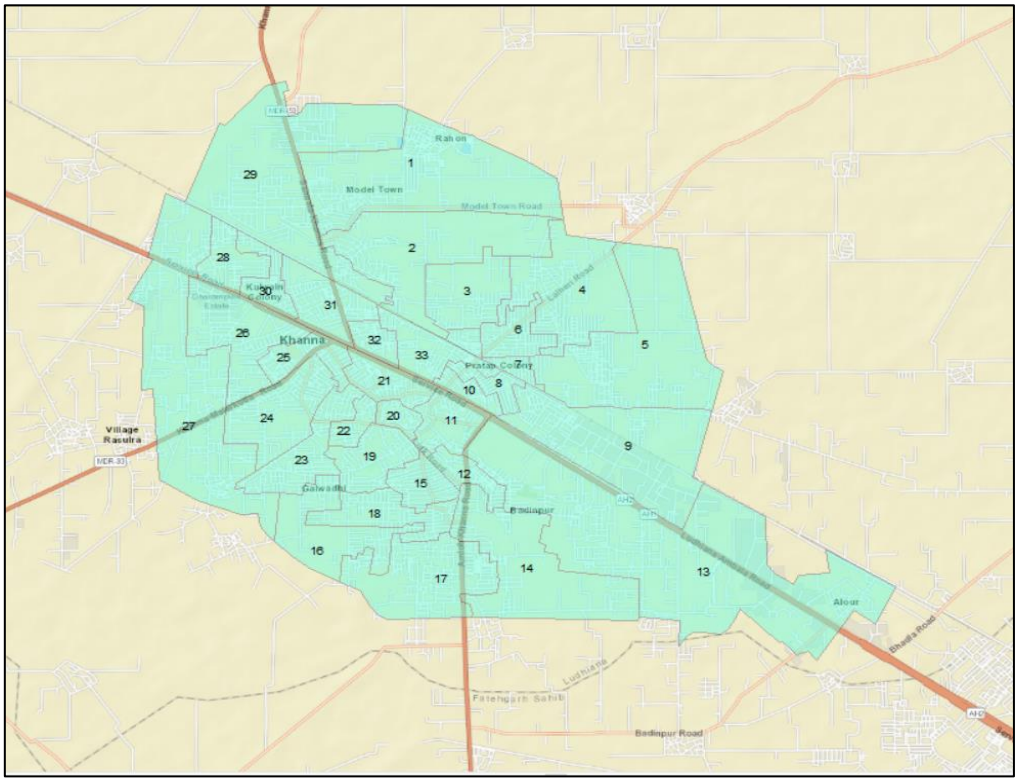


Figure 9 Ward map of Khanna city having 33 wards

3.4 Emission estimation and Gridded Inventory

A general guideline was followed in developing gridded inventories.

In area sources, for the spatial allocation of data into grids, the emissions for area sources were estimated for the entire ward. Emissions per unit area in each ward were determined. This was done by dividing the emissions by the area of each ward.

Emission density (kg/year/m^2) = Emissions of ward (kg/year) / Ward area (m^2)

A uniform grid of 300m × 300m was overlaid on the ward map. The gridded emissions were determined based on the fraction of the area of the ward falling inside the grid and emission density.

$$\boldsymbol{Grid.Emission} = \sum_{i=1}^{N} (\boldsymbol{area\ of\ the\ fraction\ of\ ward\ i\ in\ the\ grid\ x\ emission\ density\ of\ ward\ i})$$

Where, N = no. of wards in the grid

The point sources, having the attribute of coordinates, are allocated to their respective overlaying grid. This allots the emission magnitude to the grid. If there is more than a single point source lying in a single grid, then the emissions are summarised for that grid.

For Line sources, using ArcGIS tool, the road length falling under each grid was calculated from the digitized maps. The information obtained from traffic counts from various locations was considered. This was translated into traffic flow throughout the city. The road network was then divided into smaller roads based on major traffic intersections. The emissions were estimated per unit length of the road. Emissions in each grid were determined on the road length falling in that grid.

Source specific methodology is stated as below –

3.4.1. Domestic

Household surveys were conducted in various wards of Khanna city. Majorly LPG, wood and dung have been used in the surveyed household as a fuel for domestic cooking. Emissions were estimated in these wards and extrapolated for other wards in which data was not available, based on average emissions from the wards in which data was available. This was done for both slum as well as non-slum households and summed up to give total emissions. Total emissions for PM_{10} and $PM_{2.5}$ are 32,679.8 kg/year and 15,218 kg/year respectively. Emission Factor for wood, cow dung and LPG were taken from Reddy and Venkataraman (2002), CPCB (2011), AP-42 USEPA (1995) and Sharma et al. (2016). The emission estimation equation employed is as follows –

Emission = Fuel consumed per year per household *no. of households *Emission Factor

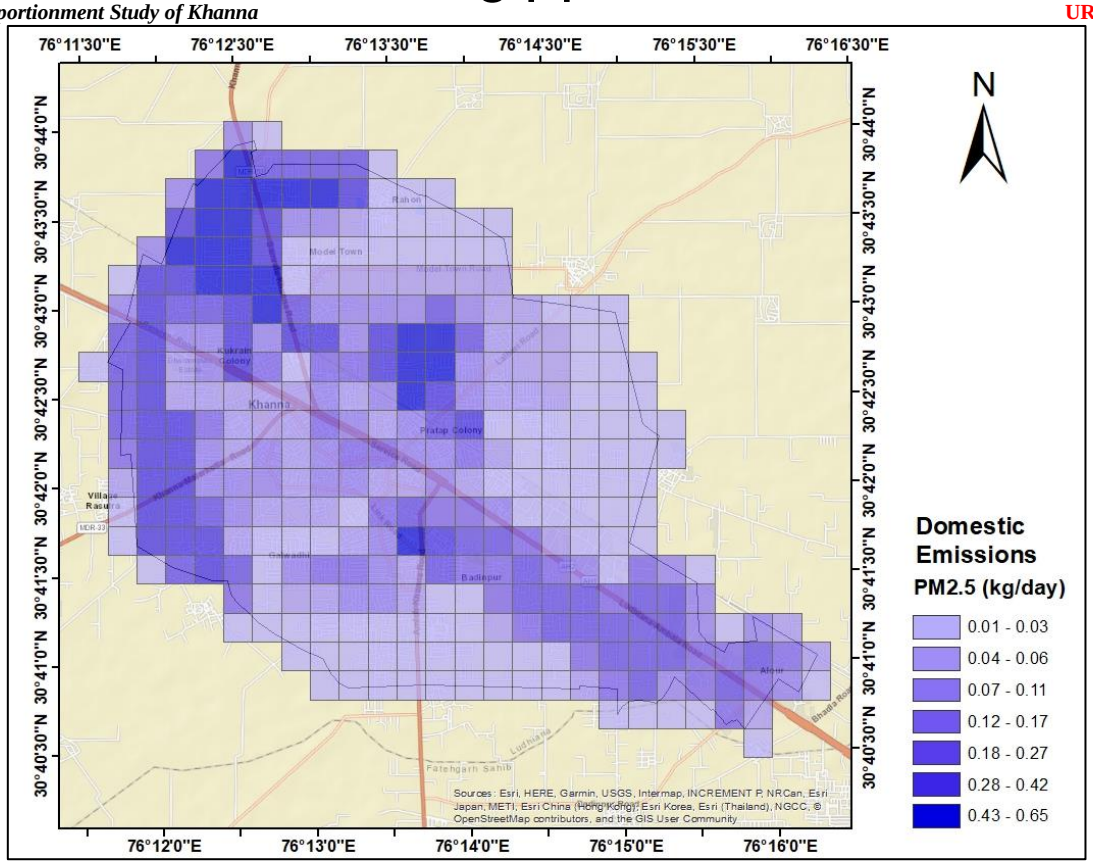


Figure 10 Map showing Domestic $PM_{2.5}$ emissions per grid

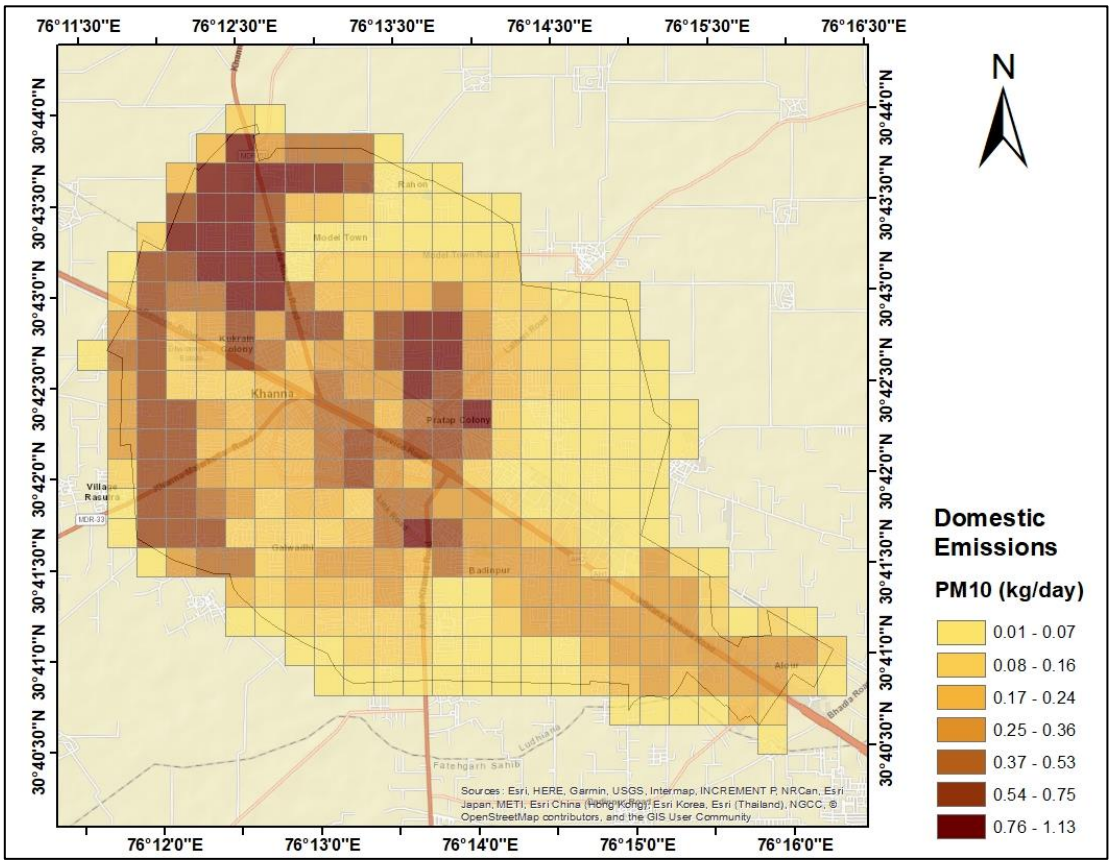


Figure 11 Map showing Domestic PM_{10} emissions per grid

3.4.2. Food Joints

The eateries in the city, which includes hotels, restaurants, dhabas and gurudwaras were surveyed, to estimate the emissions from each of these relevant categories. There are 252 food joints in the city out of which 36 were surveyed by PPCB. LPG and wood were the predominantly used fuel in the city. These food joints consumed a total 36,113 kg of LPG; 7,308 kg of coal; 34,380 kg of wood and 630 kg of kerosene annually. The data for the remaining wards was supplemented based on the average consumption of fuels based on surveyed food joints. The emission load from this source amounts to 3,473 kg/year for PM_{10} and for $PM_{2.5}$ it is 2047.4 kg/year. Emission factors were taken from Reddy and Venkataraman (2002), CPCB (2011), AP-42 USEPA (1995) and Sharma et al. (2016).

Emission = Fuel consumed in each hotel per year * Emission Factor

The gridded emissions for food joints in the city were also estimated in the same way as those for domestic emissions.

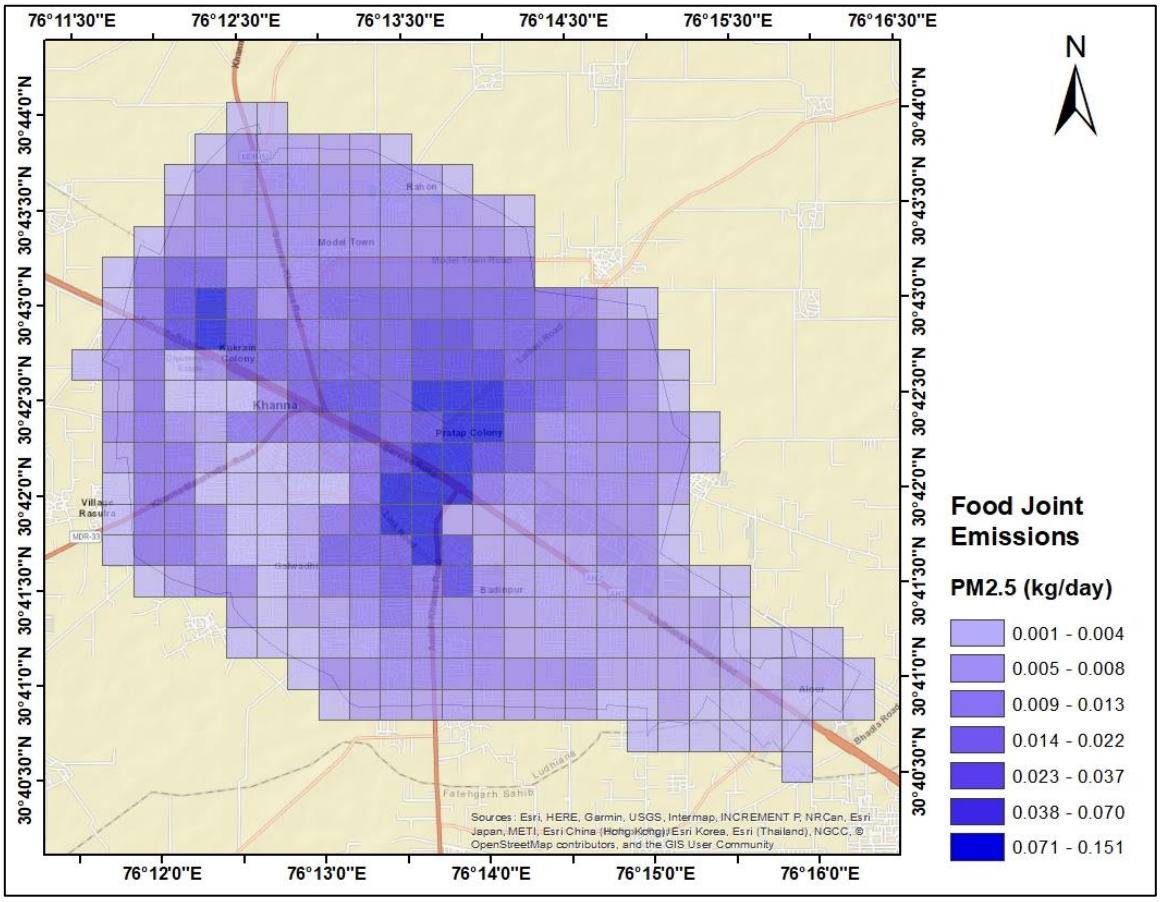


Figure 12 Map showing Food joints $PM_{2.5}$ emissions per grid

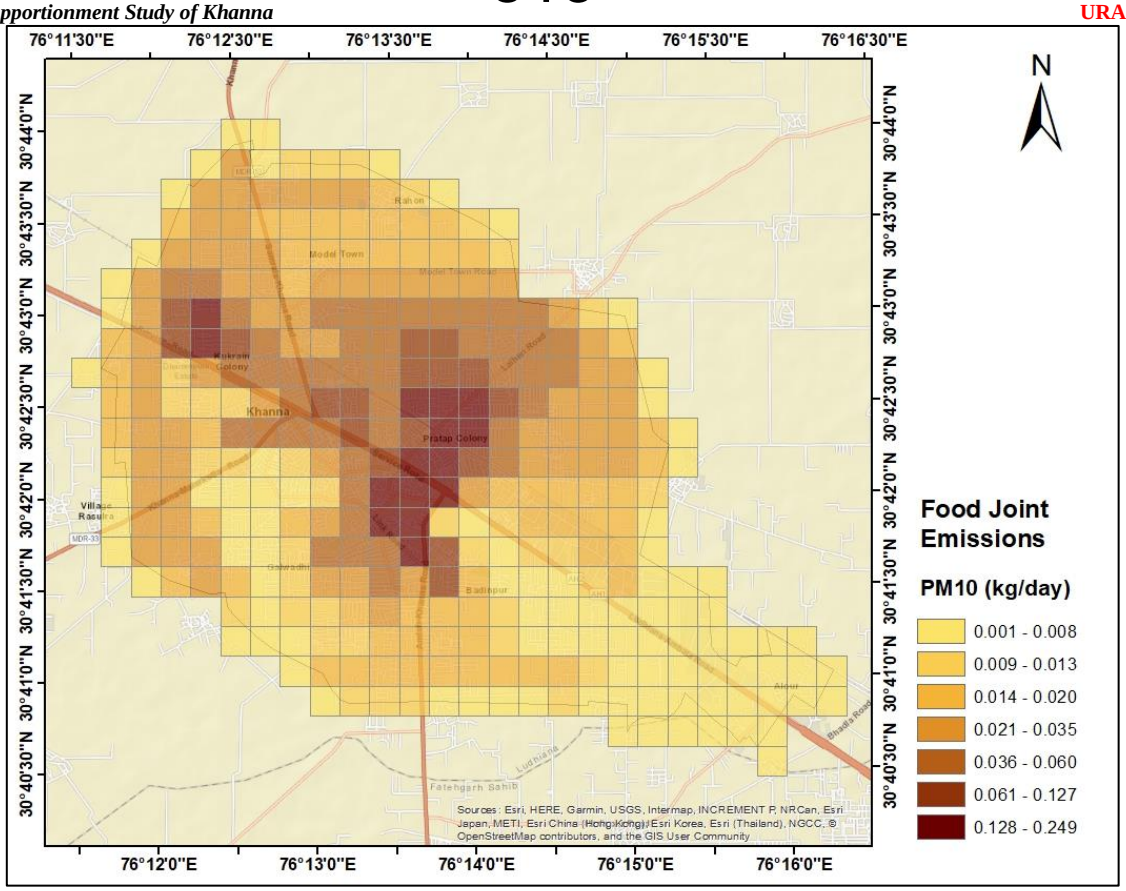


Figure 13 Map showing Food joints PM_{10} emissions per grid

3.4.3. Open eat outs

This source identifies with the street vendors plying on roads. All the street food vendors in the city were surveyed and the collected data was provided by PPCB. The emissions are estimated in a similar fashion as from households and hotels. The main fuels consumed were LPG and kerosene. The amount consumed was 2,99,760 kg/year and 41,040 l/year, respectively. The total emission load from this source for PM_{10} amounts to 12843.76 kg/year and for $PM_{2.5}$ it is around 4118.022 kg/year. Emission factors were taken from Reddy and Venkataraman (2002) and CPCB (2011).

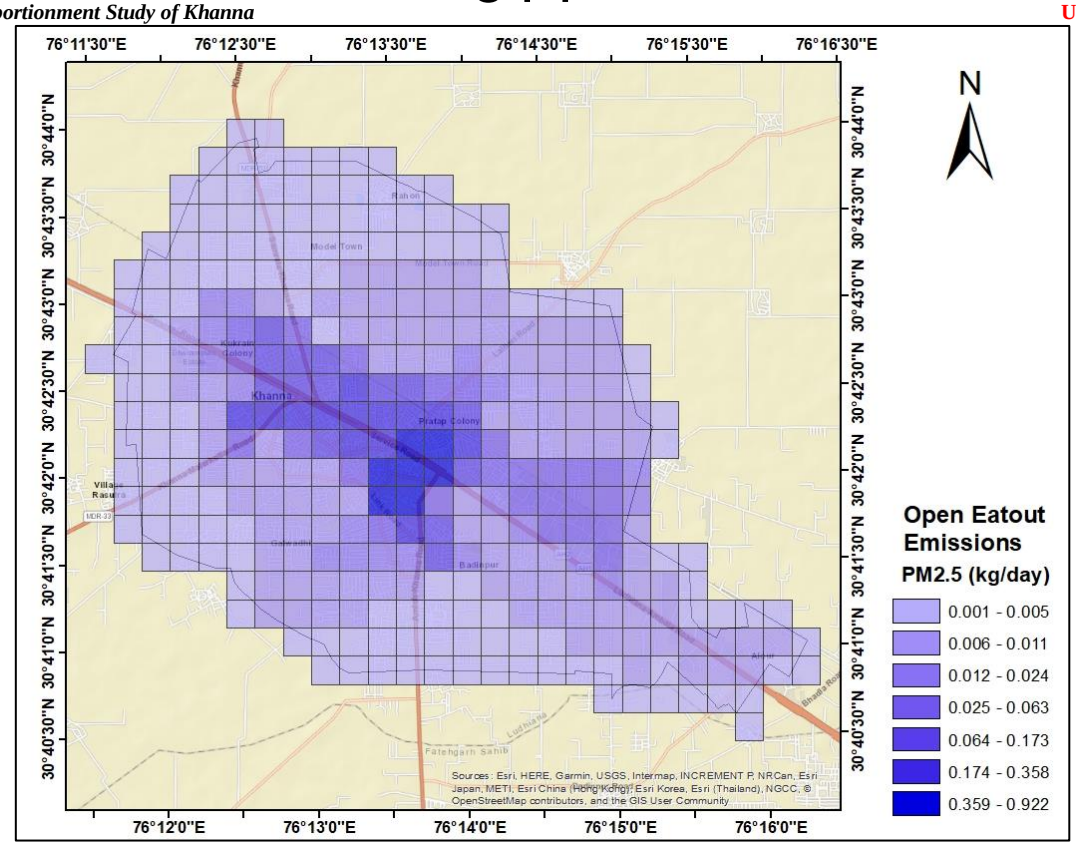


Figure 14 Map showing Open Eat Outs $PM_{2.5}$ emissions per grid

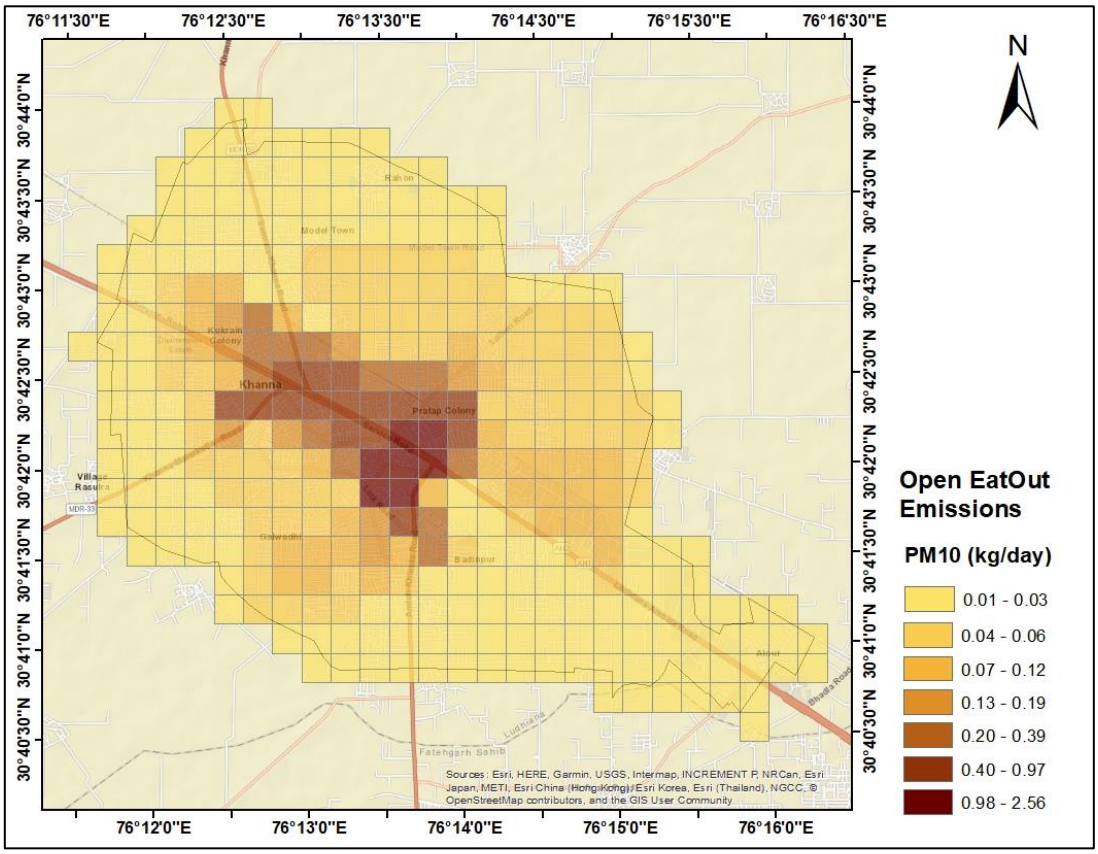


Figure 15 Map showing Open eat outs PM_{10} emissions per grid

3.4.4. Crematoria

A relevant quantity of wood is used up in each cremation ceremony releasing significant amount of Particulate Matter. Though electric crematoria have been introduced in the country, the cost involved, and religious reasons make them an unpopular option. In Khanna city there 4 cremation grounds spread across the city which are non – electric, hence these are operated by burning of wood. Each cremation uses up to 0.3 tons of wood. The data for number of bodies burned each day was provided by PPCB. The emission load for PM_{10} stands at 9685.973 kg/year and 6568.776 kg/year for $PM_{2.5}$. Emission factor for PM_{10} was adopted from AP-42 USEPA (1995) and for $PM_{2.5}$ it was taken as 68% of PM_{10} as per TERI (2020).

Emission = No. of bodies burned per year * amount of wood used in each cremation* Emission Factor

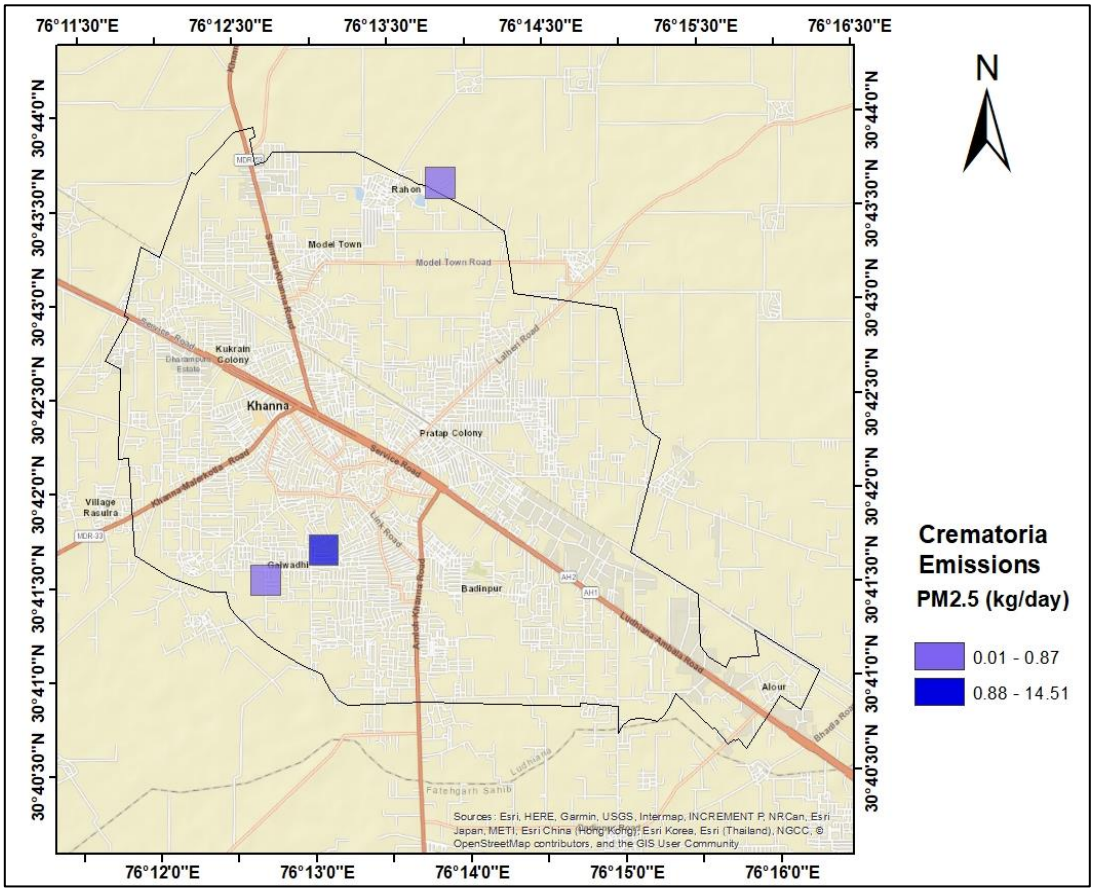


Figure 16 Map showing Crematoria $PM_{2.5}$ emissions per grid

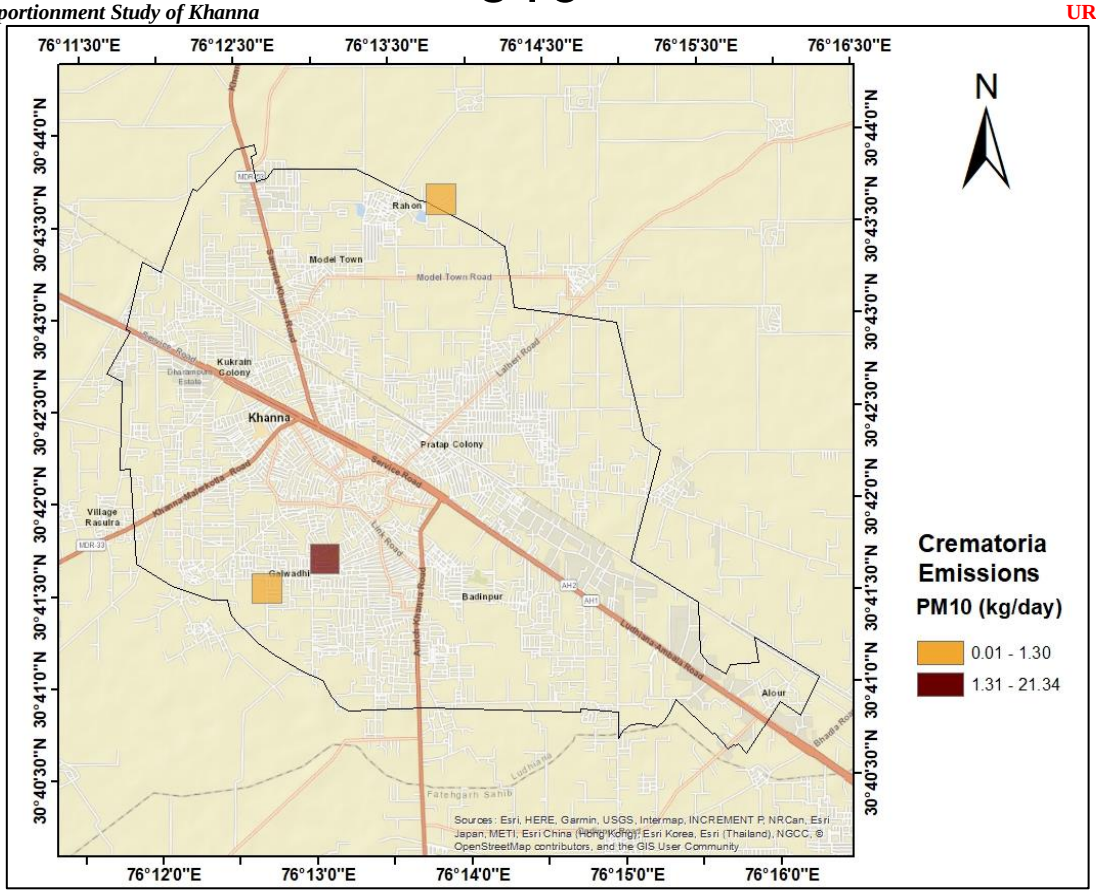


Figure 17 Map showing Crematoria PM_{10} emissions per grid

3.4.5. Brick Kiln

Bricks are an important part of construction material, made up majorly of clay and sandy soil. Brick kiln is an unorganized sector, but with rampant urbanisation and growing demand for infrastructure the production of bricks has increased tremendously. In India there are majorly zig zag type of brick kilns which use coal as a fuel to run the kilns. Estimation of emissions from brick kilns is done based on number of bricks produced in unit time. Emissions from brick kiln are estimated using the following equation:

Emission = No. of bricks produced in one day * O.D. * Weight of one brick (kg)* Emission Factor

Where, O.D. = No. of operational days in a year

The emission factor for emission estimation in brick kiln is dependent upon the type of technology the brick kiln is operating on and were adopted from Greentech Knowledge Solutions (2012) report. As per the data provided by PPCB, in Khanna city six brick kilns are present which work on zig zag technology and operate for 4-6 months in a year producing 20,000 to 40,000 brick per day. The

emission load for PM_{10} from brick kilns is around 19269.9 kg/year and for $PM_{2.5}$ it is around 9634.95kg/year. However, for the dispersion modeling only those brick kilns are considered which are within the MC limits.

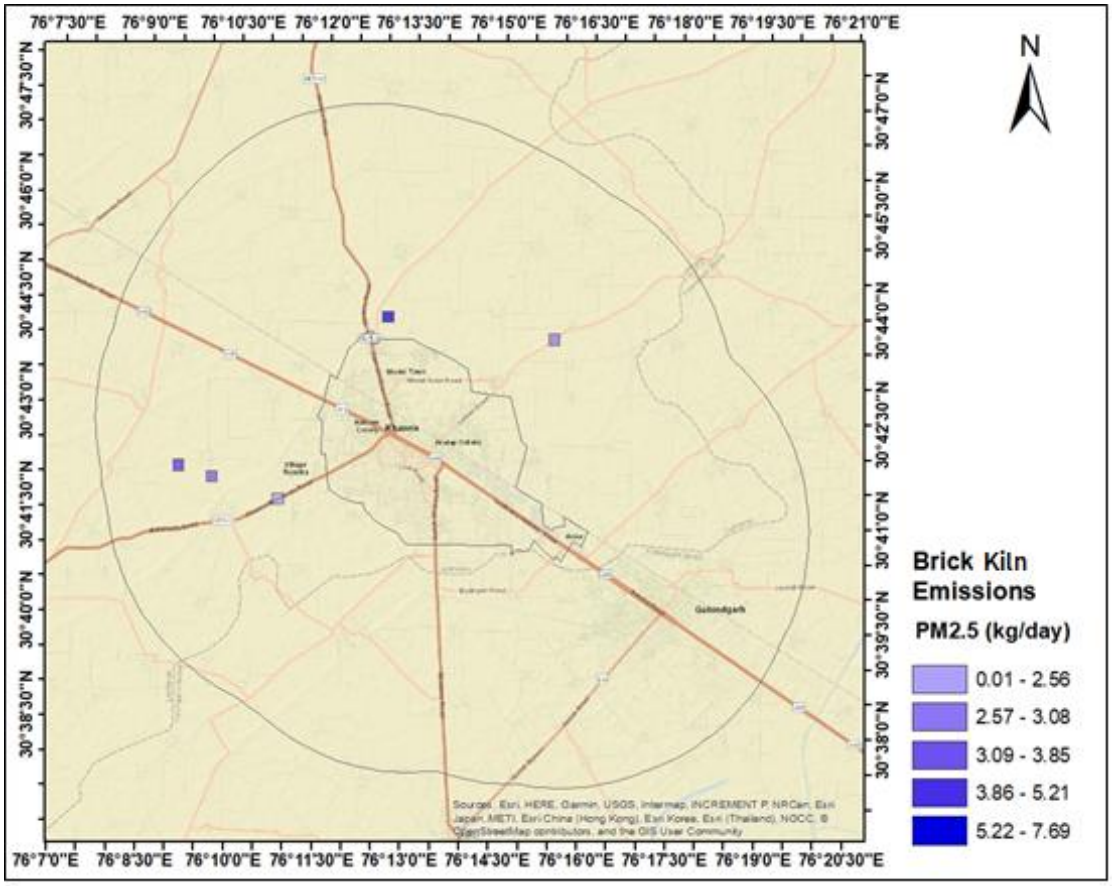


Figure 18 Map showing Brick kiln $PM_{2.5}$ emissions per grid

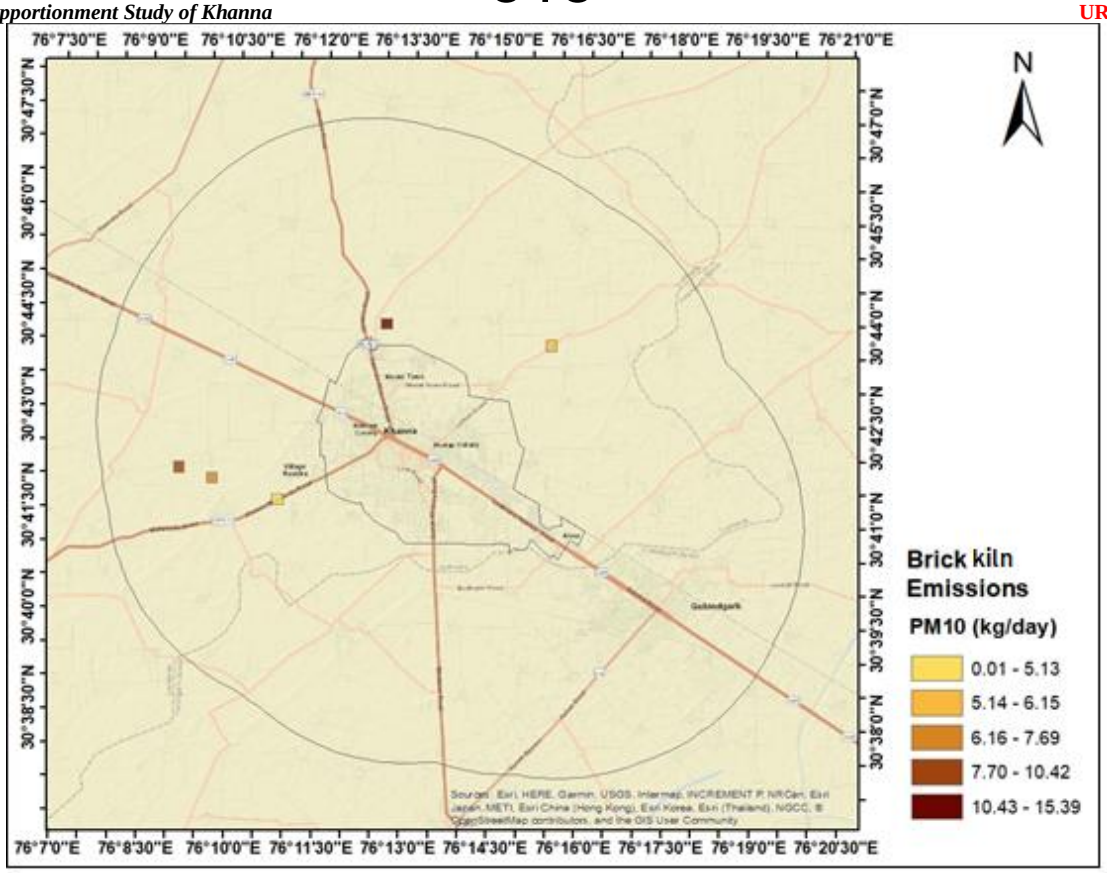


Figure 19 Map showing Brick kiln PM_{10} emissions per grid

3.4.6. DG Sets

Power outages in the country arose the need to use Diesel Generator sets not only in housing but also in industries, infrastructure, IT, events, and entertainment as well as other sectors. They provide quick power supply as a backup and ease out the unreliability of power supplies in any area. For Khanna, the location of each of the DG sets was made available by PPCB. There are around 10 DG sets employed in the city in hospitals, schools and colleges facing a power cut of an hour a day. The emission load for DG sets in the city of Khanna amounted to 539.23 kg/year for PM_{10} and 11,603 kg/year for $PM_{2.5}$.The emission factors were taken from Sharma et al. (2016).

$$E\ (g/day) = Energy\ (kWh) * Emission\ Factor$$

E = Emissions

$$E\ (kWh) = C \times W\ (hrs)$$

Where, E = Energy

C = Installed capacity (kW)

W = Working/operating hours,

The Capacity (C) for DG sets was calculated by:

$$C\ (kW) = P(kVA) \times PE$$

Where, P = Apparent power (kVA)

PE = Power factor, 0.8 in this case (i.e., 80 per cent of apparent power is converted to working power)

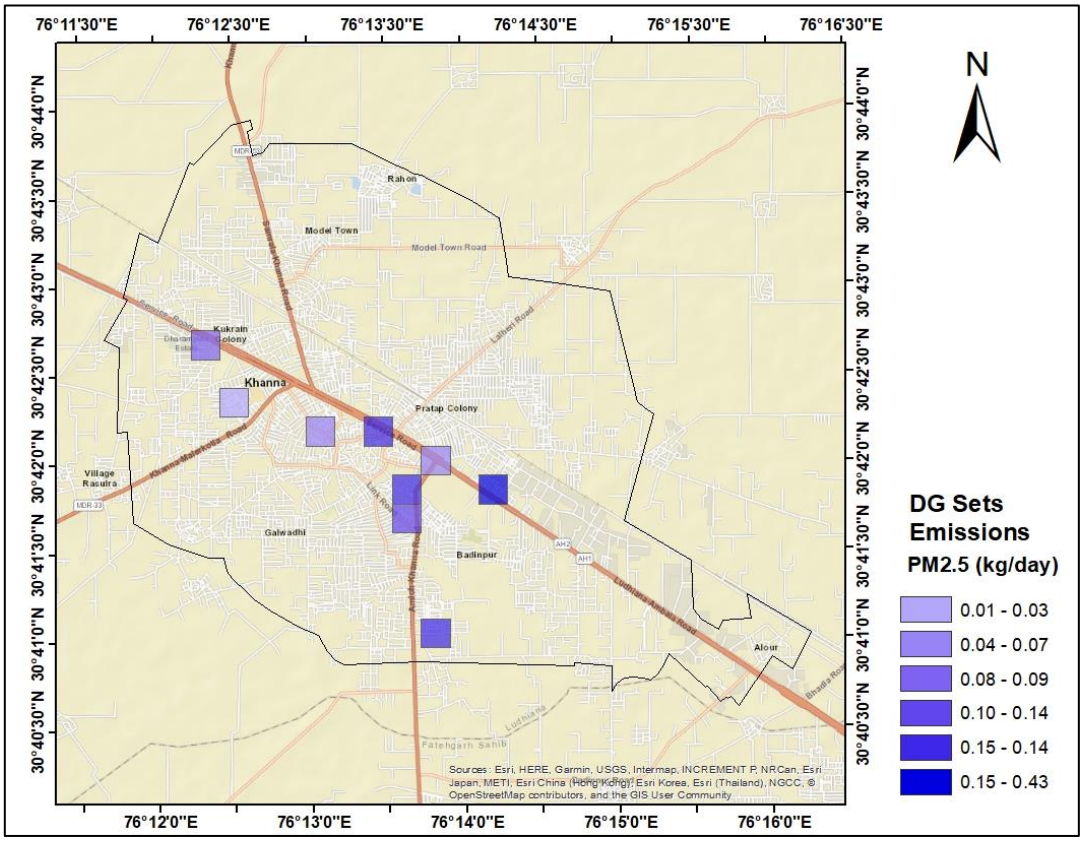


Figure 20 Map showing DG sets $PM_{2.5}$ emissions per grid

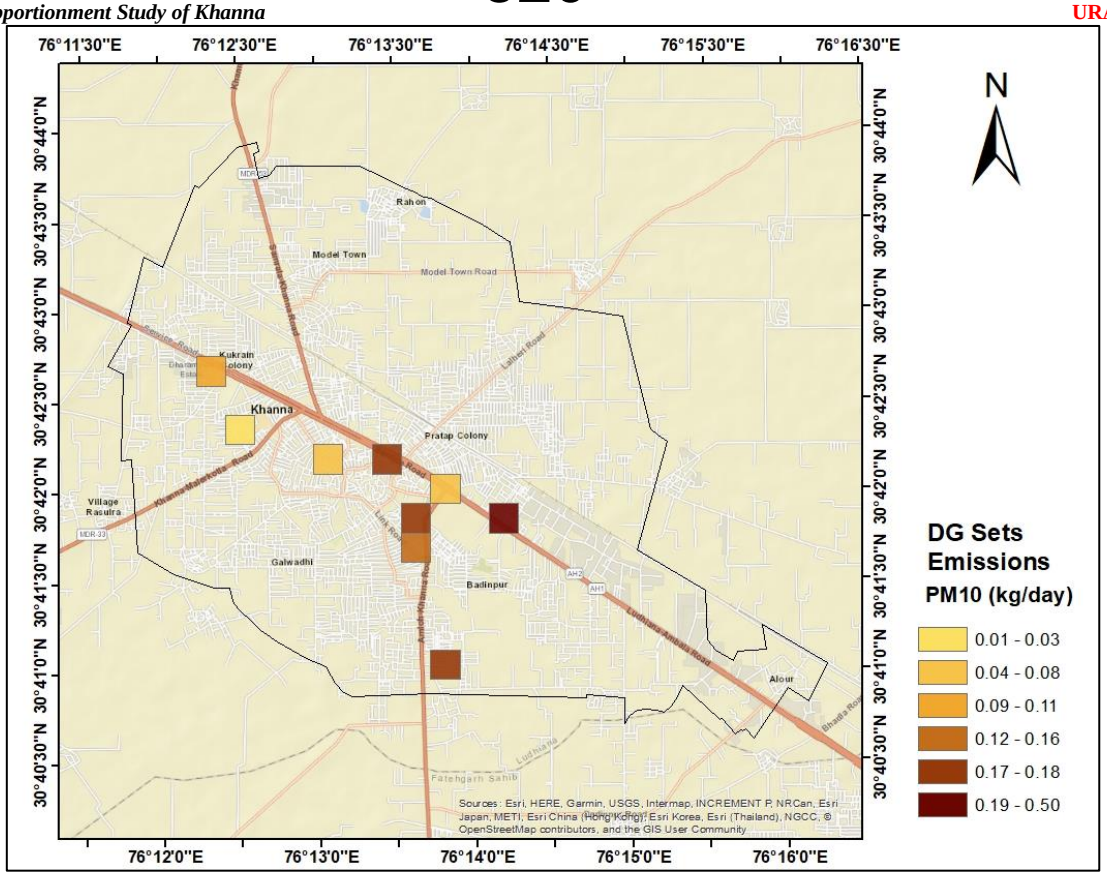


Figure 21 Map showing DG sets PM_{10} emissions per grid

3.4.7. Construction and Demolition

Construction and Demolition is one of the major contributors to dust emissions in a city, though it is a temporary source, it can have an immense impact on the local air quality. The amount of PM released depends directly upon the area under construction and the duration for which construction has been carried out. The estimation was done as per AP-42 USEPA (1995) method.

E = Area of construction activity (acres) * duration of activity (months)* emission factor

The time in months was taken based on the no. of working hours throughout the year. The emission load for PM_{10} was 220.8 kg/year and for $PM_{2.5}$ was 37.8 kg/year. Based on the available data for area under construction at each location, emissions were estimated. Emission factors were adopted from AP-42 USEPA (1995) and Sharma et al. (2016).

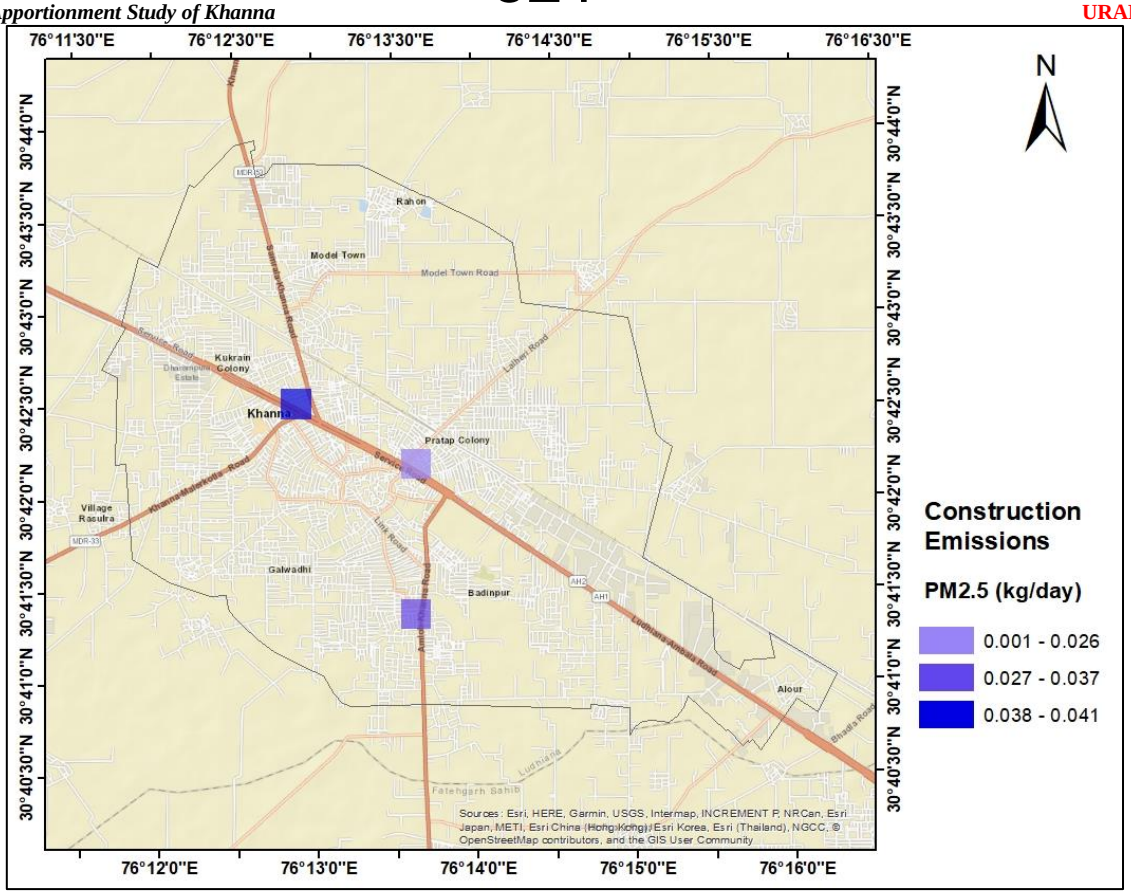


Figure 22 Map showing Construction $PM_{2.5}$ emissions per grid

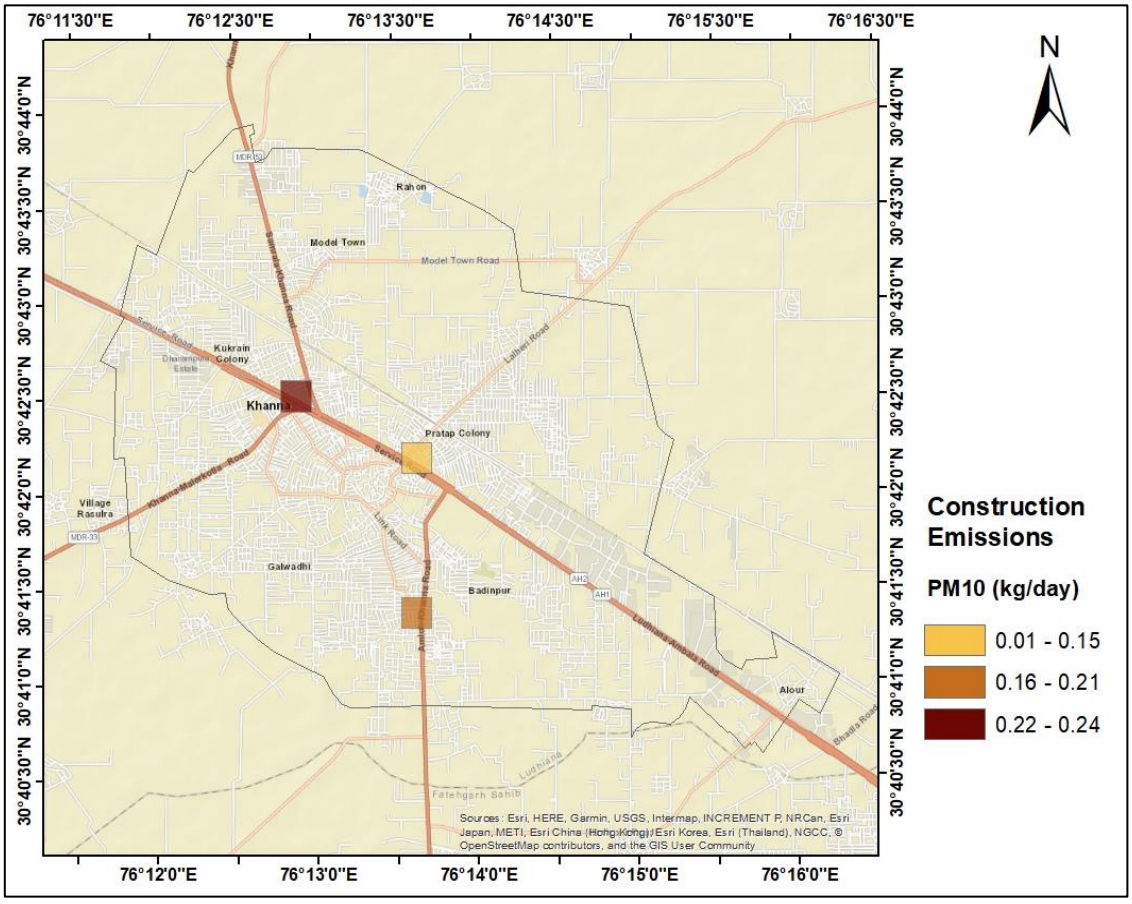


Figure 23 Map showing Construction PM_{10} emissions per grid.

3.4.8. Industry

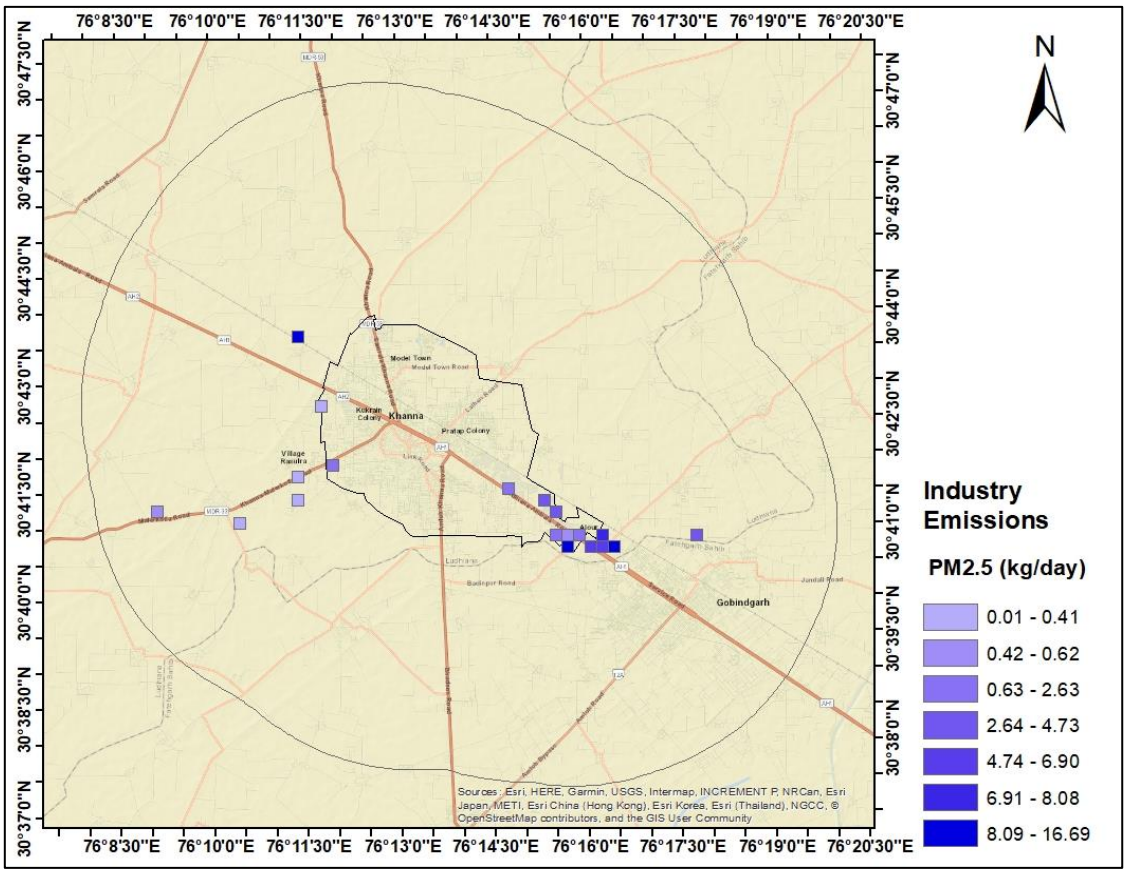
Methodology for industry for estimation of emission load is based on the type of industry and type of fuel used and by using the Indian studies emission factor calculate the emission load per grid. Majorly industries related to metal works are present around the city. The emissions load for $PM_{2.5}$ was estimated to be 31568.9 kg/year. The major fuel consumed were Coal, Fuel Oil and Wood. The emission for 108 industries falling in the buffer area were estimated for which data was provided by PPCB.

Emissions for industries can be based on either the fuel consumed or based on the production capacity, or the flow rate and pollutant concentration released from the stack. The emissions in this particular inventory are based on the amount of fuel consumed by every industry throughout the year times the fuel specific emission factor which were adopted from SAFAR (2018).

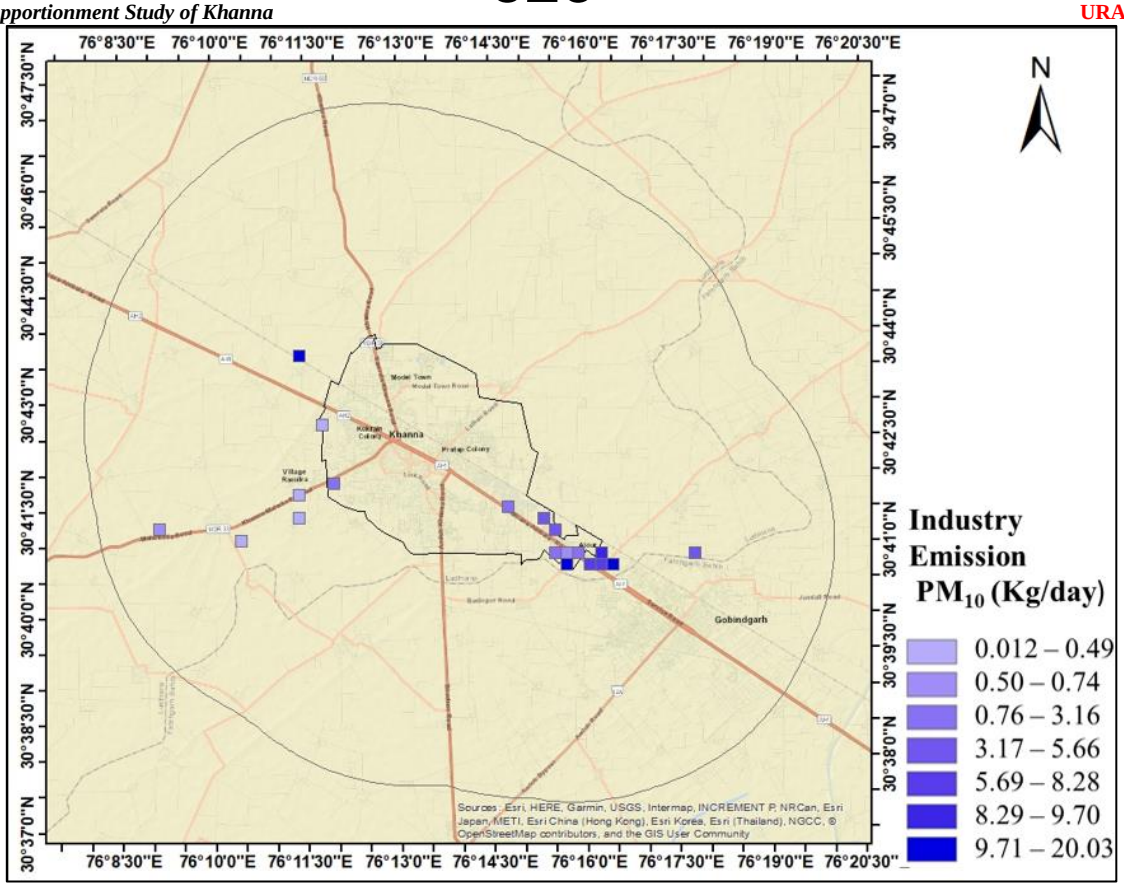
$$E = A * Emission\ Factor * (1 - ER/100)$$

Where, A = Amount of fuel consumed

ER = Emission reduction



(a) $PM_{2.5}$ Emission



(b) PM_{10} Emission

Figure 24 Map showing industrial (a) $PM_{2.5}$ (b) PM_{10} emissions per grid.

3.4.9. Vehicles

Emissions for vehicles plying on the roads of Khanna city were determined based on the following equation:

$$E = \sum_{i=1}^{N} n_i * VKT_i * EF_i$$

Where i: the category of vehicles viz. 2W, 3W etc.

n: number of vehicles belonging to a category

VKT: vehicle kilometre travel

EF: Emission Factors

The emission factors depend on the category, age, type of fuel, and the engine capacity of the vehicle. The emission factors estimated by ARAI (2008) has incorporated all the above parameters.

For the VKT calculation the traffic flow diagram in the city was prepared to analyse the actual movement of traffic in the city. The video recordings were done for 1 weekday and 1 weekend on all

the important locations identified by the IIT Delhi group. These video recordings were then analysed to draw the traffic flow diagram for the different category of vehicles in the city.

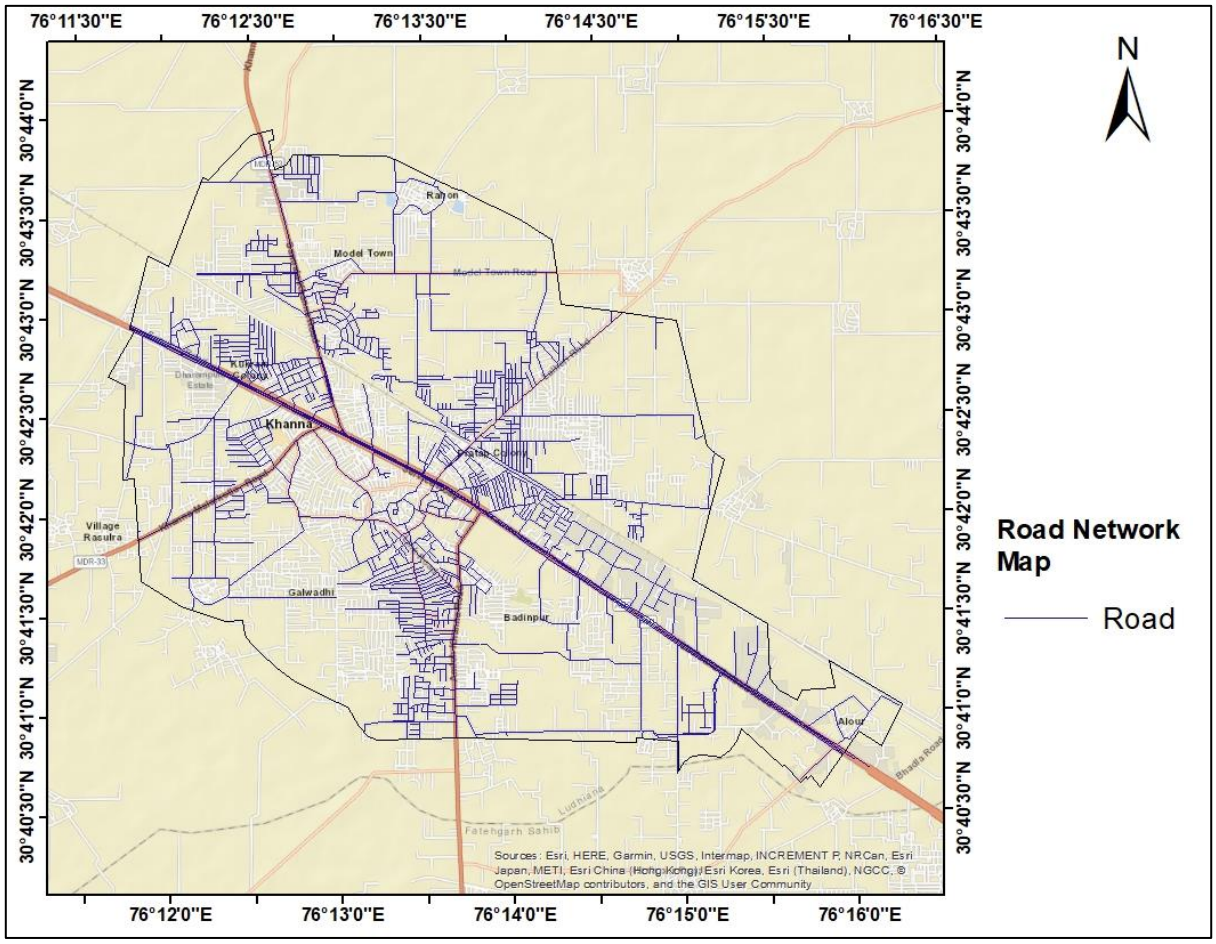


Figure 25 Road network in the city.

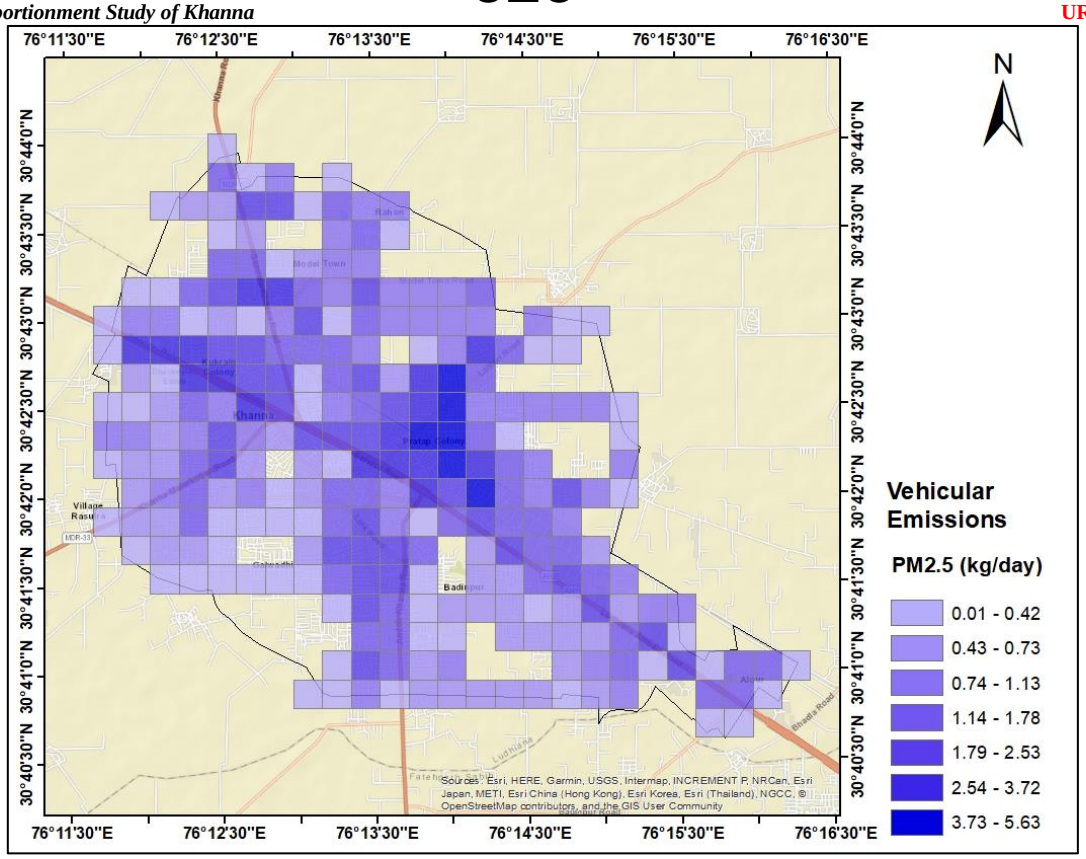


Figure 26 Map showing Vehicular $PM_{2.5}$ emissions per grid

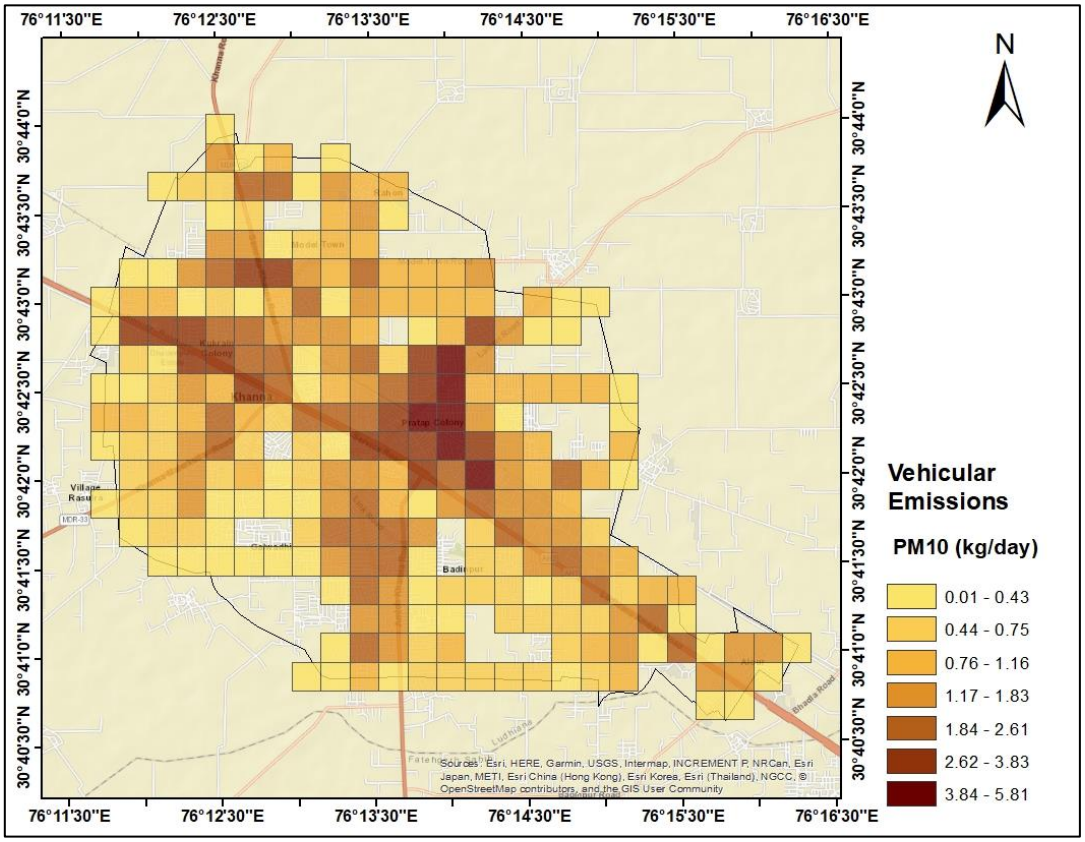


Figure 27 Map showing Vehicular PM_{10} emissions per grid

3.4.10. Road Dust

Road dust was estimated based on the following equation –

Road Dust emissions Estimation:

$$E = \sum_{i=1}^{N} \boldsymbol{n_i} * \boldsymbol{VKT_i} * \boldsymbol{EF_i}$$

$$\boldsymbol{EF = k * sl^{0.91} * W^{1.02} * (1 - \frac{P}{4N})}$$

Where, k: constant

sl: silt loading (gm/m^2)

W: weight of the vehicle

P: Number of wet days in a year

N: total number of days in a year

Road dust sampling was done at various locations identified by the IIT Delhi group. The samples collected by PPCB were then sieve analysed to calculate the silt loading. The VKT calculations were then done from the vehicle flow diagram.

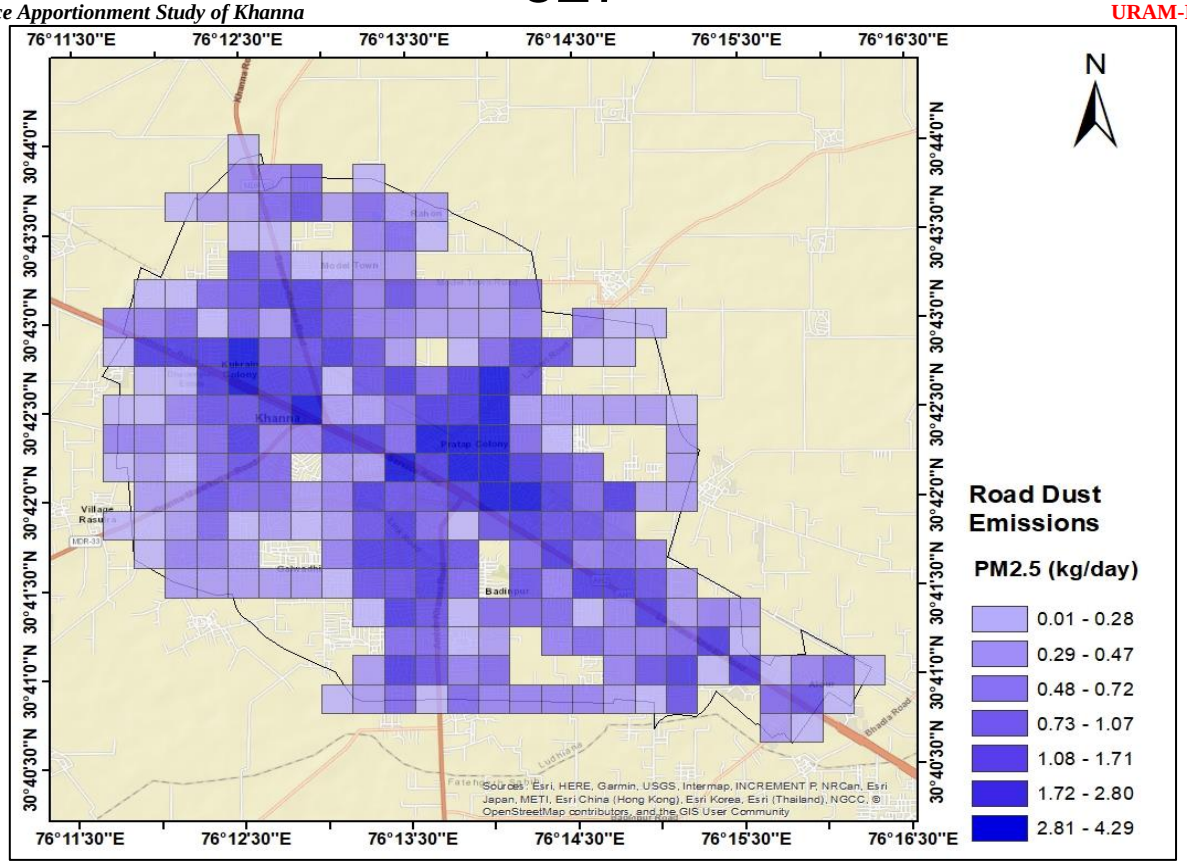


Figure 28 Map showing Road Dust $PM_{2.5}$ emissions per grid

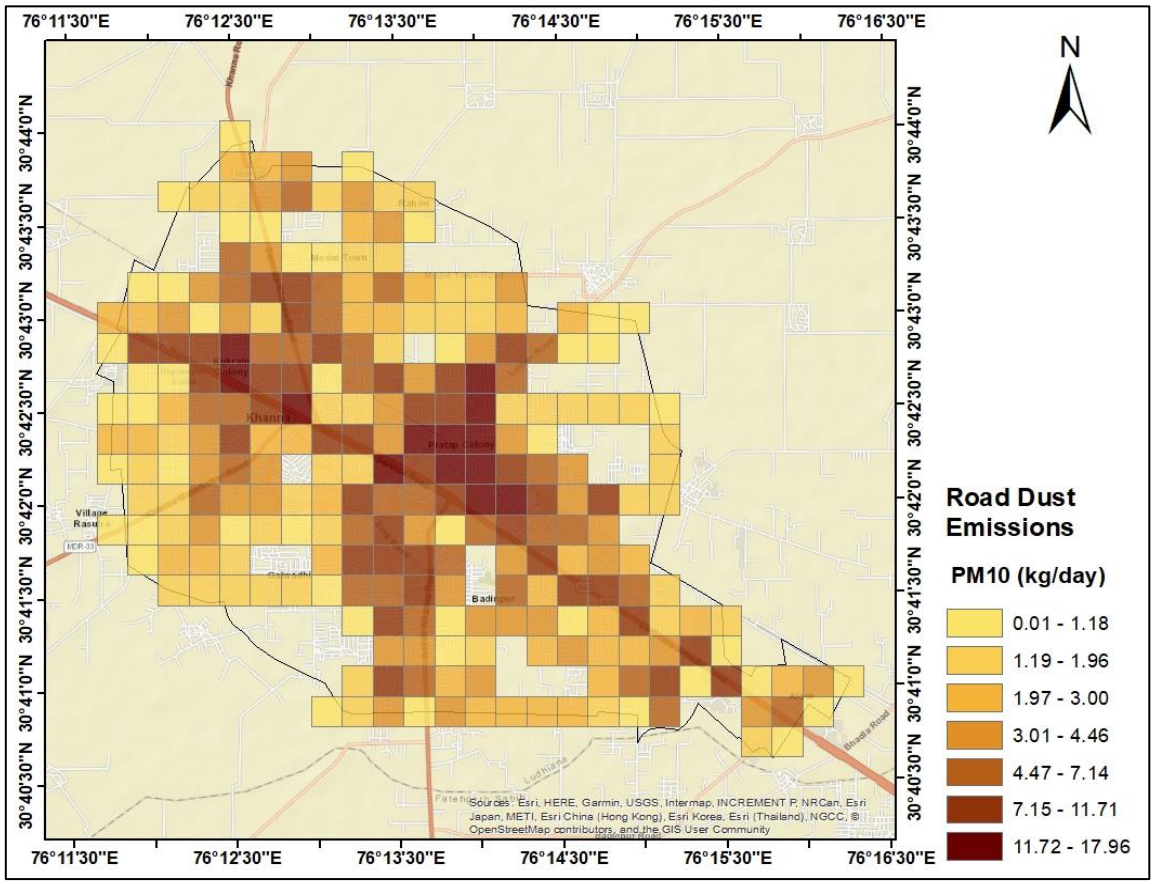


Figure 29 Map showing Road Dust PM_{10} emissions per grid

The following figures 30 and 31 clearly shows $PM_{2.5}$ and PM_{10} emission distribution in city from different sources respectively. The major source of $PM_{2.5}$ in the Khanna city was estimated to be the vehicular sector (40%) followed by the road dust sector (35%). The industrial sector contributes to almost 12 % of the emissions. The other sources, such as domestic, crematoria, construction, DG sets, brick kiln, food joints, open eat outs, contribute in smaller proportions and therefore have been clubbed in the others category. The major source of PM_{10} in the Khanna city was found to be road dust (60%) which is followed by vehicle (17%) and then industrial sector (12%). Other sources such as domestic, crematoria, construction & demolition, DG sets, food joints, open eat outs, contribute relatively less to the total PM_{10} emission load. The total $PM_{2.5}$ and PM_{10} load for the city of Khanna for the study period is estimated to be around 321 tons/year and 720 tons/year respectively.

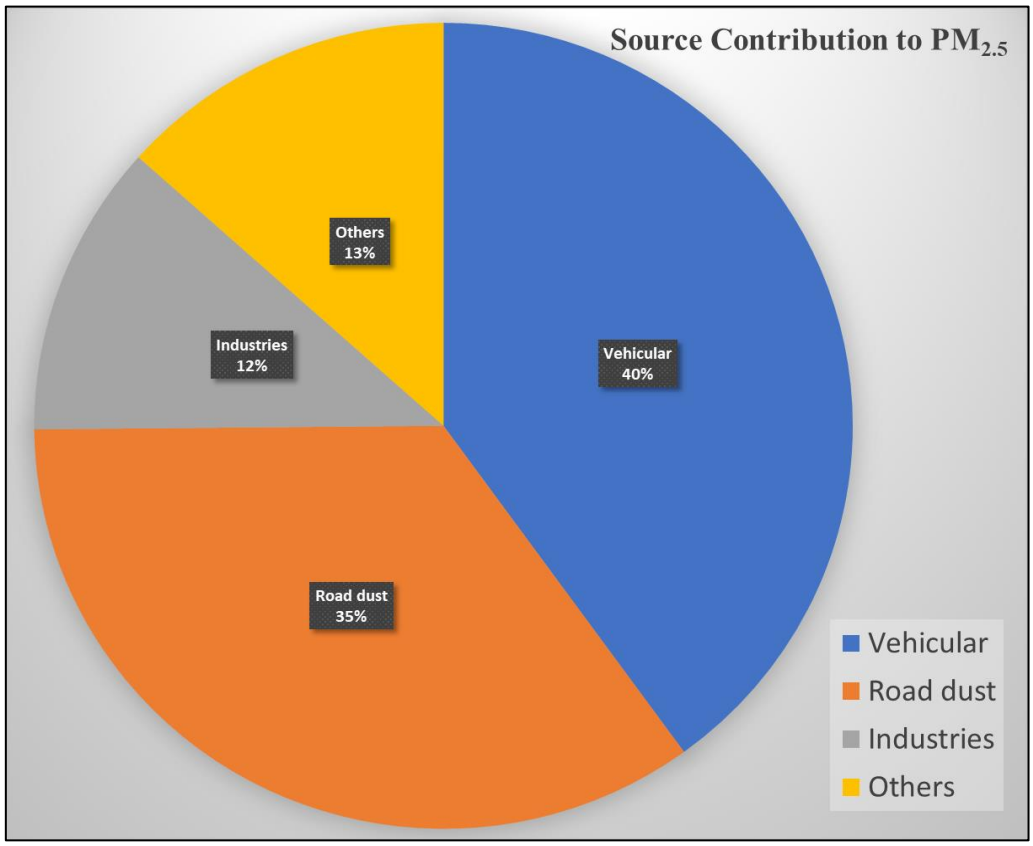


Figure 30 Chart showing the contribution of various sources to total emissions of $PM_{2.5}$

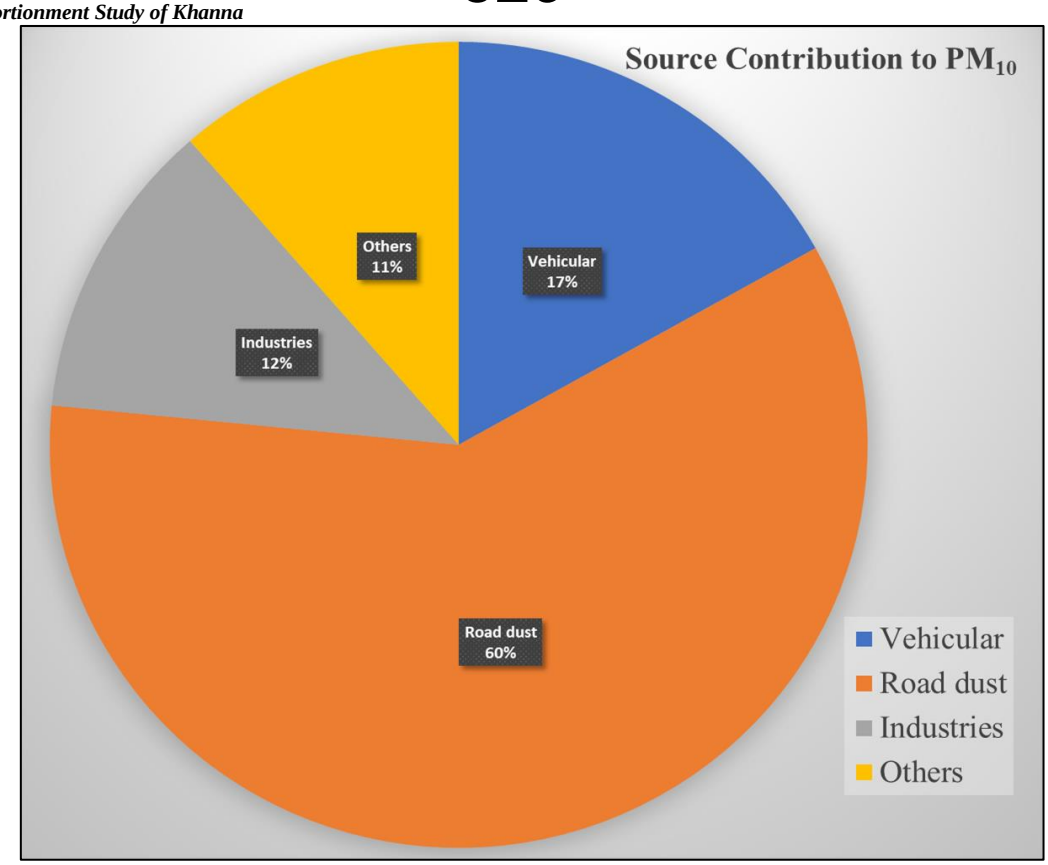


Figure 31 Chart showing the contribution of various sources to total emissions of PM_{10}

4. Dispersion Modelling & Source Apportionment

4.1 Dispersion Modelling

The atmosphere is an extremely complex reactive system in which various physical and chemical processes occur. Ambient measurements give a brief glimpse of the prevailing atmospheric conditions at a particular location and time. These measurements are often difficult to interpret, and these measurements cannot be used directly by the policymakers to establish an effective strategy to solve the air quality problem. The understanding of an individual atmospheric process does not give an understanding of the atmosphere i.e., numerous processes are happening in the atmosphere simultaneously. Hence, for a better understanding of the atmosphere integration of all these atmospheric processes and their interactions should be considered. Therefore, modeling comes into the picture.

Atmospheric models can be divided into two types:

A. Physical Models
B. Mathematical Models

A. Physical models are used to simulate atmospheric processes by means of a small-scale representation of the actual system, for example, a small-scale model/replica of an urban area or a wind tunnel. The problems associated with such type of model are cost effectiveness, inaccurate incorporation of the physical forces which may vary significantly with scale. Hence, such models are of very limited use.

B. Mathematical models of atmospheric behaviour can broadly be classified into two types:
   - Models based on statistical analysis of data
   - Models based on the fundamental description of atmospheric physical and chemical processes

Most regions contain several monitoring stations operated by governmental authorities at which 1 h to daily average concentration levels are measured and reported. A great deal of information is potentially available in these enormous databases, and statistical analysis of such data can provide valuable insights. An example of how such data can be used is a simple forecast model, where, for a certain region, concentration levels in the next few hours are given as a statistical function of current concentrations and

other variables from correlations among past measurements and concentration trends. Statistical models take advantage of the available databases and are relatively simple to apply. However, their reliance on past data is also their major weakness. Because these models do not explicitly describe causal relationships, they cannot be reliably extrapolated beyond the bounds of the data from which they were derived. As a result, statistically based models are not ideally suited to the task of predicting the impact of significant changes in emissions. Hence, models based on fundamental description of atmospheric physical and chemical processes are of prime use.

The mathematical model provides the necessary framework for the integration of our understanding of various atmospheric processes and their interactions. An approach involving the combination of state-of-the-science measurements and state-of-the-art models is the best towards an attempt to understand the complex atmosphere.

The general form of the Gaussian Plume Equation can be written as:

$$C(x,y,z;H) = \frac{Q}{2\pi\sigma_y\sigma_z u} \cdot \mathrm{e}^{\{-\frac{y^2}{2\sigma_y^2}\}} .(e^{\{-\frac{1}{2}(\frac{z-H}{\sigma_z})^2\}} + e^{\{-\frac{1}{2}(\frac{z+H}{\sigma_z})^2\}})$$

Where,

C = pollutant concentration (mass/volume)

Q = emission rate from the point source (mass/time)

z = receptor height above ground (m)

u = mean horizontal wind speed (m/s)

H = effective stack height (m)

= the sum of the physical stack height (h) and the plume rise (Δh)

σ_y and σ_z = horizontal and vertical dispersion coefficients (m) at a distance x from the source

x and y = downwind and lateral distances from the source to the receptor point (m)

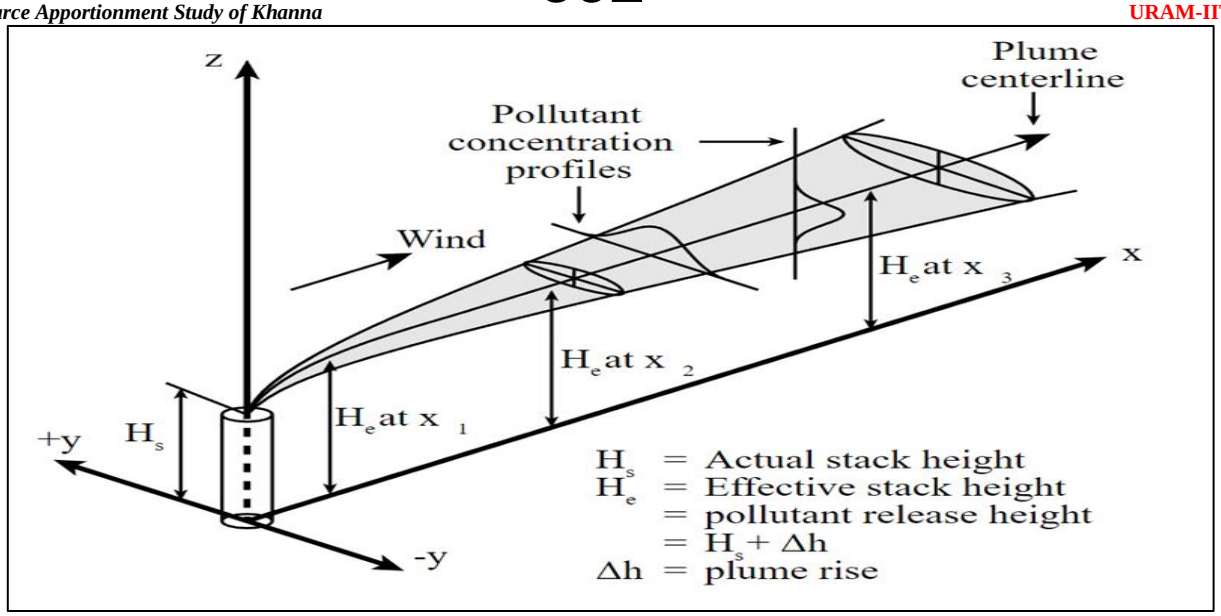


Figure 32 Parameters associated with the plume rise

4.2 Types of Models used in our analysis

The following discusses the different types of models along with their governing equations.

4.2.1 AERMOD

AERMOD stands for American Meteorological Society/ Environmental Protection Agency Regulatory Model. It is a regulatory model developed by USEPA (United States Environment Protection Agency) that has been rampantly used in all over the world both for research and regulatory purposes. AERMOD is a steady-state Gaussian plume model that incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources, and both simple and complex terrain (USEPA AERMOD manual). The major components of AERMOD are:

1. AERMET – a meteorological pre-processor
2. AERMAP – a terrain data pre-processor
3. AERMOD – a dispersion model

AERMIC meteorological pre-processor (AERMET) provides AERMOD with meteorological information it needs to characterize the planetary boundary layer (PBL). The AERMIC terrain pre-processor (AERMAP) characterizes the terrain and generates receptor grids for the dispersion model (AERMOD). AERMET uses meteorological data and surface characteristics to calculate boundary layer parameters (e.g. mixing height, friction velocity, etc.) needed by AERMOD.

ISC-AERMOD and CALPUFF are two modelling system which is recommended by USEPA (United States Environmental Protection Agency) for State Implementation Plan (SIP) purposes. Before

AERMOD, there were ISCST3 and ISC-PRIME, two popular models were there for regulatory purposes, but ISC-AERMOD is more advanced model comprising both ISCST3 and ISC-PRIME for assessment of pollution concentration and deposition from a wide variety of sources.

AERMOD constructs vertical profiles of required meteorological variables based on measurements and extrapolations of those measurements using similarity (scaling) relationships. Vertical profiles of wind speed, wind direction, turbulence, temperature, and temperature gradient are estimated using all available meteorological observations. It is applicable on both rural and urban areas, on flat or complex (flat + elevated) terrain and multiple sources (point, area, flare, volume) of emissions (Cimorelli et al., 2005)

4.2.2. WRF

WRF stands for Weather Research and Forecasting (WRF) model. It is a numerical weather prediction (NWP) and atmospheric simulation system designed for both research and operational applications. WRF reflects flexible, state-of-the-art, portable code that is efficient in computing environments ranging from massively parallel supercomputers to other computing machines. NWP is Physics based model which is based on several governing equations to get the values of the meteorological parameters.

The meteorological parameter for the city is generated from the WRF model. This was done because there were a lot of missing values in the station data and for some of the non-attainment city the meteorological station was not present. Once the meteorological parameters were generated then these parameters were used to estimate the concentration in the city using the dispersion model AERMOD.

4.2.3 AERMOD Outputs

The hourly simulations were carried out using AERMOD which is a dispersion model and stands for stands for American Meteorological Society/ Environmental Protection Agency Regulatory Model. The emissions of all sources are estimated based on the activity data which is solely based on the survey data provided to IIT Delhi team by PPCB which is not season specific. Hence the emissions section into the model were constant throughout and unlike meteorology which varies as a function of time. The meteorology has been estimated using WRF (Weather Research and Forecasting Model).

4.3 Source Apportionment

To better understand the contribution of various sources to the total concentration of $PM_{2.5}$, the city was divided into four quadrants and a single location from each of the sectors was identified. The quadrants were labelled in an anticlockwise manner. These coordinates are a representative of the

quadrant and help in better understanding of the contribution of different sources at that location. The identified locations are shown in the Figure 33.

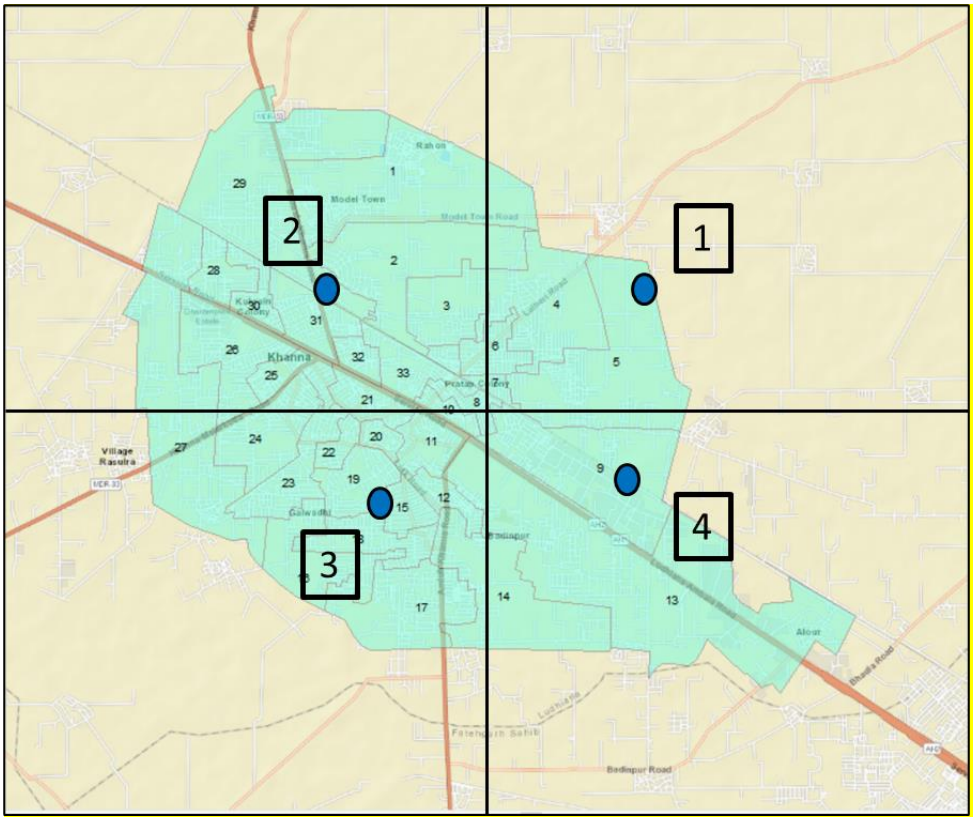


Figure 33 Division of city into four quadrants and their respective study coordinates.

The contribution of concentration by different sources was studied at these locations. It may be noted that the emissions estimated did not cover the seasonality i.e. the emissions are constant throughout the year. The variability in the concentration will be seen only because of the varying meteorological conditions. To study the contributions of various sources to predicted concentrations, the entire duration was divided into two periods: Pre-monsoon (1st March to 30th May) and post-monsoon (1st August to 30th November).

During Pre-monsoon, as shown in figure 34 below, the highest contributors to $PM_{2.5}$ at four different locations were found to be Vehicles with their contributions to be 43%, 39%, 43%, 32%, at locations 1, 2, 3, and 4 respectively. During post-monsoon, as shown in the figure 35 below, the highest contributor to $PM_{2.5}$ concentration was Vehicles with their contribution to be 37%, 35%, 39%, 30%, at locations 1, 2, 3, and 4 respectively.

For PM_{10}, during Pre-monsoon, as shown in figure 36 below, the highest contributors to PM_{10} at four different locations showed that were found to be Road Dust with the contributions of 50%, 51%, 57%, 42% at locations 1, 2, 3, and 4 respectively. Similarly, during post-monsoon, as shown in the figure

37 below, the highest contributor to PM_{10} concentration was again Road Dust with contributions 43%, 42%, 55%, 40% at locations 1, 2, 3 and 4, respectively. Further, this also indicates that there are no big seasonal effects on contributions of different sources. However, this conclusion could be due to non-season dependent emissions provided by PPCB.

Figure 34 Contribution of different sources to $PM_{2.5}$ at the four locations during pre-monsoon

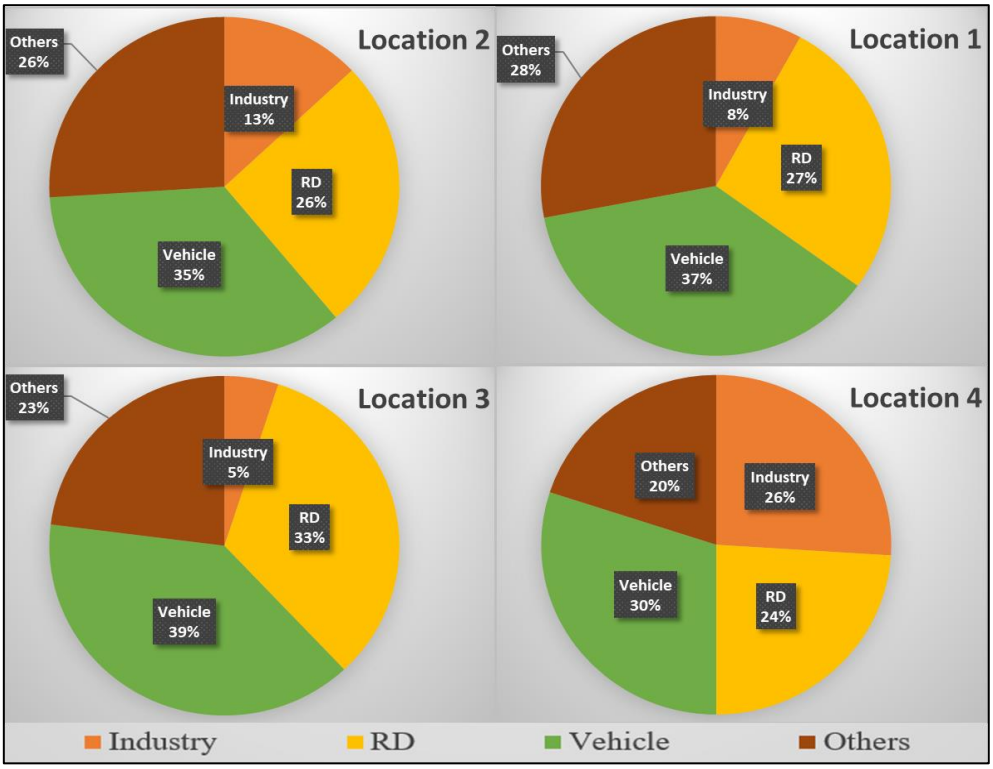


Figure 35 Contribution of different sources to $PM_{2.5}$ at the four locations during post monsoon

Figure 36 Contribution of different sources to PM_{10} at the four locations during pre-monsoon

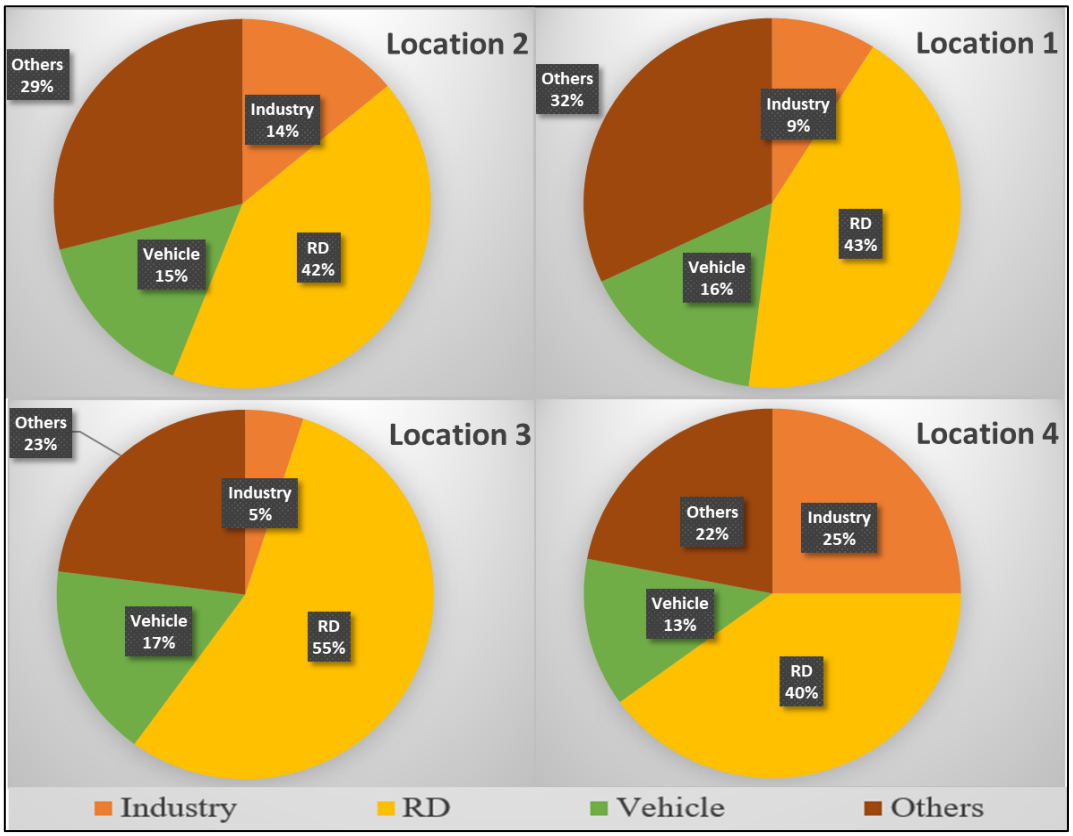


Figure 37 Contribution of different sources to PM_{10} at the four locations during post monsoon

5. Hotspots Identification & Action Plan to improve the air quality

Figure 38 shows the spatial distribution of yearly averaged $PM_{2.5}$ concentrations in Khanna city. This indicates that there are many locations in the city, which exceed the annual averaged CPCB standard of 40 µg/m3.

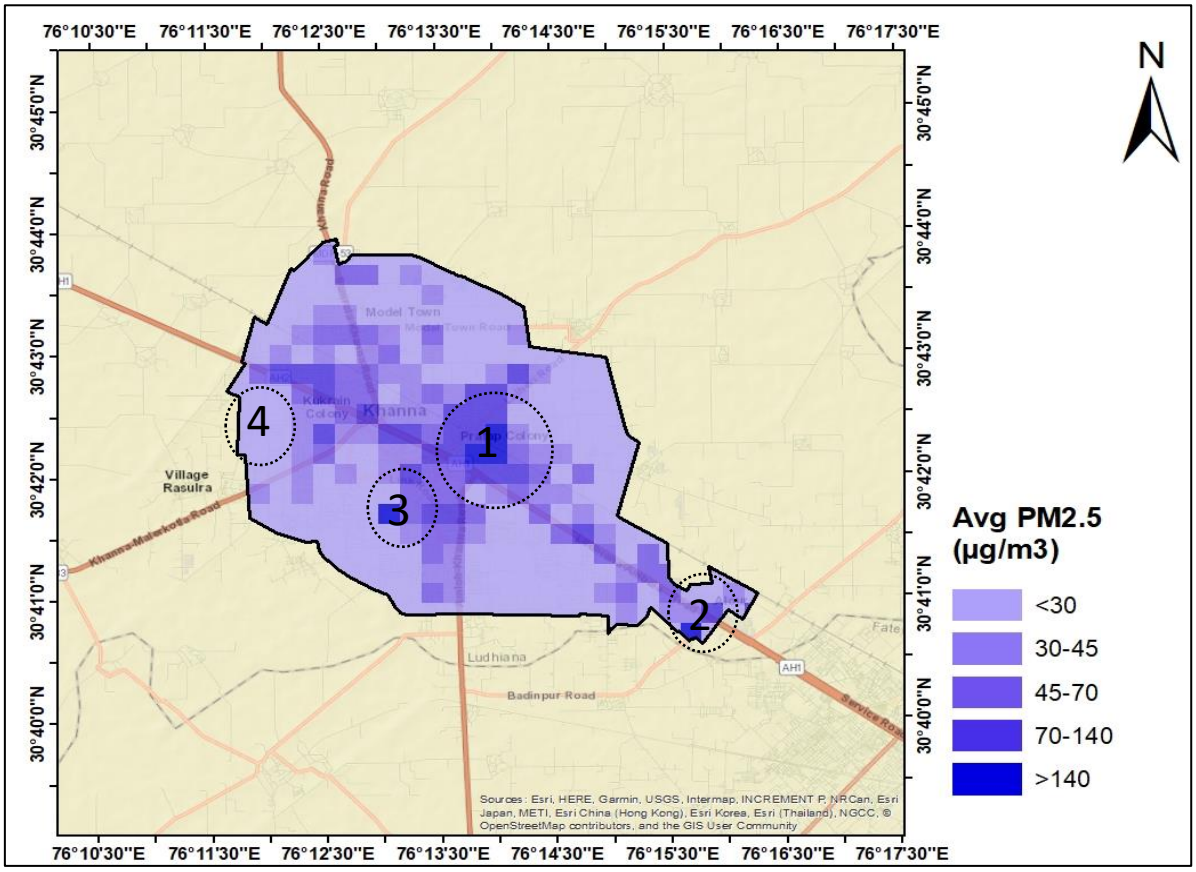


Figure 38 Major Hotspots for Khanna

Using the gridded emission inventory and the yearly averaged concentration plot, the hotspot in the city were identified (represented in figure 38) as below:

1) The central region of the city.
2) The juncture of the NH44 at the entrance of Khanna coming from Mandi Gobindgarh.

3) Area Connected with Ludhiana-Bodinpur Road.
4) Area connected with village Rasoolra, Khanna, Malerkotla road.

Action Plan

The major air pollution sources for $PM_{2.5}$ in the city are vehicles, road dust, industries and MSW burning. Following recommendations/suggestions may be adopted for abating the air pollution levels in the city.

Hotspot specific recommendations

1. Central region: This region is mainly the area in the vicinity of the Lalheri road and the Amloh Khanna road. Traffic jams are commonly seen on these roads because of the heavy movement of the commercial vehicles in the city. Following recommendations may be noted:
   a. The movement of heavy commercial vehicles needs to be regulated. Either it can be banned throughout the day (i.e., from 6 am to 9 pm) or it may be banned during the peak hours (i.e., from 7 am to 11 am and from 5pm to 9 pm). The regulating authorities may ensure that the violators may be penalized heavily. Addressing to the above recommendation may reduce the PM_{10} emissions by 23%-27% and $PM_{2.5}$ emissions by 18%-22% in the city.
   b. Also, other alternate routes may be identified, especially for the heavy congestion areas because it leads to the traffic jams which in turn leads to unnecessary tail pipe emissions.
   c. Sprinkling/spraying of treated STP water may be done at regular intervals (more frequently during the time when movement of commercial vehicles is allowed) may be done. This will help in combating the problem of the resuspension of road dust.

2. Juncture of the NH44 at the entrance of Khanna coming from Mandi Gobindgarh:
   The industrial emission contribution is also significant for the Khanna city. It is also observed that the industries are mainly concentrated near the juncture of the NH44 at the entrance of Khanna city from Mandi Gobindgarh. Precisely this hotspot lies in the ward 13. The relocation of the industries may be considered to a place outside the MC limits. This will also be helpful in preventing the movement of the commercial vehicles within the city.

3. As identified during the survey of the city following roads were found to be unpaved (Khanna-Malerkotla Road approx. 5 Kms; Khanna-Amloh Road approx. 4Km; Kartar Nagar area approx. 3Km; Chotta Khanna Road approx. 2Km; Samrala Road approx. 2Km). This may be paved to combat the road dust emissions. Meanwhile, very frequent sprinkling/spraying of treated STP water (more frequently during the time when movement of commercial vehicles

is allowed) may be done in this area to prevent road dust resuspension. The relevant competent authority may be recommended to prioritize the construction of cemented roads, especially over existing bituminous roads, within industrial zones. The inherent durability and longevity of cemented roads can offer a more sustainable solution in such heavy-duty areas. A "District Dust Control & Management Cells/Committee" may be constituted which is headed by the competent authority. This body should have the responsibility of consistently monitoring how well road dust control measures are being followed by the relevant authorities. Additionally, to ensure transparency and accountability, this committee may produce detailed monthly reports that document the effectiveness of the measures adopted. These reports will not only provide insights into the current situation but will also offer a systematic approach to combat dust pollution more effectively. Also, the usage of road sweeping machines may be increased in number and frequency depending on the area and the time of the year. The consistent and efficient use of these machines can significantly reduce road dust. Furthermore, once the dust is collected, there should be a systematic and scientific method in place for its disposal. Designated sites or landfills should be allocated specifically for this purpose, ensuring that the dust does not contribute to further environmental concerns. In addition to mechanical sweeping, post-sweeping water sprinkling is advised. Roadsides that are currently unpaved i.e. some of them are mentioned above should either be paved or transformed into green areas. Paved roadsides can minimize dust emissions, while green areas can act as natural barriers to dust and also enhance the aesthetic appeal of the region. Lastly, the central verges of roads should be greened. Planting grass, shrubs, or trees on these verges can serve as a natural dust trap and also provide a visual and ecological respite in urban areas.

General/City wide Recommendations

1. Road dust resuspension is another source of concern in Khanna. Following measures may be adopted.
    a. Regular sprinkling of treated STP water along with the regular cleaning of roads using mechanical sweepers could be done on heavy congestion areas.
    b. End to end pavement of roads could be done especially for the unpaved roads mentioned above.

2. Following recommendations are given in context to the vehicular source and may be implemented:
    a. Use of CNG may be promoted.

b. Use of e-vehicles may be promoted among the public. This could be done by incentivizing the public on the purchase of e-vehicles.
c. Public Transportation may be redesigned in the city with the introduction of minibuses to be operated on CNG especially on the busy routes.
d. There could be a policy change and infrastructure development (such as the charging stations) for electric vehicle usage in the future.
e. The concerned competent authorities may be directed to adopt a comprehensive approach to parking management. This should include the development of designated parking lots and the construction of multi-storey parking facilities to maximize space efficiency. Specialized parking areas for trucks and commercial vehicles should be established to cater to their unique requirements and ensure smooth traffic flow. Furthermore, to maintain order and clarity on the roads, specific zones for roadside parking should be clearly demarcated, guiding drivers to adhere to designated parking areas and minimize traffic disruptions.
f. Compliance of vehicles with the BS norms could be checked for. Regular pollution under control certificate check should be done and vehicles not adhering with the norms may be strictly penalized.
g. Age of the vehicles may be strictly monitored, as per government of India norms.
h. New cycling lanes may be constructed in the city to promote the use of non-motorized bikes and e-bikes.
i. Prevent parking of vehicles in non-designated areas.
j. Certain zones could be declared as vehicle free such as busy markets.
k. There could be promotion of battery-operated rickshaws.

3. Use of LPG for cooking may be promoted in the certain sections of the society by providing subsidies and they may be promoted to decrease their dependence on traditional fuels.

4. Wood is traditionally used in crematoria. So, use of electric cremation may be promoted by setting up new electronic crematoria.

5. Further, in the preliminary field visit, a fraction of older vehicles plying on this road is more than other parts of the city, thus it may be beneficial to implement non-plying of older vehicles as per government of India norms in villages surrounding the city.

6. Guidelines for construction sites for monitoring and control of dust emission may be formulated. Meanwhile CPCB guidelines for Construction and Demolition may be adopted. Also, air quality monitoring may be carried out at all the construction and real time data could be shared with PPCB which can be used to monitor the compliance with the norms. Also, during construction and demolition following measures may be adopted:
    a. A protocol should be established stating that the construction activity should not be carried out during unfavourable meteorology conditions-especially during post monsoon and winter.
    b. Use of sheets/wind barriers should be promoted to avoid the dispersion of pollutants emitted from the construction activities. CPCB norms should be added.

7. DG sets could be regularly inspected and properly maintained. Emissions limits as advised by CPCB may be strictly adhered to.

8. There could be an increase in the promotion of green energy alternatives such as solar panels in residential as well as commercial buildings.

9. All the major roads with heavy traffic movement should be checked regularly for potholes and repair/patchwork should be carried out immediately.

10. CNG operated e-rickshaw/CNG based School & College buses may be encouraged within the city limits. Also, all the roadsides/shoulders must be stabilized with concrete paver blocks within the city limits along with the proper drainage system.

11. The competent authority may be directed to prioritize the development of an engineered solid waste landfill site. This development should adhere strictly to the "Solid Waste Management Rules, 2000" to ensure environmentally sound and sustainable waste management practices. Proper implementation will help the region address waste disposal challenges efficiently and in line with established standards.

12. The competent authority may be directed to present a definitive, time-sensitive plan addressing the remediation of legacy waste. As a part of this comprehensive strategy, it's paramount to include measures for securing the landfill site with proper fencing. This will not only prevent unauthorized access but also deter potential environmental hazards. Additionally, the introduction of a leachate treatment mechanism is of utmost importance. By doing so, the risk of groundwater contamination from the landfill site can be significantly

minimized, ensuring the long-term safety and well-being of the surrounding environment and its residents.

13. PPCB may conduct various campaigns which should educate public on the seriousness and the impacts on health caused due to the pollution.

14. Increasing public transport in this city could be beneficial as hardly 2-4% of the total vehicles plying in the city are buses. Further, the busy routes in the city may be identified and the introduction of CNG driven buses on the busy routes of the city may be done.

15. Khanna is a city and a municipal council in the Ludhiana district of Indian state of Punjab. It is well known for being Asia's largest grain market. so, during paddy and wheat season there is a huge quantity of dust pollution in and around Khanna city.

16. The main National highway traffic passes through Khanna city via flyover, but local traffic moves very slowly on slip roads throughout the year which creates tons of smoke every day and contribute to pollution.

17. There are lot of heavy trucks, large tractor trolleys containing sugarcane and stubble passes through the city crosswords in daytime which creates heavy traffic jams and results in increasing pollution.

6. Limitations of the Study

The limitations of this study are listed below:

1) The activity data (raw data) is based on the survey forms provided to IIT Delhi team by PPCB for the various sources identified. Hence, the accuracy of the inventory is dependent on the quality of the data, the number of survey forms for each source and the representativeness of the survey data.

2) The vehicle activity data has the following limitations:

    a. For calculating the vehicle flow pattern, the video recording for 4-intersections were analysed for 1-weekday and 1-weekend. The average of this 2-days vehicle count data is then assumed to be uniform for 365 days which in real scenario will not be the case. Hence, the seasonal variation on the vehicular emissions is out of the ambit of this study.
    b. The vehicular tail pipe emissions may also depend on the speed of the vehicle which was not provided.
    c. The vehicle flow pattern is drawn considering only 4-intersections in the city. The limitation is this data may not be representative for a city like Khanna.

3) The road dust activity data has the following limitations:

    a. While calculating the emission factors for a stretch of the road the silt loading of that particular stretch needs to be estimated. As PPCB provided the road dust sampling analysis at only few locations, the silt loading data for the entire city roads were estimated using these few locations data, which might not be representative.
    b. The vehicular road dust emissions may also depend on the speed of the vehicle which was not available.

4) The data provided by PPCB to the IIT Delhi team to estimate the stubble emissions does not have information regarding duration of burning and time at which a particular field is burning. The given data only provided the information of the field area burnt. Considering this, the proper estimation of contribution of stubble to the particulate concentration in the city is not possible.

5) The scope of this study was restricted to carrying out source apportionment using dispersion modelling. However, to support the recommendations from this study a field campaign with regulatory grade equipment followed by receptor-oriented source apportionment may be carried out in future in the identified hotspots.

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AIR LAB, HEAD OFFICE, VATAVARAN BHAWAN, PATIALA, PUNJAB
Email: ppcbairlab@gmail.com, Website:www.ppcbonline.org

1.	Test Report No.	:	SED 823 /H.O. /Air Lab/Monitoring/2025-26
2.	Date of Issue of Report	:	12.03.2026
3.	Report Sent to (Designation &Address)	:	Senior Environmental Engineer PPCB ZO-II, Patiala and Environmental Engineer, RO Fatehgarh Sahib
4.	Source of Sample	:	M/s Sandeep Steel & Agro Industries, Amloh Road, Near Disposal works, Mandi Gobindgarh, Amloh, Fatehgarh Sahib
5.	Sample Registration No.	:	SER 1113
6.	Date of Sample Collection	:	03.03.2026
7.	Name of Sample Collecting Officer	:	Er. Vinod Singla, JEE & Ms Vandana SA
8.	Date of Sample Receipt	:	05.03.2026
9.	Sampling Description	:	Stack Emission
10.	Period of Analysis	:	05.03.26 to 12.03.2026
11.	Sampling Method	:	PPCB Lab/SOP/SC/01,Issue No.1 Date-01.08.2023
12.	Document attached with Test Report, if any	:	Data Sheet

Results

S. No.	Point of Sample Collection	Test Parameter	Units	Results	Method Reference
1.	Port hole on Stack after APCD of Reverberatory furnace	Particulate Matter (PM)	mg/Nm^3	102	IS 11255 (Part1): 1985, RA 2019

12/3/26

Name: Mrs. Manveer Kaur
Designation: JSO
(Signature of Analyst)

12/3/26

Name: Mr. Charn Singh
Designation: ASO
(Seal & Signature of Authorized Signatory)

Note: 1. The results relate to the samples tested.
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TEST REPORT FOR STACK EMISSION SAMPLE

1.	Test Report No.	:	SED 145/H.O. /Air Lab/Monitoring/2025-26
2.	Date of Issue of Report	:	12.09.2025
3.	Report Sent to (Designation &Address)	:	Senior Environmental Engineer PPCB, ZO-II Patiala and Environmental Engineer, RO Fatehgarh Sahib (FGS)
4.	Source of Sample	:	M/s Drolia Ispat, Bhadla Road, Village- Alour, District- Fatehgarh Sahib
5.	Sample Registration No.	:	SER 235
6.	Date of Sample Collection	:	09.09.2025
7.	Name of Sample Collecting Officer	:	Er Akanksha Bansal (AEE), Mrs. Manveer Kaur (JSO)
8.	Date of Sample Receipt	:	10.09.2025
9.	Sampling Description	:	Stack Emission
10.	Period of Analysis	:	10.09.2025 - 12.09.2025
11.	Sampling Method	:	PPCB Lab/SOP/SC/01, Issue No.1 Date-01.08.2023 for Particulate matter
12.	Document attached with Test Report, if any	:	Data Sheet

Results

S. No.	Point of Sample Collection	Test Parameter	Units	Results	Method Reference
1.	Port hole on Stack after APCD Attached with Reverberatory furnace	Particulate Matter (PM)	mg/Nm^3	29	IS 11255 (Part1): 1985, RA 2019

---End of Report---

12/9/25

Name: Mrs. Shaminder Kaur
Designation: JSO
(Signature of Analyst)

12/9/25

Name: Sh. Charn Singh
Designation: ASO
(Seal & Signature of Authorized Signatory)

Note: 1. The results relate to the samples tested.
2. This Report shall not be reproduced wholly or in part without prior written consent of the PPCB Laboratory.

PUNJAB POLLUTION CONTROL BOARD
\CENTRAL LABORATORY
NABL Accredited & ISO 45001: 2018 (OH&S) certified Laboratory
AIR LAB, HEAD OFFICE. VATAVARAN BHAWAN, PATIALA, PUNJAB
Email:ppcbairlab@gmail.com; Website:www.ppcbonline.org

TEST REPORT FOR STACK EMISSION SAMPLE

1.	Test Report No.	:	SED 149/H.O. /Air Lab/Monitoring/2025-26
2.	Date of Issue of Report	:	12.09.2025
3.	Report Sent to (Designation &Address)	:	Senior Environmental Engineer PPCB, ZO-II Patiala and Environmental Engineer, RO Fatehgarh Sahib (FGS)
4.	Source of Sample	:	M/s K.S. Steels, L/S Amarnath Castings G.T. Road, Alour, Khanna
5.	Sample Registration No.	:	SER 242
6.	Date of Sample Collection	:	10.09.2025
7.	Name of Sample Collecting Officer	:	Er Akanksha (AEE), Mrs. Shaminder Kaur (JSO)
8.	Date of Sample Receipt	:	11.09.2025
9.	Sampling Description	:	Stack Emission
10.	Period of Analysis	:	11.09.2025 - 12.09.2025
11.	Sampling Method	:	PPCB Lab/SOP/SC/01, Issue No.1 Date-01.08.2023 for Particulate matter
12.	Document attached with Test Report, if any	:	Data Sheet

Results

S.No.	Point of Sample Collection	Test Parameter	Units	Results	Method Reference
1.	Port hole on Stack after APCD Attached with Reverberatory furnace of 3 TPH	Particulate Matter (PM)	mg/Nm^3	18	IS 11255 (Part1): 1985, RA 2019

****---End of Report---****

12/9/25

Name: Mrs. Manveer Kaur
Designation: JSO
(Signature of Analyst)

12/9/25

Name: Sh. Charn Singh
Designation: ASO
(Seal &Signature of Authorized Signatory)

Note: 1. The results relate to the samples tested.
2. This Report shall not be reproduced wholly or in part without prior written consent of the PPCB Laboratory.

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Email:ppcbairlab@gmail.com; Website:www.ppcbonline.org

TEST REPORT FOR STACK EMISSION SAMPLE

1.	Test Report No.	:	SED 321 /H.O. Air Lab/Monitoring/2025-26
2.	Date of Issue of Report	:	19.11.2025
3.	Report Sent to (Designation &Address)	:	Senior Environmental Engineer PPCB ZO-II, Patiala and Environmental Engineer, RO Fatehgarh Sahib
4.	Source of Sample	:	M/s Madhuban steel Industries, Alour, Khanna, Ludhiana
5.	Sample Registration No.	:	SER 503
6.	Date of Sample Collection	:	13.11.2025
7.	Name of Sample Collecting Officer	:	Er. Deshveer Singh (JEE) & Mrs. Shaminder Kaur (JSO)
8.	Date of Sample Receipt	:	14.11.2025
9.	Sampling Description	:	Stack Emission
10.	Period of Analysis	:	14.11.2025 - 19.11.2025
11.	Sampling Method	:	PPCB Lab/SOP/SC/01, Issue No.1 Date-01.08.2023
12.	Document attached with Test Report, if any	:	Data Sheet

Results

S.No.	Point of Sample Collection	Test Parameter	Units	Results	Method Reference
1.	Port hole on Stack after APCD attached with reverberatory Furnace	Particulate Matter (PM)	mg/Nm^3	114	IS 11255 (Part1): 1985, RA 2019

****---End of Report---****

19/11/25

Name: Ms. Vandana Harpartap Singh,
Designation: SA
(Signature of Analyst)

19/11/25

Name: Charn Singh
Designation: ASO
(Seal &Signature of Authorized Signatory)

Note: 1. The results relate to the samples tested.
2. This Report shall not be reproduced wholly or in part without prior written consent of the PPCB Laboratory.

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Email:ppcbairlab@gmail.com; Website:www.ppcbonline.org

TEST REPORT FOR STACK EMISSION SAMPLE

30
5/1/26

1.	Test Report No.	:	SED 428/H.O. Air Lab/Monitoring/2025-26
2.	Date of Issue of Report	:	23.12.2025
3.	Report Sent to (Designation &Address)	:	Senior Environmental Engineer PPCB ZO-II, Patiala and Environmental Engineer, RO Fatehgarh Sahib
4.	Source of Sample	:	M/s Lakshmi Steel rolling mills (L/o Natraj Industrial Corporation), Village Alour, Khanna, Distt. Ludhiana
5.	Sample Registration No.	:	SER-604
6.	Date of Sample Collection	:	09.12.2025
7.	Name of Sample Collecting Officer	:	Er. Vinod Singla (JEE) & Miss Chandni (SA)
8.	Date of Sample Receipt	:	10.12.2025
9.	Sampling Description	:	Stack Emission
10.	Period of Analysis	:	10.12.2025 – 23.12.2025
11.	Sampling Method	:	PPCB Lab/SOP/SC/01, Issue No.1 Date-01.08.2023
12.	Document attached with Test Report, if any	:	Data Sheet

Results

S.No.	Point of Sample Collection	Test Parameter	Units	Results	Method Reference
1.	Port hole on Stack after APCD attached with reverberatory furnace of 250 MTD	Particulate Matter (PM)	mg/Nm^3	129	IS 11255 (Part1): 1985, RA 2019

****---End of Report---****

Vandana 23/12/25

Name: Ms. Vandana Harpartap Singh,
Designation: SA
(Signature of Analyst)

Singh 26/12/25

Name: Charn Singh
Designation: ASO
(Seal &Signature of Authorized Signatory)

Note: 1. The results relate to the samples tested.
2. This Report shall not be reproduced wholly or in part without prior written consent of the PPCB Laboratory.

PUNJAB POLLUTION CONTROL BOARD
CENTRAL LABORATORY
NABL Accredited & ISO 45001: 2018 (OH&S) certified Laboratory
AIR LAB, HEAD OFFICE. VATAVARAN BHAWAN, PATIALA, PUNJAB
Email: ppcbairlab@gmail.com; Website:www.ppcbonline.org

TEST REPORT FOR STACK EMISSION SAMPLE

1.	Test Report No.	:	SED-277/H.O. /Air Lab/Monitoring/2025-26
2.	Date of Issue of Report	:	21.10.2025
3.	Report Sent to (Designation &Address)	:	Senior Environmental Engineer PPCB ZO-II, Patiala and Environmental Engineer, RO Fatehgarh Sahib
4.	Source of Sample	:	M/s Mohindra Ispat, G.T Road, ALour, Khanna Ludhiana
5.	Sample Registration No.	:	SER-398
6.	Date of Sample Collection	:	08.10.2025
7.	Name of Sample Collecting Officer	:	Er. Vinod Singla (JEE) & Mrs. Manveer Kaur (JSO)
8.	Date of Sample Receipt	:	09.10.2025
9.	Sampling Description	:	Stack Emission
10.	Period of Analysis	:	09.10.2025 to 21.10.2025
11.	Sampling Method	:	PPCB Lab/SOP/SC/01,Issue No.1 Date-01.08.2023
12.	Document attached with Test Report, if any	:	Data Sheet

3614 27/10/25

Results

S.No.	Point of Sample Collection	Test Parameter	Units	Results	Method Reference
1.	Port hole on Stack after APCD (Reverberatory Furnance 7 MTD)	Particulate Matter (PM)	mg/Nm^3	50	IS 11255 (Part1):1985, RA 2019

---End of Report---

21/10/25

Name: Mrs. Shaminder Kaur
Designation: JSO
(Signature of Analyst)

21/10/25

Name: Mr.Charn Singh
Designation: ASO
(Seal &Signature of Authorized Signatory)

Note: 1. The results relate to the samples tested.

TRUE COPY
ADVOCATE

ALL INDIA STEEL REROLLERS ASSOCIATION

(Registered Under the Societies Registration Act. 1860)

ANNEXURE -R3/18

Regional Office (North)
G. T. Road, Near Bhodey Kanda,
Bhadla Road, MANDI GOBINDGARH-147301 (Pb.)
M. : 098556-58060, E-mail : aisramgg@gmail.com
E-mail : aisramgg@rediffmail.com

AISRA/MGG/PPCB/2026-27/0003

DT: 06.04.2026

To,

The Chairman
Punjab Pollution Control Board
Vatavaran Bhawan, Patiala

Subject: Request for permission alternate fuels to safeguard MSMEs and steel rolling cluster of Mandi Gobindgarh and Khanna

Sir,

1. With due respect, we submit the following for your kind perusal and consideration in order to safeguard the MSME Sector and the Steel Rolling Cluster of Mandi Gobindgarh and Khanna.

2. **Submission of Comparative Study Reports**:- We wish to bring to your notice that comparative pollution studies have been conducted in various industrial units at Mandi Gobindgarh and Raipur (Chhattisgarh) using , Low sulphur imported coal, Biomass pellets and PNG . The study reports, issued by the National Institute of Secondary Steel Technology (NISST) vide letter No. NISST/DIR/9929 dated 04.02.2025 and even number 11048 dated 01.04.2026, are enclosed herewith for your kind consideration.

3. **Observations from Emission Studies.** The comparative analysis of stack emissions indicates that the Suspended Particulate Matter (SPM) levels recorded were:- 24.0 mg/Nm³ , 35.0 mg/Nm³ , 38.0 mg/Nm³ . These values demonstrate only marginal variation, indicating comparable environmental performance across the different fuel systems.

4. **Key Findings of the Studies:-**

(a) No hazardous waste is generated.
(b) Coal ash is effectively utilized by cement industries.
(c) Tar formation observed contributes positively to reheating efficiency through reuse.
(d) SPM levels in all cases remain within a comparable range.

.....2/-

Head Office :
Sagar Apartments, 6, Tilak Marg, New Delhi-110001
Telephones : 65363874, 23389957, Fax : 011-23383142
E-mail : aisra2003@yahoo.com, aisra2003@gmail.com
Website : www.allindiasteelra.com

Regional Office (East) :
Chatterjee International Centre,
12-A (4th Floor), 33-A, J.N. Road,
Kolkatta-700071,
Phone : 033-22881885

5. **Request for provision of Alternate Fuels** :- In light of the above findings, it is earnestly requested that industries in Mandi Gobindgarh and Khanna may kindly be permitted to use the following cleaner fuel alternatives in place of PNG:

(a) **High Temperature Coal Gasifier** :- May be permitted for units with production capacity **up to 8 tons per hour or higher**, subject to submission of an undertaking to ensure compliance with prescribed emission norms.

(b) Biomass Fuel (Wood Processing Waste Pellets):
May kindly be permitted for use by any industry where it is technically feasible and operationally suitable, as a cleaner and sustainable fuel alternative.

(c) Low Sulfur Coal:-
May be permitted for use by very small units having coal consumption up to 5 tons per day or less, subject to adherence to prescribed emission norms and submission of an undertaking by the concerned unit(s).

6. The All India Steel Rerollers Association (AISRA humbly requests that the recommendations mentioned in Para 5 may kindly be considered and implemented at the earliest. This will help prevent permanent closure of MSMEs and sustain the steel cluster of Mandi Gobindgarh and Khanna. Also there should be more better results by reduction the existing share which is already less than 4%.

(Vinod Vashisht)
National President
M: 7837100415

CC :- Members Secy PPCB Vatavaran Bhawan , Nabha Road Patiala
EE, PPCB, RO, Fatehgarh Sahib

TRUE COPY
ADVOCATE

COMMISSION FOR AIR QUALITY MANAGEMENT
IN NATIONAL CAPITAL REGION AND ADJOINING AREAS
17th Floor, Jawahar Vyapar Bhawan (STC Building)
Tolstoy Marg, New Delhi-110001

F. No. A-110018/01/2021-CAQM/8045-8071 Dated: 2nd June, 2022

Subject: Permissible fuels for industrial applications in NCR.

WHEREAS, emissions from industries using polluting fuels like coal and Diesel oils etc. have adverse impact on air quality in the National Capital Region and Adjoining Areas and shifting of Industries to PNG/cleaner fuels has also been a priority for the Commission for Air Quality Management in NCR and adjoining areas;

2. WHEREAS, to this effect, the Commission, through statutory Directions No. 53, 62 and 63 dated 04.02.2022, 17.03.2022 and 18.05.2022 respectively issued to the State Governments of Haryana, Uttar Pradesh and Rajasthan and the GNCTD, *inter-alia*, in respect of industries in NCR directed that:

(i) These shall completely switch over to PNG or biomass fuels, latest by 30.09.2022 (for industries in areas in NCR where PNG infrastructure / supply is available) and by 31.12.2022 (for industries in areas in NCR where PNG infrastructure / supply is not available), failing which such industries shall be closed down and not permitted to schedule their operations.

(ii) The industries using biomass fuels shall adhere to the stipulated emission standards.

(iii) Use of biomass fuels as an alternative option, in addition to PNG or other cleaner fuels, shall be permitted even in new / under commissioning industries in the NCR;

(iv) Industries in the jurisdiction of GNCTD shall necessarily be run only on PNG or electricity.

3. WHEREAS, the Commission has further received submissions / representations from the following categories of industries citing that their

3end

applications and technical process requirements call for much higher operating temperatures and / or calorific value of fuels as compared to those achieved through bio-mass fuels:

(i) Standalone cupola-based foundries which mandatorily require a carbon feed stock, in addition to the fuel, have represented for permitting use of metallurgical coke, both as fuel and feedstock in cupola-based furnaces;

(ii) Furnaces/Kilns involved in metal melting/smelting/ heating/refining processes have represented that the desired temperature/ Specific heat and calorific value would not be achieved through use of bio-mass fuels;

4. WHEREAS, the technical, technological and process requirements in the above two categories of industries and the respective emission characteristics of the proposed fuels have been examined and analysed in the Commission;

5. WHEREAS, the matter was also deliberated upon as a specific agenda item in the recently held meeting of the full Commission on 25.05.2022 and considering the need to optimally balance the imperatives of sustainability of industries as also the emissions from such industrial operations that have a direct bearing on the air quality, the Commission approved the proposal to also permit the aforementioned fuels as alternatives to PNG/Bio-mass fuels for industrial applications only in regions beyond the jurisdiction of GNCTD.

6. NOW, THEREFORE, in furtherance of Direction Nos. 53, 62 & 63, the Commission in exercise of its powers under Section 12 of the Act, considering the levels of emissions generally observed / achieved in respect of existing industries using such fuels viz. metallurgical coke and the family of low sulphur heavy stock fuels and based on extant related national/ international standards, hereby permit use of metallurgical coke in standalone cupola based furnaces and family of low sulphur heavy stock fuels in furnaces for metal heating / smelting / refining purposes respectively, only for regions in the NCR beyond the jurisdiction of GNCTD, subject

to the stricter emission norms and standards as under, to be complied with through technological upgrades and use of appropriate pollution control devices / systems:

Parameter	Permissible Standards	
	Metallurgical coke (For Standalone Cupola Foundries)	Low Sulphur Fuels namely LSHS, Very Low Sulphur & Ultra-Low Sulphur fuel Oil (For metal smelting/melting/ refining / heating furnaces and kilns)
PM (mg/Nm^3)	80 (Aim for achieving a level of 50 mg/Nm^3) –	
SO_2 (mg/Nm^3)	50 –	
NOx (mg/Nm^3)	50 –	
CO	1% max –	

(Arvind Nautiyal)
Member-Secretary
Tel No.: 011-23701197
Email: arvind.nautiyal@gov.in

To,

1. The ACS/Pr. Secretary, Industries Department, Govt of Haryana.
2. The ACS/Pr. Secretary, Industries Department, Govt of Rajasthan.
3. The ACS/Pr. Secretary, Industries Department, Government of Uttar Pradesh.
4. The ACS/Pr. Secretary, Industries Department, Government of NCT of Delhi.
5. Member Secretary, Haryana State Pollution Control Board.
6. Member Secretary, Rajasthan State Pollution Control Board.
7. Member Secretary, Uttar Pradesh State Pollution Control Board.
8. Member Secretary, Delhi Pollution Control Committee.

Copy to:

1. The Chief Secretary, Govt. of Haryana
2. The Chief Secretary, Govt. of Rajasthan
3. The Chief Secretary, Govt. of Uttar Pradesh
4. The Chief Secretary, Govt. of NCT of Delhi.

Copy also to:

The Chairperson and all Members, CAQM.

(Arvind Nautiyal)
Member-Secretary

File No.HSPCB-040001/70/2021-MISCELIENIOUS CELL-HSPCB

I/125959/2022

HARYANA STATE POLLUTION CONTROL BOARD
C-11, SECTOR-6, PANCHKULA
Ph-2577870-74 E-mail:hspcbaircell@gmail.com

ORDER

Whereas, Haryana State pollution Control Board, after taking approval from State Government has notified approved fuels in the whole State vide order endst. No. 4023-4076 dated 12.12.2018; and,

Whereas, Commission for Air Quality Management in National Capital Region and Adjoining Areas, New Delhi has issued the direction no. 65 regarding Standard list of approved fuels for various applications across NCR for uniform adoption of clean fuels across the entire NCR vide F.No. A-110018/01/2021-CAQM/8218-40 dated 23rd June, 2022;

Therefore, in compliance of directions passed by Commission for Air Quality Management in National Capital Region and Adjoining Areas, New Delhi and in pursuance of the provisions of section 2(d) of the Air (Prevention and control of Pollution) Act, 1981 the Haryana State Pollution Control Board hereby declares the fuels as the "Approved fuels for NCR and Non-NCR district of Haryana" annexed as 1 and 2 respectively for the purpose of the said act with adequate pollution control devices wherever required.

The aforesaid standard list of approved fuels in NCR (Annexure-1) shall come in force w.e.f. 01.10.2022 (for areas where PNG infrastructure and supply is already available) and w.e.f. 01.01.2023 (for other areas where the PNG supply is still not available). In effect, the approved fuel list for NCR shall be completely in force in the entire NCR w.e.f. 01.01.2023.

Dated Panchkula, the
21st July, 2022
Endst no. HSPCB/ Aircell/2022/

A.K. Singh, IAS,
Chairman
Dated:-

A copy of the above order is forwarded to the following for information please:

1. Chairperson, CAQM, New Delhi.
2. Chief Secretary, Govt. of Haryana.
3. Secretary, MOEF & CC, Govt. of India.
4. ACS, New & Renewable Energy Department, Haryana.
5. ACS, Civil Aviation Department, Haryana.

6. ACS, Agriculture & Farmers Welfare and Development & Panchayats.
7. ACS, Environment & Climate Change Department, Haryana.
8. PS, Urban Local Bodies Department, Haryana,
9. PS, Industries & Commerce Department, Haryana.
10. PS, Transport Department, Haryana.
11. Chairman, CPCB.
12. All Deputy Commissioners in the State of Haryana.
13. All Branch In-charges, Head Office, HSPCB.
14. All Regional Officers of HSPCB in the field.
15. SEE(IT) for uploading the order on website.
16. P.S. to Chairman, HSPCB.
17. P.A. to Member Secretary, HSPCB.

Signed by Vinay Gautam
Date: 22-07-2022 11:55:53
Reason: Approved
Environmental Engineer (HQ)
For Chairman

A copy of above is forwarded to following for kind information please.

1. PS to PSCM.
2. PS to APSCM.

Annexure-1

Standard list of approved fuels for entire NCR.

1. Petrol (BS VI with 10 ppm Sulphur) as per Notification of Government of India as amended from time to time- Vehicular fuel.
2. Diesel (BS VI with 10 ppm Sulphur) as per Notification of Government of India as amended from time to time- Vehicular fuel.
3. Hydroge4/Methane- Vehicular and Industrial purposes.
4. Natural Gas (CNG/PNG/LNG) - Vehicular, Industrial and Domestic Purposes
5. Liquefied Petroleum Gas (LPG) /Propane/Butane - Vehicular, Industrial and Domestic Purposes
6. Electricity - Vehicular, Industrial, Commercial and Domestic Purposes.
7. Aviation turbine fuel
8. Biofuels (Bio-alcohols, Bio-diesel, Bio-gas, CBG, Bio-CNG)- for industrial/vehicular/Domestic purposes as applicable.
9. Refuse Derived Fuel (RDF) for Power plants, Cement plants, Waste to Energy plants.
10. Firewood/ Biomass briquettes for religious purposes.
11. Wood/Bamboo Charcoal for Tandoors and Grills of Hotels/Restaurants/Banquet Halls (with emission channelization/control system) and Open eateries/ Dhabas.
12. Wood charcoal for cloth ironing.
13. Electricity/ CNG/ Firewood and Biomass briquettes for Crematoria.
14. Biomass/Agriculture refuse and Pellets/briquettes - for Industrial Boilers, Power plants, Biofuel projects, Cement industry, Waste to Energy plants etc.
15. Biomass Pellets/ briquettes - for Tandoors and Grills of Hotels/ Restaurants/ Banquet Halls (along with mandatory emission channelization/ control system) and for Open eateries/ Dhabas.
16. Metallurgical coke - For industrial purposes in standalone Cupola based Foundries.

17. "Low Sulphur Fuels" namely LSHS, Very Low Sulphur fuel oil & Ultra-Low Sulphur fuel Oil - for industrial purposes in metal smelting/melting/ refining / heating furnaces and kilns.

Note:

1. Coal with low Sulphur shall be permitted as fuel only in Thermal Power Plants in the NCR.
2. Any other clean fuel notified by the Govt. of India, from time to time, shall be included in the list appropriately.
3. All other fuels will be deemed as "unapproved" in as far as the NCR is concerned.
4. The aforesaid standard list of approved fuels in NCR shall come in force w.e.f. 01.10.2022 (for areas where PNG infrastructure and supply is already available) and w.e.f. 01.01.2023 (for other areas where the PNG supply is still not available). In effect, the approved fuel list for NCR shall be completely in force in the entire NCR w.e.f. 01.01.2023.

Annexure-2

Standard list of approved fuels for entire non NCR.

1. Petrol (as per norms prescribed by Government of India from time to time).
2. Diesel (as per norms prescribed by Government of India from time to time).
3. Liquid Petroleum Gas (LPG) and PNG for domestic and commercial use.
4. Natural Gas/Compressed Natural Gas (CNG) for vehicles.
5. Piped Natural Gas (PNG) and LPG for boilers, furnaces, Lime Kilns and Thermic Fluid Heaters.
6. Aviation turbine fuel.
7. Coal for boilers, furnaces, Thermic Fluid Heaters, Lime Kilns and Brick Kilns.
8. Low- Sulphur Diesel Fuel (LSDF) for boilers, furnaces, Lime Kilns, Thermic Fluid Heater and incinerators.
9. Biomass / Agriculture refuse such as Rice Husk, Mustard Husk, Bagasse, Almond husk, Walnut Husk either in the form of Briquettes or loose to be used in Boilers, Furnace, Brick Kilns.
10. Firewood and dung cake for domestic use, crematoriums and for other religious purposes.
11. Wood Charcoal for use in clothes ironing.
12. Biogas, Bio fuel, Char Coal.
13. Refuse Derived Fuel (RDF) for Power Plant, Cement Plants including Waste-to-Energy Plants.

MAHARASHTRA POLLUTION CONTROL BOARD

Tel.: 24010437/24020781/24014701
Fax : 24024068 / 24044531
Website : www.mpcb.gov.in
E-mail : jdair@mpcb.gov.in

Kalpataru Point, 2nd - 4th Floor,
Opp. PVR Cinema,
Near Sion Circle, Sion (E),
Mumbai - 400 022.

No. MPCB/JD(APC)/Fuel Policy/TB-2/B- 489

Date : 05/02/2020.

CIRCULAR

Sub : Policy for use of Pet Coke and Furnace Oil as a fuel in the State of Maharashtra

Ref : Orders passed by Hon'ble National Green Tribunal in Original Application No.67/2019 filed by Sumit Kumar v/s State of Himachal Pradesh.

Shri M.C. Mehta had filed a Writ Petition (s) (Civil) No. 13029/1985 before the Hon'ble Supreme Court of India against the Union of India & Ors., regarding prohibition on use of pet coke and Furnace oil in industries in the NCR state of Haryana, Uttar Pradesh and Rajasthan, wherein, the Hon'ble Supreme Court of India vide order dated 17/11/2017 directed all the State Government and Union Territories to consider similar measures.

Subsequently, the Hon'ble Supreme Court has passed various orders dated 13/12/2017, 05/02/2018,26/07/2018,09/10/2018 and in its order dated 09/10/2018, taken on record the Report of Central Pollution Control Board regarding use of pet coke as feed stock in Calcined Petroleum Coke (CPC) units wherein it was recommended that due to emission of SO2 in high concentration the emission needs to be treated in Flue-gas desulfurization (FGD) systems having removal efficiency more than 90%.

Sumit Kumar has filed an Original Application bearing No.67/2019 against State of Himachal Pradesh & Ors. with clubbed matter before the Hon'ble National Green Tribunal, Principal Bench, New Delhi, for prohibition on use of pet coke and furnace oil as a fuel.

In the aforesaid matter, the Hon'ble NGT vide order dated 28/03/2019 has accepted Report of the Central Pollution Control Board and directed the CPCB to issue appropriate directions in this regard to the concerned States indicating corrective measures against those who failed to comply with the directions.

In compliance of the aforesaid directions, the Central Pollution Control Board has issued directions u/s 5 of the Environment (Protection) Act, 1986 vide letter dated 23/08/2019 directed to all States and Union Territories for preparation of policy on use of Pet Coke and Furnace Oil as follows,

(I) *State Government / Union Territory Administration shall formulate and enforce fuel policy regarding use of pet coke and furnace oil in the State/ Union Territory in light*

of various orders passed by Supreme Court regarding use of pet coke and furnace oil in Writ Petition (C) No.13029/1985.

(ii) State Government / Union Territory Administration through respective SPCB / PCC shall take strict action against any industry, if found violation of the fuel policy on use of pet coke and furnace oil that will be enforced as above, using the powers conferred under environmental laws.

1. Policy:
Accordingly, the following policy is framed for use of Pet Coke & Furnace Oil as Fuel:

(i) PET COKE (PC) :
Petroleum coke, abbreviated coke or petcoke, is a final carbon-rich solid material which is derived from oil refining and is one type of the group of fuels referred to as cokes. This coke can either be fuel grade (high in sulphur and metals) or anode grade (low in sulphur and metals). Pet-Coke is over 80% Carbon and emits 5% to 10% more Carbon Dioxide (CO2) than Coal on a per unit-of-energy basis when it is burned.

(ii) FURNACE OIL (FO):
Fuel oil (also known as heavy oil, marine fuel or furnace oil) is a fraction obtained from petroleum distillation, either as a distillate or a residue. Fuel oil is made of long hydrocarbon chains, particularly alkanes, cycloalkanes and aromatics.

2. The following fuel will be allowed subject to Conditions mentioned further:

A. Liquefied Petroleum Gas (LPG)
B. Liquefied Natural Gas (LNG)
C. Piped Natural Gas (PNG)
D. High Speed Diesel (HSD)
E. Bio Gas
F. Bio-fuel (Bio-Ethanol etc.)
G. Refuse Derived Fuel (RDF): To be used in Cement kiln & Waste to Energy plant or any other unit allowed by the Central Government/State Government.
H. Biomass as fuel (like Bagasse, Briquettes/Pellets etc.)/ Agriculture refuse/dung cake.
I. Low Sulphur Heavy Stock (LSHS)
J. Light Diesel Oil (LDO)
K. Coal/lignite

L. Firewood/wood charcoal

M. Naptha/Propane/ gasoline/Hydrogen/Methane

N. Pet Coke subject to Specific Conditions: In units such as Cement Plant or Lime kiln, Calcium carbide and Gasification for use as feed stock or in the manufacturing process only on actual user basis or in process where Sulphur is completely absorbed as per Office Memorandum issued by Ministry of Environment Forest & Climate Change (MoEF &CC) vide no. Q-18011/54/2018-CPA dated-10-09-2018.

O. Units having furnaces based upon Furnace Oil as fuel may be allowed with a condition that Unit(s) shall install the system for 90% scrubbing and removal of SO2 emission and Large scale & Medium Scale unit shall install continuous online emission monitoring system and online data transfer to Maharashtra Pollution Control Board & Central Pollution Control Board.

3. IMPLEMENTATION PERIOD:

i. Units planning to use Furnace Oil shall follow the timeline given below for compliance with installation of system for 90% scrubbing of SO2 emission and Large Scale & Medium Scale unit shall install the continuous online emission monitoring system.

Table

Category		**Timeline for compliance from the date of Notification.**
Unit(s) irrespective of category falling in Critical Polluted Area (CPAs)/ Severely Polluted Area (SPAs)/Other Polluted Areas (OPAs) based on the Comprehensive Environmental Pollution Index (CEPI) developed by CPCB.		One Year
Rest of Areas in Maharashtra	Red Category	Two Years
	Orange Category	
	Green Category	

ii. In case any units failed to achieve the compliance within the timeline mentioned above, they shall be prohibited for using Furnace Oil.

(E. Ravendiran, IAS)
Member Secretary

Copy submitted for favour of information to:

1. Hon'ble Chairman, MPCB, Sion, Mumbai.
2. Principal Secretary, Environment, Govt. of Maharashtra, Mantralaya, Mumbai

Copy to:

1. PSO / JD-APC / JD-WPC / RO-HQ/Law Officer-1/2, for information.
2. All RO / All SRO, MPCB for information & Necessary Action. They are directed to circulate the said circular to all concerned industries/Industries Association and District Magistrates as per your jurisdiction.
3. ASO / EIC-For uploading on MPCB Website

GOVERNMENT OF ODISHA
FOREST & ENVIRONMENT DEPARTMENT
****

NOTIFICATION

Bhubaneswar, Dated the 12 April,2021

Fuel Policy of the State of Odisha

No. FE-ENV3-ENV-0014-2017/ 7485 /F&E., Hon'ble Supreme Court of India in the matter of "M.C Mehta Vrs. UOI" in W.P. (Civil) 13029 of 1985 directed on 24.10.2017 to ban the use of petcoke and furnace oil in industries in the NCR state of Haryana, Uttar Pradesh and Rajasthan. Subsequently, Hon'ble Supreme Court directed in the same writ petition on 17.11.2017 observing that the pollution caused by Petcoke and furnace oil is not a problem confined only to the NCR, but appears to be a problem faced by almost all the State and Union Territories in the Country and Hon'ble Apex Court directed all the State Governments and Union Territories to consider taking similar measures as have been taken by the Govt. of India and CPCB.

Hon'ble Supreme Court of India in WP(C) No. 13029/1985 in order dtd. 26.07.2018 allowed on use of petcoke as feed stock in industries such as Cement, Lime Kiln, Calcium Carbide unit, Gasification unit and also in WP(C) No. 13029/1985 in order dtd. 09.10.2018 allowed use of raw pet coke for manufacturing of Calcined Pet Coke (CPC) having sulphur content <3.5% for making anode in the Aluminium industry and recommended to treat the emission of SO_2 of Calcined Pet Coke (CPC) unit in FGD system having sulphur removal efficiency more than 90%.

In pursuant to the above orders of Hon'ble Supreme Court of India, the Ministry of Commerce and Industry, Govt. of India, New Delhi vide Notification No. 42/ 2015-2020, dtd. 23.10.2018 amended the import policy condition of pet coke by prohibiting import of pet coke for fuel purpose and allowed import of petcoke for use in industries such as Cement, Lime Kiln, Calcium Carbide, Gasification, Graphite Electrode, Aluminium industry & Calcined Pet Coke units.

Central Pollution Control Board, New Delhi in their letter dtd. 26.06.2020 have recommended the SPCBs to include LSHS (Low Sulphur heavy stock) oil as industrial fuel in place of furnace oil while formulating fuel policy to reduce emission of SO_2. CPCB has also suggested in their direction dtd. 23.08.2019 that the oil refineries can produce low sulphur oil like slurry oil, LSHS and LDO, if demand on FO is reduced.

Hon'ble National Green Tribunal (NGT) in the matter of "Sumit Kumar Vrs. State of Himachal Pradesh and Others" in O.A. No. 67/2019 read with O.A. No. 138/2019 observed that *"Considering the various directions and orders of Hon'ble Supreme Court regarding use of petcoke and furnace oil contoining higher Sulphur, it is required that States and UTs including Himachal Pradesh, formulate fuel policies regarding use of pet coke and FO in light of Hon'ble Supreme Court order dtd. 24.10.2017 (banning use of pet coke and FO in NCR States) and 17.11.2017 (suggesting*

States / UTs to take similar measures) and further Hon'ble Supreme Court order dtd. 13.12.2017, 05.02.2018 and 26.07.2018 allowing use of pet coke in industries / processes which use pet coke and furnace oil either as feed stock (Calcined pet coke (CPC) units, Aluminium industries) or where they get absorbed along with product in manufacturing process (cement, lime kiln, calcium carbide industries). It is relevant to mention that use of Raw Petroleum Coke (RPC) in CPC units has been allowed with condition of 90% recovery of SO_2 emission. The same principle may be followed in industrial processes where use of FO as feed stock is considered by States/ UTs" and also issued direction to CPCB to ensure compliance from the States/ UTs.

The Government of Odisha vide Notification No. 22737, dtd. 07.11.2017 in F & E Dept, has allowed the use of Petcoke as an "Approved fuel" as per the provision of Air (Prevention & Control of Pollution) Act, 1981, subject to condition that the industry / processes interested to use pet coke as fuel shall obtain prior consent of SPCB, Odisha and install required air pollution control system to achieve the emission standards as prescribed from time to time and comply with the conditions stipulated by the competent authorities. Memo of this notification was forwarded to MoEF & CC and CPCB, New Delhi.

Keeping in view of the directions of Hon'ble Supreme Court of India and order of Hon'ble National Green Tribunal emphasizing on switching over to alternative and cleaner fuels, the following policy is framed for regulation and control use of Petcoke, Furnace Oil and use of other fuels in the State of Odisha.

The following fuel will be allowed for use in the State of Odisha.

a. Liquefied Petroleum Gas (LPG)
b. Liquefied Natural Gas (LNG)
c. Piped Natural Gas (PNG)
d. High Speed Diesel (HSD)
e. Bio Gas
f. Bio–Fuel (Bio-Ethanol etc.)
g. Refuse Derived Fuel (RDF): To be used in Cement Kiln and Waste to Energy Plant or any other unit allowed by the Central Government/ State Government.
h. Biomass as fuel (like Bagasse, Briquettes/ Pellets etc.)/ Agriculture refuse/ dung cake).
i. Low Sulphur Heavy Stock (LSHS)
j. Light Diesel Oil (LDO)
k. Coal/Lignite
l. Firewood/wood charcoal
m. Naptha / Propane / Gasoline / Hydrogen / Methane

n) **Pet Coke:**

- Use of Petcoke is allowed as feedstock in industries/ processes where SO_2 gets absorbed such as Cement, Lime/ Dolo Kiln, Calcined Pet Coke (CPC), Aluminium Smelter, Gasification, Calcium Carbide & Graphite Electrode subject to obtaining specific consent to establish/ operate from State Pollution Control Board, Odisha under the provision of Air (Prevention and Control of Pollution) Act, 1981.
- The above-mentioned industries will be required to install all the requisite air pollution control systems so as to achieve the emission standards for Particulate Matter (PM) & SO_2 concentration and provide minimum stack height as prescribed in Environment (Protection) Act, 1986 and the Rules framed there under as amended from time to time.
- All the above-mentioned units using pet coke shall install online continuous emission monitoring system for parameters of PM & SO_2 with connectivity to the server of the SPCB for transmission of real-time online data within a period of 6 months.
- Raw pet coke having Sulphur content less than 3.5% shall be allowed for use in CPC units with condition of more than 90% recovery of SO_2 emission through flue gas desulphurisation system.
- Use of Calcined pet coke is allowed as feed stock or in manufacturing process in the industries as mentioned above and shall not be supplied to any other industry.
- Any other unit other than the above intend to use petcoke as feedstock or in manufacturing processes, where sulphur will be absorbed in the process will have to obtain prior permission from State Pollution Control Board on case-to-case basis.
- No other industry / processes shall be allowed to use petcoke as fuel.
- Considering the requirement of grinding, sizing, and briquetting of pet coke before using in the approved industries as mentioned in this policy, the existing pet coke grinding, sizing and briquetting units are allowed to use raw pet coke and they shall not supply the processed raw pet coke to the industries not covered in this policy and maintain a record for verification of SPCB. Establishment of standalone new pet coke grinding, sizing & briquetting units shall not be allowed.

o) **Furnace Oil**

- Industries using furnace oil shall install scrubbing system for more than 90% recovery of SO_2 emission and provide stack height as per the following formula within **6 months**.
- $H = 14(Q)^{0.3}$ (Where, H is the physical stack height & Q is emission rate of SO_2 in Kg/hr).
- All the industries using furnace oil shall shift to use of cleaner fuel with low Sulphur content such as Low Sulphur Heavy Stock (LSHS)/ Light Diesel Oil (LDO) / Gas, replacing furnace oil within a period of **Two years**.

The new industries coming up in the State which is either under construction or in upcoming stage shall abide by the conditions of State fuel policy.

The State fuel policy shall be subject to the compliance of orders and direction of Hon'ble Supreme Court of India/ High Court/ NGT and guidelines issued by Central Govt./CPCB/ State Govt. and can be amended with the approval of State Government.

By the order of Governor

Addl. Chief Secretary to Govt.

Memo No. 7486 /dtd. 12.04.21

Copy forwarded to the Director, Printing Stationery & Publication, Odisha, Madhupatna, Cuttack for information and necessary action. He is requested to publish the Notification bearing S.R.O No. and date in the Extra Ordinary issue of the Odisha Gazette and provide 100 copies of the same to this Department.

12/04/21
Director, Env-cum-Special Secretary to Govt

Memo No. 7487 /dtd. 12.04.21

Copy to Secretary, MoEF & CC, Indira Paryavaran Bhawan, 3rd Floor, Vayu Wing, JorBagh Road, New Delhi-11003 for information.

12/4/21
Director, Env-cum-Special Secretary to Govt.

Memo No. 7488 /dtd. 12.04.21

12/04/21
Copy to the Principal Secretary, Department of Industries, Kharvela Bhawan, Govt. of Odisha for information.

12/4/21
Director, Env-cum-Special Secretary to Govt.

Memo No. 7489 /dtd. 12.04.21

Copy to Member Secretary, Central Pollution Control Board, Paribesh Bhawan, East Arjun Nagar, New Delhi -110032 for information.

12/4/21
Director, Env-cum-Special Secretary to Govt.

Memo No. 7490 /dtd. 12.04.21

Copy to Member Secretary, SPC Board, Odisha, Bhubaneswar A/118, Nila Kantha Nagar, Unit-8, Bhubaneswar -751012 for information.

12/4/21
Director, Env-cum-Special Secretary to Gov

TRUE COPY
ADVOCATE

Agriculture Machinery Manufacturer's Association - HR
(STATE CHAPTER OF AMMA)
Email : haryanaamma@gmail.com Website : www.ammahr.org

Date: 18/03/2025

To

The President

All India Steel Re-Rollers Association (AISRA), Mandi Gobindgarh

The President

Small Scale Steel Re-Rollers Association (SMASRA)

Khanna/Mandi Gobindgarh

Subject: Urgent Request to Prioritize Coal-Based Steel Production over PNG/LPG for Agricultural Implement Manufacturing

Dear Sir,

We wish to bring to your immediate attention a critical issue affecting the performance, reliability, and safety of agricultural implements due to modifications in the steel rolling process.

Since 2022, agricultural implement manufacturers have been experiencing significant challenges related to welding integrity and coating adhesion, leading to structural deficiencies and increased product failures. A detailed assessment has revealed that a major contributing factor is the transition of rolling mills—particularly in Mandi Gobindgarh—from Pulverized Coal to PNG/LPG as a primary fuel source. This shift has resulted in notable alterations in steel surface characteristics, impacting downstream fabrication and product performance.

Technical Observations:

1. Surface Texture Modification: Steel produced using PNG/LPG exhibits an excessively smooth and somewhat tacky surface, lacking the micro-roughness (in microns) inherent in coal-based steel. This subtle roughness is essential for optimal welding penetration and mechanical bonding.
2. Reduced Weldability & Coating Adhesion: The altered surface properties of PNG/LPG-based steel negatively impact weld fusion and paint adhesion, leading to weak joints and compromised corrosion resistance. This directly affects the longevity of essential agricultural machinery, including rotavators, combines, and tillage equipment.
3. Structural Integrity & Performance Degradation: Poor weld strength and diminished paint adherence result in accelerated wear, increased maintenance requirements, and reduced service life of agricultural implements, adversely affecting farmers' productivity and operational efficiency.

FOR AMMA-HR
President

Agriculture Machinery Manufacturer's Association - HR

(STATE CHAPTER OF AMMA)

Email : haryanaamma@gmail.com Website : www.ammahr.org

4. Elevated Safety Risks: The inferior weld quality in PNG/LPG-based steel raises concerns about structural failure, particularly under high mechanical loads, posing serious safety risks to farm operators.

Call for Corrective Action:

Given these critical challenges, we strongly urge AISRA and SMASRA to advocate for the continued use of coal-based fuel sources and other similar Calorific Value Fuel alternatives in rolling mills for agricultural-grade steel production. The industry-wide transition to PNG/LPG has introduced severe quality constraints, necessitating an immediate re-evaluation of fuel selection in steel manufacturing.

Should this matter remain unaddressed, we may have no alternative but to encourage our manufacturers to shift their procurement to alternative supply chains in Himachal and Rajasthan, where coal-based steel remains accessible and continues to meet industry requirements.

We request your prompt intervention to circulate this issue among rolling mills and implement necessary corrective measures. A meeting to deliberate on potential resolutions would be highly beneficial, and we look forward to your cooperation in safeguarding the quality and safety standards of agricultural machinery.

Best regards,

FOR AMMA-HR

President

Deep Singh Punni

President

Agricultural Implement Manufacturers Association – Haryana

TRUE COPY

ADVOCATE

ANNEXURE -R3/23

Government of Punjab
Department of Science, Technology and Environment
(STE Branch)

To

1. Sh. Lal Chand Kataruchakk, Hon'ble Cabinet Minister, Punjab, Departments of Food and Civil Supplies and Consumer Affairs, Forest and Wildlife.
2. Dr. Ravjot Singh, Hon'ble Cabinet Minister, Punjab, Department of Parliamentary Affairs.
3. PS to Cabinet Minister, Punjab, Departments of Industries Commerce, Investment Promotion, Power & NRI Affairs.

Memo No. 3/62/2024-STE2/178/1-3
Dated, Chandigarh:- 14.05.2026

Sub:- **Minutes of the 5th meeting of the Cabinet Sub Committee held on 07.05.2026 at 12.00 PM under the Chairmanship of Sh. Sanjeev Arora, Hon'ble Minister of Industries and Commerce, Punjab at Conference Hall, 2nd Floor, Udyog Bhawan, Sector-17, Chandigarh with regard to the issue of air pollution in Mandi Gobindgarh as is being agitated before the Hon'ble National Green Tribunal.**

*****

Respected Sir/Ma'am,

2. The proceedings of the meeting of the Cabinet Sub Committee held on 07.05.2026 at 12.00 PM under the Chairmanship of Shri Sanjiv Arora, Hon'ble Minister of Industries and Commerce, Punjab at Conference Hall, 2nd Floor, Udyog Bhawan, Sector-17, Chandigarh with regard to the issue of air pollution in Mandi Gobindgarh as is being agitated before the Hon'ble National Green Tribunal are enclosed herewith for information and necessary action please.

Superintendent

ID.NO. 3/62/2024-STE2/178/4 Dated, Chandigarh: 14.05.2026
A copy of the above is forwarded to the Hon'ble Advocate General Punjab for information.

Superintendent

ID.NO. 3/62/2024-STE2/178/5 Dated, Chandigarh: 14.05.2026
A copy of the above is forwarded to the W/Chief Secretary, Punjab for information.

Superintendent

ID.NO. 3/62/2024-STE2/178/6-11 Dated, Chandigarh: 14.05.2026
A copy of the above is forwarded to the following for information and necessary action please:-

1. Vice Chairperson, Punjab Development Commission (PDC).
2. Administrative Secretary, Department of Local Government, Punjab.
3. Administrative Secretary, Department of Food, Civil Supplies & Consumer Affairs, Punjab.
4. Administrative Secretary, Department of Industry & Commerce Punjab.
5. Administrative Secretary, Department of Labour, Punjab.
6. Chairperson, Punjab Pollution Control Board, Punjab.

Superintendent

ID.NO. 3/62/2024-STE2/178/12 Dated, Chandigarh: 14.05.2026
A copy of the above is forwarded to Member Secretary, Punjab Pollution Control Board, Patiala for information and necessary action.

Superintendent

Subject: Minutes of the 5th meeting of the Cabinet Sub Committee held on 07.05.2026 under the Chairmanship of Shri Sanjeev Arora, Hon'ble Minister of Industries & Commerce, Punjab with regard to the issue of air pollution in Mandi Gobindgarh as is being agitated before the Hon'ble National Green Tribunal

1. The following Hon'ble Members of the Cabinet Sub Committee were present –

   a) Sh. Sanjeev Arora, Hon'ble Minister, Industries & Commerce, Punjab - Chairperson

   b) Dr. Ravjot Singh, Hon'ble Minister, NRI Affairs, Punjab- Member

2. The list of other participants including the Members of the industries (Rolling Mills) who attended the meeting is placed at **Annexure-A.**

3. The Secretary to Government of Punjab, Department of Science, Technology & Environment (STE) welcomed the Hon'ble Ministers (Cabinet Sub-Committee) and other participants and briefed that after considering the judgment dated 25.02.2026 delivered by the Hon'ble NGT in O.A. No. 295 of 2023 titled as Dimpal Kumar vs. State of Punjab & Ors, the Cabinet Sub- Committee has taken certain decisions in the meeting held on 03.03.2026. The decisions which were to be complied by the Industrial Association and the Department of Science, Technology & Environment with PPCB are reproduced below:

   a) The Members of the Industries shall decide and inform the Cabinet Sub-Committee in writing within 15 days about the timelines for complying with orders dated 25.02.2026 of the Hon'ble NGT pronounced and issued in OA 295 of 2023 in true letter & spirit- By AISRA through its President

   b) The Government of Punjab in the Department of STE shall get the carrying capacity of Mandi Gobindgarh assessed by engaging an Institute of Repute

to make compliance of the orders dated 25.02.2026 of the Hon'ble NGT- **By STE & PPCB**

4. The Officers of the PPCB apprised that the minutes of the cabinet sub-Committee meeting held on 03.03.2026 were conveyed to the President, All India Steel Rerollers Association (AISRA) for information & compliance vide letter no. 3033 dated 19/03/2026. A reminder letter no. 3305 dated 27.04.2026 was also written to AISRA for seeking the compliance report and the said letter was also e-mailed to the address of the AISRA. However, no compliance report has been received so far from the Association.

5. The President, AISRA (present in the meeting) submitted a written representation dated 07.05.2026 before the Cabinet Sub Committee and requested that the compliance timelines stipulated by the Cabinet Sub-Committee pursuant to the order dated 25.02.2026 of NGT may kindly be reconsidered and reviewed pragmatically in view of the following aspects:

(a) Due to the prevailing international situation arising out of the ongoing conflict involving Iran, Israel, the USA, and other Gulf countries — which are the primary sources of gas supply to India — the circumstances on the ground have changed drastically.

(b) Conversion of a reheating furnace from coal-fired operation to PNG-based operation requires a substantial capital investment ranging from approximately Rs. 1.50 crore to Rs. 3.00 crore per unit & the entire process requires a minimum period of 8 to 10 months for designing, procurement, installation, and commissioning of the necessary infrastructure, including gas pipelines, safety systems, burners, and allied modifications.

(c) Insufficient and uncertain gas supply coupled with highly volatile pricing would impose an unreasonable financial and operational burden upon MSME units. This existing problem is being faced by the industries who have already converted their units on gas fired reheating furnaces and not getting the regular supply.

*(d)*On the average consumption of last six months, 20% cut has been imposed permanently by the Government which is stated to be 30-40 % shortfall due to the unilateral decision of the gas companies by changing the clause of agreement on daily basis.

*(e)*The CPCB order dated 12.03.2026 has given one-month permission which is further extended vide letter dated 15.04.2026 upto 12.05.2026 for usage of alternate fuel in absence of disrupted PNG supply.

(f) The Association requested for amendment in the State Fuel Policy of 2023 on page 6 sub Para VII to the effect that additional clean fuel options may be permitted permanently. The proposed amendment as contained in the representation dated 07.05.2026 is reproduced below:

> "New technology Single stage High temperature coal gasifier and Biomass gas fuel may be allowed along with PNG in the areas where PNG gas lines are already laid or are proposed to be laid. These alternative fuels are compatible with PNG and confirm to comparable SPM emission norms ensuring no adverse impact on air quality standards. Further, fuel neutrality is a key principle, provided environmental norms are fulfilled. Adopting this approach will also eliminate the adverse effects of monopolistic pricing, thereby ensuring fair completion. This step will be instrumental for the sustainable growth of the industry while protecting the environment too."

6. The Officers of the Board apprised that the Board has sought proposals from IIT Delhi, IIT Ropar, and IIT Roorkee for carrying capacity assessment and source apportionment study of Mandi Gobingarh in order to make compliance of the directions of Hon'ble NGT (contained in the order dated 25.02.2026) and the decision taken by the Cabinet Sub-Committee in its meeting held on 03.03.2026. Brief facts in this regard are mentioned below:

   i. The proposals were received from IIT Delhi and IIT Ropar only.

   ii. The proposal received from IIT Ropar in association with IIT Kanpur involves detailed field investigations, extensive sampling and comprehensive analysis with a project timeline of approximately 12 months and a total estimated cost of about Rs. 1.09 crore.

   iii. IIT, Delhi informed that a rapid study can be completed within approximately 6 months with support from PPCB, at an estimated cost of Rs. 50 lakh plus GST.

   iv. The file has been sent to the State Govt. for giving approval for awarding the work of assessment of carrying capacity and source apportionment study of Mandi Gobindgarh to IIT Delhi.

   v. The funding of the study may be allowed to be made from the Environment Compensation Funds maintained at PPCB.

7. **Deliberations and Observations of a Cabinet Sub-Committee:**

   A. The Hon'ble NGT vide order dated 01.10.2020 passed in OA no. 924 of 2019 and order dated 25.02.2026 passed in OA no. 295 of 2023 has ordered that the direction with regard to shifting of rolling mills from coal

to PNG is fully and effectively complied with.

B. The letter dated 15.04.2026 issued by the CPCB provides the relaxation for usage of alternate fuels other than PNG in the disturbed circumstances upto 12.05.2026.

C. In view of the directions of the Hon'ble NGT, the representation given by AISRA for amendment in the State Fuel Policy is required to be legally examined.

D. The representation of the AISRA regarding disrupted supply of PNG due to the ongoing international conflict is to be referred to the Department of Food, Civil Supply & Consumer Affairs for examining the issue. Further, the licensee gas company M/s IRM Energy is also required to take up the matter with the concerned agencies for providing sufficient gas so as to comply with the order dated 25.02.2026 & to give detailed information regarding total requirement, availability & supply of gas to the industries of Mandi Gobindgarh.

8. **Decisions taken by the Cabinet Sub-Committee**

After deliberating the matter amongst the officers of concerned Departments and also considering the request made by the Members of AISRA in the background of the orders passed by the Hon'ble NGT in OA no. 924 of 2019 & OA no. 295 of 2023, following decisions were taken by the Cabinet Sub- Committee:

i. In the background of the relaxation given by CPCB vide letter dated 15.04.2026, the AISRA shall decide and inform the Cabinet Sub-Committee in writing within 10 days about the timelines for complying with orders dated 25.02.2026 of the Hon'ble NGT pronounced and issued in OA 295 of 2023 in true letter & spirit- **By AISRA**

ii. The representation dated 07.05.2026 of AISRA shall be forwarded to Learned Advocate General, Punjab for obtaining legal opinion to the effect

as to whether the State of Punjab can amend the Fuel Policy notified on 04.10.2023 in the background of the orders and directions passed by Hon'ble NGT (OA no. 924 of 2019 & OA no. 295 of 2023)-

By STE

iii. The Government of Punjab in the Department of Science, Technology & Environment shall immediately award the work of assessment the carrying capacity of Mandi Gobindgarh assessed through PPCB by engaging IIT Delhi so as to make compliance of the orders dated 25.02.2026 of the Hon'ble NGT-**By STE**

iv. The Government of Punjab in the Department of Science, Technology & Environment shall release the study fee amounting to Rs. 50 lacs (+ GST/-) from the "Environment Compensation Funds" to be paid to the IIT Delhi for the assessment of Carrying capacity and source apportionment study– **By STE & PPCB**

v. The Department of Food, Civil Supply & Consumer Affairs shall examine the representation dated 07.05.2026 of AISRA on the disrupted supply of Gas in the State particularly Mandi Gobindgarh and submit report & further recommendations within a week after consultation with the stakeholders and gas supplying agencies- **By FCSCA**

vi. M/s IRM Energy, the licensee gas company, shall, in view of the restrictions imposed on gas supply, take up the matter with the competent authority responsible for allocation of gas, i.e., PNGRB/GAIL India, etc., to ensure sufficient supply of PNG to Mandi Gobindgarh for compliance with respect to the Hon'ble NGT order dated 25.02.2026.

The Company shall also submit detailed information outlining the total PNG requirement for rolling mills and other units operating in Mandi Gobindgarh, the quantity of gas presently allocated/available, the quantity currently being supplied, and the additional quantity the company can supply, along with timelines for ensuring compliance with said orders- **By FCSCA & PPCB**

vii. The Department of Science, Technology & Environment shall file the compliance report w.r.t direction no. 32 (6) passed by the Hon'ble NGT in order dated 25.02.2026 before the Registrar General of the National Green Tribunal through email at judicialngt@gov.in to make compliance of order dated 25.02.2026 (supra)- **By STE**

(Sanjeev Arora)
Minister of Industries & Commerce, Punjab
Chairperson Cabinet Sub Committee

Dated:

Please forward to all concerned for necessary action as per the above decision of the Hon'ble Cabinet Sub-Committee.

Secretary
13/5/2026
(ਪ੍ਰਿਯਾਂਕ ਭਾਰਤੀ)
ਸਕੱਤਰ, ਪੰਜਾਬ ਸਰਕਾਰ
ਵਿਗਿਆਨ, ਤਕਨੀਕ ਅਤੇ
ਵਾਤਾਵਰਣ ਵਿਭਾਗ ।

SS-(STE)

Annexure -A

List of participants

Punjab Development Commission

1. Mrs. Seema Bansal, Dy Chairperson

Department of Science, Technology and Environment, Punjab

2. Sh. Priyank Bharti, IAS, Secretary to Govt. of Punjab, Science, Technology & Environment
3. Mrs. Reena Gupta, Chairperson, Punjab Pollution Control Board
4. Sh. R.K. Ratra, Chief Environmental Engineer, Punjab Pollution Control Board
5. Sh. Amrik Singh, Senior Law Officer, Punjab Pollution Control Board
6. Sh. Rajeev Gupta, Senior Environmental Engineer, Punjab Pollution Control Board
7. Sh. Kamal Singla, Environmental Engineer, Punjab Pollution Control Board

Department of Industries and Commerce, Punjab

8. S. Gurkirat Kirpal Singh, IAS, Administrative Secretary to Govt. of Punjab
9. S. Jaspreet Singh, IAS, Director, Industries and Commerce

Department of Local Government, Punjab

10. Ravinder Garg, Chief Engineer
11. Sh. Chetan Sharma, Executive Officer, Municipal Council, Mandi Gobindgarh

Department of Food and Civil Supplies, Punjab

12. Sh. T.S. Chopra, Joint Director

Department of Labour, Punjab

1. Sh. Ravinder Singh, Special Secretary

Representatives of the All India Steel Re-Rolling Association

1. Sh. Vinod Vashisht, President, AISRA
2. Sh. Pardeep Bhalla, SMASRA
3. Sh. Jagmohan Data, SMASRA
4. Sh. Darshan Singh, General Secretary

TRUE COPY

ADVOCATE

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

SPEED POST/EMAIL

EQ-11/2/2022-AQM-HO-CPCB-HO **May 12, 2026**

To,

The Member Secretary
All SPCBs/PCCs (as per list)

Sub: Advisory issued w.r.t. permitting use of alternative fuels- reg.
Ref.: CPCB letter no. EQ-11/2/2022-AQM-HO-CPCB-HO/19354-19394 dated March 12, 2026

Sir/Madam,

This has reference to above referred advisory dated 12.03.2026 issued by CPCB on permitting the temporary use of alternate fuels such as biomass, RDF pellets, etc. in place of PNG by industries/hotels/restaurants in the state/UT for such period as deemed appropriate but not exceeding one month from the date of issuance of the said advisory, which was further extended for one more month vide CPCB letter no. EQ-11/2/2022-AQM-HO-CPCB-HO/574-613 dated April 15, 2026 (copy enclosed for ready reference).

It is to inform that the said advisory for temporary permission period of one month is further extended for another one month, i.e. till June 12, 2026. Rest other contents in the aforesaid advisory dated 12.03.2026 shall remain the same.

This issues with the approval of Chairman, CPCB.

Yours faithfully,

(Bharat Kumar Sharma)
Member Secretary

Encl: As above

'परिवेश भवन' पूर्वी अर्जुन नगर, दिल्ली - 110032.
Parivesh Bhawan, East Arjun Nagar, Delhi - 110 032.
दूरभाष /Tel : 43102030, 22305792, वेबसाइट/Website: www.cpcb.nic.in

List I(a): List of State Pollution Control Boards

1. The Member Secretary,
Andhra Pradesh Pollution Control Board
Paryavaran Bhavan, APIIC Colony Road,
Gurunanak Colony, Autonagar,
Vijayawada – 520 007, Andhra Pradesh

2. The Member Secretary,
Arunachal Pradesh State Pollution Control Board,
Department of Environment & Forests,
Paryavaran Bhawan, Yupia Road, Papu Nalah,
Naharlagun - 791 110

3. The Member Secretary,
Pollution Control Board- Assam,
Bamunimaidam, Guwahati – 781 021,
Assam

4. The Member Secretary,
Bihar State Pollution Control Board
Parivesh Bhawan, Plot No. NS-B/2,
Paliputra Industrial Area, Patliputra,
Patna – 800 023, Bihar

5. The Member Secretary,
Chhattisgarh Environment Conservation Board,
Paryavas Bhavan, North Block Sector-19,
Atal Nagar, Raipur – 492 002, Chhattisgarh

6. The Member Secretary,
Goa State Pollution Control Board
Nr. Pilerne Industrial Estate,
Opp. Saligao Seminary,
Saligao – Bardez, Goa – 403 511

7. The Member Secretary,
Gujarat Pollution Control Board
Paryavaran Bhavan, Sector 10-A,
Gandhi Nagar - 382 010, Gujarat

8. The Member Secretary,
Himachal Pradesh State Pollution Control Board
Him Parivesh, Phase-III,
New Shimla – 171 009

9. The Member Secretary,
Haryana State Pollution Control Board
C-11, Sector-6, Panchkula- 134109,
Haryana

10. The Member Secretary,
Jharkhand State Pollution Control Board,
T.A. Bldg., HEC, P. O. Dhurwa,
Ranchi – 834 004, Jharkhand

11. The Member Secretary,
Karnataka State Pollution Control Board
"Parisara Bhavan", #49,4th & 5th Floor,
Church Street, Bangalore 560 001

12. The Member Secretary,
Kerala State Pollution Control Board
Head Office, Pattom, P. O,
Thiruvananthapuram - 695 004,
Kerala

13. The Member Secretary,
Madhya Pradesh Pollution Control Board,
Paryavaran Parisar, E-5, Arera Colony,
Bhopal – 462 016, Madhya Pradesh

14. The Member Secretary,
Maharashtra Pollution Control Board,
Kalpataru Points, 3rd & 4th Floor,
Road No. 8, Sion Circle, Opp. PVR Theatre,
Mumbai – 400 022, Maharashtra

15. The Member Secretary,
Manipur Pollution Control Board
Lamphalpat, Imphal – 795 004, Manipur

16. The Member Secretary,
Meghalaya State Pollution Control Board,
"ARDEN", Lumpyngngad,
Shillong – 793 014, Meghalaya

17. The Member Secretary,
Mizoram Pollution Control Board
New Secretariat Complex,
Khatla, Aizawl – 796 001, Mizoram

18. The Member Secretary,
Nagaland Pollution Control Board
Signal Point, Dimapur, Nagaland

19. The Member Secretary,
Odisha State Pollution Control Board,
Paribesh Bhawan, A-118,
Nilakantha Nagar, Unit - VIII,
Bhubaneswar – 751 012, Odisha

20. The Member Secretary,
Punjab Pollution Control Board
Vatavaran Bhawan, Nabha Road
Patiala 147 001, Punjab

21. The Member Secretary,
Rajasthan Pollution Control Board,
A-4, Institutional Area, Jalana Dungri,
Jaipur 302 004, Rajasthan

22. The Member Secretary,
Sikkim State Pollution Control Board
State Land Use & Environment Cell
Govt. of Sikkim, Deorali
Gangtok – 737 102, Sikkim

23. The Member Secretary,
Tamil Nadu Pollution Control Board
76, Anna Salai, Guindy Industrial Estate,
Race View Colony, Guindy,
Chennai – 600 032, Tamil Nadu

24. The Member Secretary,
Telangana State Pollution Control Board,
Paryavaran Bhawan, A-III, Industrial Estate,
Sanathnagar, Hyderabad – 500 018

25. The Member Secretary,
Tripura State Pollution Control Board
Parivesh Bhawan, Pandit Nehru Complex
P.O. Kunjaban, Gorkhabasti,
Agartala – 799 006, Tripura

26. The Member Secretary,
Uttar Pradesh Pollution Control Board,
H. No. TC-12 V, Vibhuti Khand, Gomti Nagar,
Lucknow - 226 010, Uttar Pradesh

27. The Member Secretary,
Uttarakhand Pollution Control Board,
Gaura Devi Bhawan, 46 B, IT Park,
Sahastradhara, Dehradun – 248 001, Uttarakhand

28. The Member Secretary,
West Bengal Pollution Control Board,
Paribesh Bhawan, 10A, Block-LA, Sector-III,
Bidhannagar, Kolkata-700 106, West Bengal

List I(b): List of Pollution Control Committees

1. The Member Secretary,
   Andaman & Nicobar Islands Pollution Control Committee,
   Department of Science & Technology,
   Dollygunj Van Sadan, P.O. Haddo, Port Blair – 744102

2. The Member Secretary,
   Chandigarh Pollution Control Committee,
   Paryavaran Bhawan, Ground Floor,
   Sector-19 B, Madhya Marg,
   Chandigarh – 160 019

3. The Member Secretary,
   Pollution Control Committee,
   UTs of Daman, Diu and Dadra & Nagar Haveli
   1st Floor, Udyog Bhavan, Bhenslore,
   Nani Daman, Daman – 396210

4. The Member Secretary,
   Delhi Pollution Control Committee,
   Government of N.C.T. of Delhi,
   4th Floor, ISBT Building, Kashmere Gate,
   Delhi - 110 006

5. The Member Secretary,
   J&K Pollution Control Committee,
   Parivesh Bhawan, Forest Complex, Gladni,
   Narwal, Transport Nagar, Jammu (J&K)
   (November-April)

6. The Member Secretary,
   Ladakh Pollution Control Committee (LPCC)
   Skara Yokma, Near KBR Airport,
   Leh - 194101, Ladhakh

7. The Member Secretary,
   Lakshadweep Pollution Control Committee,
   Department of Science, Technology & Environment,
   Kavarati – 682 555, Lakshadweep

8. The Member Secretary,
   Puducherry Pollution Control Committee,
   3rd Floor, Housing Board Complex,
   Anna Nagar, Nellithope,
   Puducherry – 605 005

TRUE COPY
ADVOCATE

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

ORIGINAL APPLICATION NO. 1358 OF 2024

IN THE MATTER OF:

ARCHIT ARORA ...APPLICANT

VERSUS

STATE OF PUNJAB & ORS. ...RESPONDENTS

VAKALATANAMA

KNOW ALL to whom these present shall come that I/We the above named **RESPONDENT I.E.** ALL INDIA STEEL ROLLERS ASSOCIATION THROUGH MR. VINOD VASHISHT. Appoint, MS. SHRIYA TAKKAR & BELOW MENTIONED ADVOCATES to be the Advocates in the above noted case

To act, appear and plead in the above-noted case in this Court or in any other Court in which the same may be tried or heard and also in the appellate Court including High Court subject to payment of fees separately for each Court by me/ us.

To sign, file verify and present pleadings, appeals cross objections or petitions for execution review, revision, withdrawal, compromise or other petitions or affidavits or other documents as may be deemed necessary or proper for the prosecution of the said case in all its stages.

To file and take back documents to admit and/or deny the documents of opposite party.

To withdraw or compromise the said case or submit to arbitration any differences or disputes that may arise touching or in any manner relating to the said case. To take execution proceedings case.

To appoint and instruct any other Legal Practioner, authorizing him to exercise the power and authority hereby conferred upon the Advocate whenever he may think it to do so and to sign the Power of Attorney on our behalf.

And I/We the undersigned do hereby agree to ratify and confirm all acts done by the Advocate or his substitute in the matter as my/our own acts, as if done by me/us to all intents and purposes.

And I/We undertake that I / we or my /our duly authorized agent would appear in the Court on all hearings and will inform the Advocates for appearance when the case is called.

And I /we undersigned do hereby agree not to hold the advocate or his substitute responsible for the result of the said case. The adjournment costs whenever ordered by the Court shall be of the Advocate which he shall receive and retain himself.

And I /we the undersigned do hereby agree that in the event of the whole or part of the fee agreed by me/us to be paid to the Advocate remaining unpaid he shall be entitled to withdraw from the prosecution of the said case until the same is paid up. The fee settled is only for the above case and above Court. I/We hereby agree that once the fee is paid. I /we will not be entitled for the refund of the same in any case whatsoever. If

For All India Steel Re-Rollers Association

President

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the case lasts for more than three years, the advocate shall be entitled for additional fee equivalent to half of the agreed fee for every addition three years or part thereof.

IN WITNESS WHEREOF I/We do hereunto set my /our hand to these presents the contents of which have been understood by me/us on this 18 day of May, 2026

Accepted

For All India Steel Re-Rollers Association

President

Attested as Identified

NOTARY PUBLIC
KHANNA (Pb.)

SIGNATURE
ALL INDIA STEEL ROLLERS ASSOCIATION
THROUGH MR. VINOD VASHISHT

I Know the deponent/executant he/she has signed/R.T.I./R.T.I. in my presence

18/05/26

Certified that the affidavit/Self-Attestment has been read over & explained to the deponent/executant and seemed duly to understand the same & the making thereof.

SHRIYA TAKKAR, MANAN TAKKAR, AVANTIKA THAKUR, PRINCE SHARMA
P/1769/2016 D/2518/2023 UP/10905/2018 PH/1820/2022

AASTHA TYAGI, UDIT SAINI, YASH DEWAN & SAIRA TAGRA
D/4060/2022 PH/3781-A/2022 D/7501/2023 D/4897/2022

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Page No. 3

Outlook

Urgent Service

PROOF OF SERVICE

From Manan Takkar <manantakkar@artlo.in>

Date Sat 5/23/2026 2:01 PM

To Shriya Takkar <shriyatakkar@artlo.in>; pallavipratap@gotmail.com <pallavipratap@gotmail.com>; cs@punjab.gov.in <cs@punjab.gov.in>; chairmanppcb@yahoo.in <chairmanppcb@yahoo.in>; info@think-gas.com <info@think-gas.com>; ishita@manulawoffices.com <ishita@manulawoffices.com>

Cc Prince <prince@artlo.in>; Aastha Tyagi <aastha@artlo.in>; Unnati <Unnati@artlo.in>

1 attachment (6 MB)

FINAL REPLY ON BEHALF OF RESPONDENT NO 3 ALL INDIA STEEL ROLLER ASSOCIATION_compressed_compressed-2.pdf;

Dear Sir/Madam,

Please find attached a copy of the Reply on behalf of the Respondent No. 3 in Original Application No. 1358 of 2024 titled as Archit Arora Vs. State of Punjab and Ors. pending before the Hon'ble National Green Tribunal, New Delhi.

Regards,

Manan Takkar, Advocate
Sr. Associate
ARTLO

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