BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

Original Application No. 1293/2024

IN THE MATTER OF:

Sunil Kashyap ...Applicant

Versus

State of Haryana & Ors. ...Respondent

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N.D.O.H. 08.09.2025

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Through

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Date : 03.09.2025

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

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Original Application No. 1293/2024

IN THE MATTER OF:

Sunil Kashyap ...Applicant

Versus

State of Haryana & Ors. ...Respondent

REPLY ON BEHALF OF RESPONDENT NO. 4, M/S SHREE CEMENT LIMITED, TO THE SUPPLEMENTARY AND FACTUAL REPORT DATED 28.05.2025 SUBMITTED BY THE CENTRAL POLLUTION CONTROL BOARD

MOST RESPECTFULLY SHOWETH:

1. The present reply ("**Reply**") is being filed on behalf of Respondent No. 4, M/s Shree Cement Limited ("**Shree Cement**" / "**Respondent No. 4**" / "**Answering Respondent**"), a company incorporated under the Companies Act, 1956, in response to the Supplementary and Factual Report dated 28.05.2025 ("**CPCB Report**") filed by the Central Pollution Control Board ("**CPCB**"). The CPCB Report has been filed pursuant to the orders dated 19.12.2024 and 28.02.2025 passed by the Hon'ble National Green Tribunal, Principal Bench ("**NGT**"), in proceedings initiated on the basis of a letter petition dated 22.04.2024 under Sections 14 and 15 of the National Green Tribunal Act, 2010 ("**Act**"), filed by Sunil Kashyap ("**Applicant**"), son of Shri Ravindra Kumar, resident of Gaon Khukhrana, Dr. Aasan Kala, Tehsil Madlauda, District Panipat, Haryana.

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2. The present Reply is being filed through Mr Kumar Ankit, authorised representative of Shree Cement Limited, who has been duly authorised by Power of Attorney dated 26.05.2025 given by Mr. Neeraj Akhoury, MD, Shree Cement Limited, authorised vide board resolution dated 14.10.2022, to sign, verify, and institute the present Reply for and on behalf of Respondent No. 4. He is otherwise well conversant with the facts of the present case.

3. At the very outset, the Respondent No. 4 denies each and every allegation, statements and contentions made in the present Application and the CPCB Report to the extent that the same are contrary to and/or inconsistent with what is stated hereinbelow unless expressly admitted by the Respondent No. 4. Further, nothing shall be deemed to have been admitted by the Respondent merely because the same may not have been dealt with specifically and/or traversed seriatim.

4. The true and complete conspectus of facts and circumstances are as under:

BRIEF FACTS:

5. The Respondent No. 4, M/s Shree Cement Ltd. (*erstwhile M/S Jaypee Cement Grinding Unit*) is a standalone cement grinding unit without captive power plant engaged in the manufacturing of portland pozzolana cement ("**PPC**") and ordinary portland cement ("**OPC**") using clinker, fly ash, gypsum as raw materials at its unit located at Jind Road, Khukhrana Assan Kalan, Panipat, Haryana ("**Unit**"). The Unit is situated adjacent to State Highway-12, a heavily trafficked arterial road with continuous movement of trucks and other vehicles, contributing to background dust levels in the area. Further, the Unit is located adjacent to the Panipat Thermal Power Plant ("**PTPP**"), whose extensive ash dykes and operations have been officially recognized as a

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significant source of local environmental pollution. The Unit operates strictly in compliance with all applicable environmental laws and regulatory approvals.

6. The Respondent No. 4 was granted first *No Objection Certificate* from the Haryana State Pollution Control Board ("**HSPCB**") for setting up the Unit on 14.07.2006. A copy of the said certificate dated 14.07.2006 is annexed herewith and marked as ***Annexure R-1***.

7. The Respondent No. 4 presently holds a valid Consent to Operate issued by the HSPCB vide letter dated 13.09.2021(*Annexure 3 of Interim Report*), which is valid for the period from 01.10.2021 to 30.09.2026. In addition, Respondent No. 4 also possesses a valid Authorization under the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016, granted on 03.08.2021 and valid up to 30.09.2026 (*Annexure 4 of Interim Report*).

8. The present proceedings originate from a letter petition dated 22.04.2024 filed by the Applicant, Mr. Sunil Kashyap, alleging that the Unit is operating in violation of environmental laws. The allegations included the Unit's proximity to the residential area, dust deposition, noise emissions and inadequate plantation done by the Unit.

9. By order dated 19.12.2024, the Hon'ble NGT, constituted a joint committee comprising CPCB as the nodal agency, HSPCB, and District Magistrate, Panipat to inspect the Unit, verify compliance, and file a factual report.

10. Pursuant to the aforesaid, the Joint Committee conducted its first site inspection on 06.02.2025, at which time the plant was under planned maintenance shutdown. The Committee filed its Interim Report dated 27.02.2025, noting the non-operational status of the plant on the date of

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inspection and recommending a revisit during operational conditions for a more accurate assessment.

11. Thereafter, the Hon'ble NGT, by order dated 28.02.2025, impleaded the Answering Respondent as Respondent No. 4 in the proceedings and directed the joint committee to conduct a second inspection of the Unit while operational and file a supplementary report.

12. On 24.04.2025, the Joint Committee conducted a second inspection while the Unit was operational, and filed the CPCB Report. The said report records substantial compliance by the Respondent No. 4, including:

a. Installation of fixed water sprinklers in pond ash handling area, internal roads, and other dust-prone sections;
b. Upgradation of wind-breaking wall from 12 feet to 20 feet using GI sheets towards Village Khukhrana;
c. Development of a green belt comprising two rows of trees towards the village boundary; and
d. Commencement of regular water sprinkling outside the Unit premises and along the highway.

13. At all stages, the Respondent No. 4 has extended full cooperation to the regulatory authorities, proactively undertaken remedial and preventive measures, and continues to operate the Unit strictly in compliance with environmental standards. The allegations in the Original Application are therefore unfounded and merit no adverse finding against the Respondent No. 4 in light of the compliance now demonstrated on record.

Relocation of Village Khukhrana

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14. It is submitted that the village abadi of Khukhrana, which is referred to in the Applicant's complaint, has already been identified for relocation to Village Shohdapur due to prevailing environmental and health concerns arising from the adjacent PTPP. This decision was finalized by the Government of Haryana and implemented through:

a. The Punjab & Haryana High Court judgment dated 01.03.2011 in ***Gurlal Singh v. State of Haryana*** bearing ***CWP No. 1780/2007***, upheld the acquisition and relocation of the subject village as a public purpose, noting that the village is situated next to the boundary wall of the PTPP and is adversely affected by its ash dykes and water-logging caused by sprinkling of water to contain coal ash (*Annexure 9 of Interim Report*).

b. Thereafter, Award No. 2 dated 23.10.2012 passed by the District Revenue Officer cum Land Acquisition Collector, Panipat for acquisition of land to shift the abadi of Village Khukhrana to Village Shohdapur, Panipat (*Annexure 7 of Interim Report*).

c. Further, letter No. LA 792 dated 24.10.2012 from the Deputy Commissioner, Panipat, recording that residents of Village Khukhrana are willing to shift to Village Shohdapur. (*Annexure 8 of Interim Report*).

d. Notably, the Joint Committee in its inspection requested the District Administration to provide an update on the status of relocation, which remains awaited.

15. This clearly reflects the magnitude of pollution attributable to PTPP. In light of such circumstances, it is wholly unjustified to blame to Respondent No. 4 which had no role in the pollution that has necessitated the village's relocation.

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In fact, the Answering Respondent has been facing difficulties due to the pollution from the PTPP.

Nature, Classification, and Environmental Impact of the Respondent's Unit

16. It is respectfully submitted that the allegation made by the Complainant that a cement plant is located "*merely 10 feet away*" from the *abadi* of the village is wholly misleading and factually incorrect. It is submitted that the Respondent No. 4 operates only a *standalone Cement Grinding Unit* and not a clinker manufacturing or integrated cement plant. The Respondent's Unit does not have any Captive Power Plant ("**CPP**") and, by the very nature of its operations, emits significantly lower levels of pollutants as compared to integrated cement plants.

17. It is pertinent to note that, in January 2025, the CPCB issued a detailed report titled *"Classification of Industrial Sectors into Red, Orange, Green, White and Blue Categories"* for the purpose of improved environmental regulation and monitoring. The objective of this classification is to provide a transparent, consistent, and incentive-based regulatory framework for better environmental governance and to promote sustainable industrial growth. The report was prepared after due process, including extensive consultation with stakeholders across States and Central Agencies, including the Ministry of Environment, Forest and Climate Change ("**MoEF&CC**"). Furthermore, these directions were formally circulated to the Chairpersons of all State Pollution Control Boards and Pollution Control Committees vide letter dated 12.02.2025, ensuring uniform implementation across the country.

18. As per Point No. 20.6 of the said Report, a *"Standalone Grinding Unit without CPP"* has been specifically reclassified from the Red Category to the Orange Category, after considering the nature and scale of pollution load, production

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process, and other environmental factors. The Respondent's Unit clearly falls within this revised classification. In terms of the Pollution Index ("**PI**"), such units are assigned a PI of 64, which is substantially lower than that of integrated cement plants and many other Red Category industries.

19. The classification methodology adopted in the said Report bifurcates industrial sub sectors based on pollution load, scale of operations, production technology and type of fuel used thereby enabling an objective assessment of environmental impact. In this context, it is submitted that when the PI level of the Respondent's grinding unit itself is so low, it is unreasonable to allege that such a unit could alone be responsible for the high levels of pollution recorded in the surrounding area. Therefore, the allegation made by the Complainant that the Respondent's Unit is a significant contributor to local pollution is misconceived, devoid of merit, and contrary to the CPCB's latest sectoral classification. The said report of CPCB along with letter dated 12.02.2024 is annexed herewith and marked as ***Annexure R-2***.

20. A perusal of Point No. 114.1 of the said Report would reveal that the *power plant based on coal* are classified in the Red category, carrying an exceptionally high PI of 98.3. When contrasted with the Respondent's standalone Cement Grinding Unit, it becomes indisputable that the pollution potential of the PTPP is vastly greater. This stark differential underscores that the primary environmental burden in the area stems from PTPP (*as detailed in the succeeding paras*), and not from the Respondent's low-impact operations.

Pollution Caused by Panipat Thermal Power Plant (PTPP)

21. The PTPP is situated at a distance of approximately 30 meters from the Unit while its pond ash dyke is situated at a distance of approximately 20-30 meters from the Unit, and both these are situated immediately adjacent to Village

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Khukhrana. The PTPP has been officially recognized as a significant source of local air, water pollution etc, as it uses coal as fuel and disposes of fly ash in large open ash dykes that border the village:

a. In the case of Residents of ***Gram Panchayat Jatal, District Sonipat v. State of Haryana bearing OA No. 581 of 2019***, before this Hon'ble Tribunal, the interim report of the Joint Committee on PTPP, dated 17.01.2022, concludes that "*qualitative damage has been caused to the environment and public health by the Panipat Thermal Power Plant*". A copy of the said report dated 17.01.2022 is annexed herewith and marked as ***Annexure R-3.***

b. The CPCB Report also records that PTPP's extensive ash dykes are even more than three times the size of Village Khukhrana and are located immediately across a public road. The adverse environmental conditions created by the PTPP, including fugitive ash emissions, have been the principal reason for the Government of Haryana's decision to relocate the village.

22. Thus, in light of the findings of both the CPCB and the Hon'ble NGT, it is submitted that any pollution experienced by the residents of Village Khukhrana is primarily attributable to the PTPP and its ash dykes, and not to the operations of the Respondent No. 4. The Unit has taken steps and endeavoured to maintain compliance with stack emissions and other environmental parameters and has implemented substantial mitigation measures like bag house at cement mill, bag filters at material transfer points and silo top, covered conveyer belts, covered storage for raw materials and final product, cleaning of roads by vacuum cleaning machines and maintaining good housekeeping etc. as already recorded in CPCB's own report. Therefore,

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no adverse inference can be drawn against the operations of the Respondent No. 4 for the air quality or environmental conditions in Village Khukhrana.

Compliances of the Unit as Reflected in the CPCB Report

A. The Respondent No. 4 respectfully submits that the CPCB Report duly records the comprehensive compliance measures undertaken by the Unit as verified during its inspections.

B. The Unit has constructed a wind-breaking wall at a height of 20 feet towards Village Khukhrana using GI sheets, which effectively minimizes the dispersion of dust into the adjoining residential area. This construction was verified by the Joint Committee during the second inspection on 24.04.2025 and is in line with the recommended standards.

C. The Unit has developed a green belt over 11.72 acres within its 34.6-acre premises, contributing positively to local air quality and environmental aesthetics. Further, a green belt comprising two rows of trees has been developed by the Unit along the boundary abutting Village Khukhrana. The CPCB Report verified this plantation and documented it in the Report with photographic evidence.

D. The Unit has installed permanent fixed water sprinklers in key dust-prone zones, including the pond ash handling area, internal roads, and other critical operational areas within the premises. These sprinklers function continuously to suppress dust at the source. Manual water sprinkling through tractors and tankers is also conducted as a supplementary measure.

E. The Unit has also commenced regular water sprinkling outside its premises, particularly along the adjacent highway, using tractors and tankers to suppress

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dust generated by the heavy vehicular traffic on the busy public road adjoining the plant.

F. All pond ash received from the PTPP is stored under covered sheds, minimizing dust emissions. Also, as advised by CPCB, wind breaking wall of sufficient height (20 ft) also constructed at pond ash area to avoid fugitive emission from this area. Despite these efforts by the Respondent No. 4, dust was observed in the pond ash handling area, further evidencing the adverse impact of the pollution caused by PTPP Plant on the Unit. A copy of the photographs showing the wind-breaking wall near the pond ash are is annexed herewith and marked as ***Annexure R-4 (Colly).***

G. The Unit has adopted closed conveyor systems and pneumatic systems for the transfer of raw materials and finished products, thereby controlling fugitive dust emissions during internal material movement. Bag filters have been installed on silos as an additional control measure.

H. The Respondent No. 4 respectfully submits that fly ash is a raw material for its manufacturing operations and is transported to the facility in sealed bunker trucks, thereby minimizing the risk of dust dispersion during transit. It is further submitted that any loss of fly ash due to dust emissions during handling or processing directly results in financial loss to the Respondent and adversely impacts both operational efficiency and economic sustainability of the Unit.

I. The biomass used as fuel in the furnace for drying pond ash and gypsum is stored in a covered shed, ensuring no unprotected storage that could contribute to airborne dust.

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J. Additionally, the Unit is having solar power plants with a total capacity of 9.7 MW, contributing to the use of renewable energy for it's operations.

K. These compliances, as meticulously recorded and verified in the CPCB Report, reflect the Respondent No. 4's continued commitment to operate its Unit in strict adherence to environmental standards and to proactively mitigate any potential impact on the surrounding areas.

RE: CERTAIN ISSUES NOTED IN THE CPCB REPORT

Issue I: The ambient air quality with respect to PM10 and PM2.5 exceeded the National Ambient Air Quality Standards (NAAQS)

L. As observed by the Joint Committee, Respondent No. 4 has implemented appropriate environmental management measures within its premises to maintain pollution levels within prescribed limits. The Committee itself noted that Respondent No. 4 is not the sole contributor to the exceedance of ambient air quality parameters. As specifically recorded in the CPCB Report, the stack emissions from the Unit in terms of Particulate Matter ("**PM**") were measured at 29.48 mg/Nm^3, which is well within the prescribed statutory limit of 30 mg/Nm^3. This finding clearly demonstrates that the air pollution control devices installed at the facility are operating effectively and that the Unit's point-source emissions are fully compliant with applicable environmental norms. In addition, Respondent No. 4 regularly undertakes water sprinkling along the adjoining State Highway to minimize dust dispersion.

M. As recorded in the CPCB Report, Respondent No. 4's Unit is located adjacent to the PTPP, with its ash dyke situated in very close proximity to both the Unit and Village Khukhrana, separated only by the State Highway. The plant of Respondent No. 4 is surrounded on three sides by the PTPP and its ash dyke,

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while Village Khukhrana lies on the fourth side. Notably, the ash dyke is of substantial length, encompassing the periphery of both the Unit and the village.

N. Given these circumstances, the attribution of exceedances in ambient PM10 and PM2.5 levels solely to the Unit is misplaced. The presence of dominant and proximate pollution sources, particularly the PTPP, is a significant contributing factor.

O. With respect to the three monitoring locations:

a. Village Khukhrana (Adjacent to the Unit):

The ambient air quality exceedance recorded at Village Khukhrana cannot be solely or primarily attributed to the operations of the Respondent No. 4. The Unit and village is located immediately adjacent to the PTPP, with its vast ash dykes, covering an area approximately three times the size of the village, situated just across a public road. The Unit is covered by PTPP and its dyke from 3 sides. The CPCB Report itself notes the proximity of the ash dykes and their contribution to local dust levels. Moreover, the area is also subject to heavy vehicular traffic, which exacerbates dust resuspension.

b. Near Solar Panel (Inside the Unit):

At this monitoring point within the plant premises, the PM2.5 levels were found to be within acceptable limits. Given the absence of any high-emission process or captive power generation within the Unit, the marginal exceedance of PM10 is not due to the Respondent's operations but plausibly attributable to external sources, particularly emissions from the adjacent PTPP ash dykes and dust resuspension caused by vehicular

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activity on the adjoining busy highway. This observation reinforces that ambient air quality exceedances at this location cannot be ascribed to the Unit's controlled and compliant operations alone.

c. Truck Parking Area near Gate-2 (Transport Office):

This location, at the periphery of the Unit, is directly exposed to heavy external influences. The proximity of PTPP and the high density of vehicular movement in the area are significant contributors to the dust levels recorded. The Unit already undertakes regular water sprinkling and has installed sprinklers in and around the parking area to minimize dust; however, the external sources remain the dominant factor.

A copy of the maps indicating the locations where the monitoring devices were installed, along with the geographical location of the Unit, is annexed hereto and marked as ***Annexure R-5 (Colly)***.

P. From the CPCB Report, it is evident that the highest pollutant concentrations were recorded at Village Khukhrana and at the Truck Parking Area near Gate-2, both in close proximity to PTPP and its ash dykes, which have been consistently identified as the primary pollution source in the area.

Q. In *Subhender v. State of Haryana*, the Hon'ble NGT specifically recorded that approximately 700 heavy vehicles, each with a capacity of 20–35 tonnes, are engaged daily by PTPP for ash transportation. The Tribunal noted that such continuous and large-scale vehicular movement is a major cause of dust resuspension and deterioration of air quality, directly impacting areas adjacent to the Unit and Village Khukhrana.

R. The Respondent's Grinding Unit, occupying much less area than the land area of PTPP, is itself adversely affected by the poor ambient air quality caused by

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PTPP's operations. This is evident from the fact that PM levels inside the Unit (near the solar panel site) are significantly lower than those recorded at the external monitoring points.

S. In addition to the above, the Respondent No. 4 respectfully submits that ambient air quality monitoring, by its very nature, reflects the cumulative impact of all sources within the airshed, and not merely the emissions of a single facility. Without a scientifically robust source apportionment study, it is not possible to conclusively attribute the observed exceedances solely to the operations of the Respondent No. 4. The environmental liability must be determined based on evidence and not conjecture.

T. In light of the above, and in the absence of any evidence demonstrating a causal nexus between the Unit's operations and the ambient exceedances, it is respectfully submitted that no adverse inference should be drawn against the Respondent No. 4 with respect to the observed ambient air quality readings.

Issue II: Single water sprinkler in the truck parking area

U. The Respondent No. 4 respectfully submits that while the Joint Committee observed that only a single fixed water sprinkler was installed in the truck parking area, this does not reflect the full scope of dust suppression measures implemented by the Unit in that area. The truck parking zone is located near the boundary of the Unit and abuts the heavily trafficked public highway, which is itself a significant source of dust due to continuous vehicular movement.

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V. In addition to the existing fixed sprinkler, the Respondent No. 4 has been undertaking regular manual water sprinkling in the truck parking area using tractors and tankers to ensure effective dust suppression.

W. Further, the Respondent No. 4 is committed to maintaining environmental standards in and around its operations. In light of the observations of the Joint Committee, the Respondent No. 4 submits that it has already installed more fixed water sprinklers in the truck parking zone and shall undertake further installations as may be needed and required, in consultation with the regulatory authorities, to ensure continued dust control. A copy of the photographs of the water sprinklers are collectively annexed hereto and marked as ***Annexure R-6 (Colly)***.

Issue III: Unit is yet to provide wind breaking wall of sufficient height in the pond ash handling area and the clinker handling area

X. The Respondent No. 4 respectfully submits that the wind breaking wall of 20 ft height is provided at pond ash and clinker handling area, even though these areas are not directly adjoining the boundary towards the residential area of Village Khukhrana.

Y. As already recorded in the CPCB Report, the Unit has constructed a wind-breaking wall of 20 feet height towards Village Khukhrana, which effectively prevents any dust emissions from dispersing towards the village. Therefore, any fugitive dust emissions, if any, from material handling areas remain confined within the Unit premises and do not impact the ambient air quality of the adjoining village.

Z. Nonetheless, the Respondent No. 4 remains committed to further strengthening dust control measures and shall, in consultation with the

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regulatory authorities, take appropriate steps to augment wind-breaking arrangements in further internal areas as may be necessary, even though emissions from these internal zones do not affect the residential locality.

Issue IV: Green Belt

AA. The Respondent No. 4 respectfully submits that the Unit already maintains an adequate green belt within its premises, covering an area of approximately 11.72 acres. During the first inspection by the Joint Committee, as recorded in the Interim Report, it was observed that no green belt had been developed along the boundary abutting Village Khukhrana. In response to this observation, and as reflected in the CPCB Report, the Respondent No. 4 has since planted a green belt comprising two rows of trees along the boundary towards the village, thereby addressing the concern raised earlier.

BB. However, it is respectfully pointed out that the future use of the land adjoining the village boundary remains uncertain, given the ongoing relocation of Village Khukhrana. The judgment of the Hon'ble Punjab & Haryana High Court dated 01.03.2011 (CWP No. 1780/2007, Gurlal Singh v. State of Haryana) specifically records:

> "*So far as land to be vacated by the residents of village Khukhrana is concerned, it has been brought to our notice that the same will suitably be used by the State Government either independently or through the Gram Panchayat.*"

23. In view of the foregoing facts, reports, and submissions, it is respectfully reiterated that the Respondent No. 4 has at all times operated its Unit in strict compliance with all applicable environmental laws, statutory consents, and regulatory directions. The CPCB's own findings confirm substantial

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compliance and acknowledge the extensive mitigation measures adopted, including installation of a 20-feet wind-breaking wall towards Village Khukhrana, development of a green belt, maintenance of stack emissions within prescribed limits, and continuous dust suppression initiatives. The elevated ambient air quality parameters recorded in the vicinity are the cumulative result of multiple dominant external sources, most notably the adjoining PTPP and associated heavy vehicular traffic, and cannot be attributed to the Respondent's low-impact operations.

24. In these circumstances, the allegations in the Original Application are misconceived, devoid of merit, and liable to be rejected. It is therefore prayed that this Hon'ble Tribunal may be pleased to dismiss the Original Application, with such further orders as deemed fit in the interest of justice.

25. Further, this Hon'ble Tribunal vide its order dated 30.05.2025, granted liberty to the Joint Committee to file its supplementary report. The Respondent No. 4 craves the leave of this Hon'ble Tribunal to file additional reply/response, to the same, once the said report is filed.

Respondent No. 4
Shree Cement Ltd.

SHREE CEMENT LTD. 9th Floor, Epitome Tower-B, Building No. 5, DLF Cyber City GURGAON-122002

Authorised Signatory

Through

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Advocates for the Respondent
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Okhla Industrial Estate Phase 3,
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Mobile No.: 9871452750
E-mail: mahip.singh@dsklegal.com

Place : New Delhi
Date: 03.09.2025

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

Original Application No. 1293/2024

IN THE MATTER OF:

Sunil Kashyap ...Applicant

Versus

State of Haryana & Ors. ...Respondent

AFFIDAVIT

I, Kumar Ankit, S/o Manvendra Kumar aged about 38 years, authorized representative of the Respondent No. 4, Shree Cement Limited having its Registered Office at Bangur Nagar, Beawar - 305901, Rajasthan, presently at New Delhi do hereby solemnly affirm and declare as under: -

1. That I am the authorized representative of the Respondent No. 4 in the above-mentioned Application and as such am well conversant with the facts of the present case and am competent and authorized to swear the instant affidavit.
2. That I have read and understood the contents of the accompanying Reply and the same has been drafted by my counsel under my instruction and after carefully going through the same, I state that the same are true and correct to my knowledge and belief and it is stated that no part of it is false and nothing material has been concealed there from.
3. That the facts stated in the aforesaid affidavit are true to my knowledge and belief. No part of the same is false and nothing material has been concealed there from.

NOTARY SHEKHAR CHAND Advocate L. No. 57143 Expire On 16-07-2030 GOVT. OF INDIA

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DEPONENT

VERIFICATION:

I, the above named deponent do hereby verify that the facts stated in the above affidavit are true to my knowledge and belief. No part of the same is false and nothing material has been concealed there from.

Verified at New Delhi on this 04rd day of September, 2025.

NOTARY SHEKHAR CHAND Advocate L. No. 57143 Expire On 16-07-2030 GOVT. OF INDIA

SHREE CEMENT LTD. 9th Floor, Epitome Tower-B, Building No. 5, DLF Cyber City GURGAON-122002

DEPONENT

Identity The Executant Deponent Who Has Signed In My Presence

NOTARY SHEKHAR CHAND Advocate L. No. 57143 Expire On 16-07-2030 NOTARIAL GOVT. OF INDIA

Certified That The Deponent
Shri/Smt/Km Kumar Ankit
S/o,W/o R/o
Identified By Shri/Smt Ayushi Pandey
Has Solemnly Affirmed Before
Me At Delhi on 04/09/25 as S No. 09
That The Contents of The Affidavit Which
Have Been Read & Explained To
Him Are True And Correct To His Knowledge.
Notary

- 4 SEP 2025

KIND ATTN :- Shri V.K Thapa

HARYANA STATE POLLUTION CONTROL BOARD,
C-11, SECTOR-6, PANCHKULA

Regd.A.D.

No. HSPCB/2006/TAC-A/ 695 Dated: 14-07-06

To

M/S JAYPLE CEMENT GRINDING UNIT,
SH.A.B KAUSHAL JOINT PRESIDENT (TECH & COORDINATION)
JA HOUSE, 63, BASANT LOK,
VASANT VIHAR,
NEW DELLHI 110057

Sub.: Issue of "No Objection Certificate / Consent to Establish from Pollution Angle

Please refer to your NOC application vide letter dated 14.9.2005 and subsequent clarifications from you vide your letter dated 6.12.2005 on the subject cited above.

Under the Authority of the Haryana State Pollution Control Board vide its agenda Item No. 47.8 dated 28.4.83 sanction to the issue of "No Objection Certificate" with respect to Pollution Control of Water and Air is hereby accorded for setting up of factory of M/S JAYPEE CEMENT GRINDING UNIT, VILLAGE – KHUKHRANA, PANIPAT for the MANUFACTURING OF PORTLAND POZZOLANA CEMENT (PPC) AND ORDINARY PORTLAND CEMENT (OPC) USING CLINKER, FLYASH, GYPSUM & COAL AS RAW MATERIALS, with the following terms and conditions:-

1. The industry will have cement grinding units only using fly ash and basic raw materials namely clinker, Gypsum and Coal. The Clinker brought from another plant i.e. external sources and no in site manufacture of cement Clinker site is involved. In case it is found at any stage that the unit is manufacturing Clinker at the site the NOC so granted shall automatically become invalid.
2. The industry has declared that the quantity of effluent shall be 50000 LT/DAY i.e 50000 LT/DAY for domestic effluent & Nil LT/day for trade effluent and the same should not exceed.
3. The above "No Objection Certificate" is valid for two years from the date of its issue to be extended for another one year at the discretion of the Board or till the time the unit starts its trial production whichever is earlier. The unit will have to set up the plant and obtain consent during this period.
4. The officer/official of the Board shall have the right to access and inspection of the industry in connection with the various processes and the treatment facilities being provided simultaneously with the construction of building/machinery.
5. That necessary arrangement shall be made by the industry for the control of Air Pollution before commissioning the plant. The emitted pollutants will meet the emission and other standards as laid/will be prescribed by the Board from time to time.
6. The above NOC is further subject to the conditions that the unit comply with all the laws/ rules/ decisions and directions of the Board/Government and its functionaries in all respects before commissioning of the operation and during its actual working strictly.
7. No in-process or post-process objectionable emission or the effluent will be allowed if the scheme furnished by the unit turns out to be defective in any actual experience.
8. The UHBVN/DHBVN will given only temporary connection and permanent connection to the unit will be given by the UHBVN/DHBVN after verifying the consent granted by the Board both under Water Act and Air Act.
9. Unit will construct the proper septic tank/soakage pit as per Bureau of Indian Standards.
10. Unit will raise the stack height of DG Set/Boiler as per Board's norms.
11. Unit will maintain proper log book of Water meter/sub meter before/after commissioning.
12. That in the case of an industry or any other process the activity is located in an area approved and that in case the activity is sited in an residential or institutional or commercial or agricultural area, the necessary permission for siting such industry and process in an residential or institutional or commercial or agricultural area or controlled area under Town and Country Planning laws or Municipal laws has to be obtained from the competent Authority in law permitting this deviation and be submitted in original with the request for consent to operate.
13. That there is no discharge directly or indirectly from the unit or the process into any interstate river or Yamuna River or River Ghaggar either through a direct flow or indirectly, without treatment.
14. That the industry or the unit concerned is not sited within any prohibited distances according to the Environmental Laws and Rules, Notification Orders and Policies of Central Pollution Control Board and Haryana State Pollution Control Board.
15. That the unit is discharging its sewage or trade effluent into the public sewer meant to receive trade effluent from industries etc. and the permission of the Competent Authority owing and operating such public sewer giving permission to the unit is enclosed.
16. That all the financial dues required under the rules and policies of the Board have been deposited in full by the unit for this No Objection Certificate (NOC)(Consent to Establish)/Consent and the proof of such deposits is enclosed.
17. That the unit is not already in operation and the case relates to the issue of first NOC to the Unit.
18. That the unit has complied with all the Hazardous Waste Rules Relating to Handling, Storage and Disposal as required by Central Pollution Control Board and Haryana State Pollution Control Board.
19. Green belt of adequate width shall be provided by the unit before commissioning.
20. In case of unit does not comply with the above conditions within the stipulated period, NOC will be revoked.

21 Industry should adopt water conservation measures to ensure minimum consumption of water in their Process. Ground water based proposals of new industries should get clearance from Central Ground Water Authority for scientific development of precious resource.
22 This NOC would be invalid if it is established in the non-conforming area or any area where such activities are prohibited.
23 That the unit will take all other clearances from concerned agencies whenever required.
24 The unit will comply with all provision of Environmental Laws/Rules/instructions issued from time to time by MOEF, GOI/CPCB/HSPCB.

Other specific condition:

25 That the unit will install Chimney for Grinding and Coal Firing upto 70 meters.
26 That the unit will install imported and high quality bag filters to sustain high temperature with more life to control Air Pollution and will maintain the standards of dust emission less than 30 mg/m3.
27 That the unit will install the Machinery with inbuilt Noise Pollution Control Devices to achieve the Noise Standards.
28 The RSPM level will be maintained less than 100 ug/m3 and SPM level will be maintained less than 400ug/m3. & gross & install electronic energy meter for DPCM.
29 That the unit will provide Continuous Digital Monitoring System for Dust Emissions from the Stacks.
30 That the unit will provide Three Continuous Digital Dust Monitoring System at three locations for RSPM and SPM. & gaseous
31 That the unit will provide tree plantation in more than 25-30% area of the factory premises and the variety of the plants be discussed with the forest department to control air pollution/ dust emissions.
32 That the unit will transport the Clinkers, Fly Ash and Gypsum in closed tankers/containers and shall comply with the Motor Vehicle Rules.
33 That the unit will lift Fly Ash From Thermal Power Station through a pnuematic System.
34 That the unit will provide STP (Sewage Treatment Plant) of latest technology for the domestic effluent of industry and Residential Colony and treated water will be used for Tree Plantation, Lawns /horticulture etc.
35 That the unit will provide Paved Cemented Roads for Vehicle movements and provide vehicles tyre washing system before and after entering the factory premises.
36 That the unit will set up Dispensary for the treatment of employees and nearby rural population free of cost.
37 That the unit will provide employment to skilled and unskilled workers to the nearby residents/Haryana State and give preference to local population.
38 That the unit will make provision for rain water harvesting so that it is put into use as and when the water logging problem of that area has been finished.
39 The Project Proponent must obtain all approvals from concerned Central/State Govt/ other authorities as required as per Laws/Rules.
40 Adequate Environmental/ Pollution control safeguards must be incorporated in the design and implementation of the project.
41 Truck Parking/loading platforms must be properly laid out within premises to avoid congestion on road/ out-side the factory and the roads inside the plant must be black-topped to prevent fugitive dust generation.
42 Adequate Plantation/green belt must be provided within plant premises in 25% of total area. A norms of 1500-2000 trees per hectare and coverage of 25% plant area by tree-cover be ensured.
43 The project should ensure a positive environmental impact by ensuring localized disposal/utilization of Fly Ash from the Panipat Thermal Power Station.
44 The unit will provide adequate measures for controlling fugitive emissions generated from the process and ensure all such emissions remain within prescribed standard.
45 The Board reserves the right to add any condition, if required, in future.
46 That the unit will submit an affidavit to comply with all the general as well as specific conditions of the NOC within 15 days.

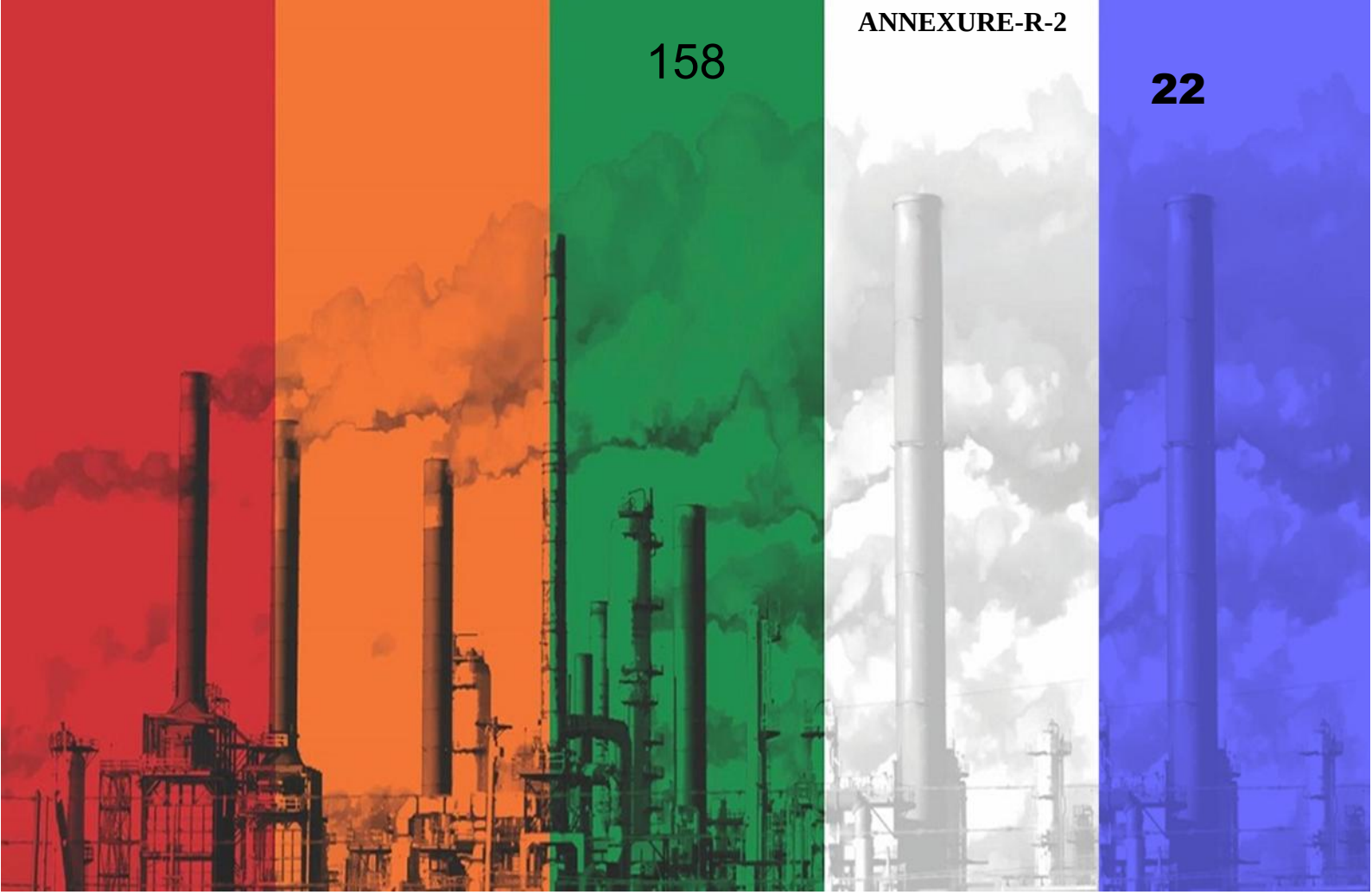
Scientist-C I (HQ)
for Chairman
Haryana State Pollution
Control Board,Panchkula

Endst.No.HSPCB/TAC-1/2006/ Dated:

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

1. The Regional Officer, Haryana State Pollution Control Board Panipat.
2. Executive Engineer (OP) Division, UHBVN, Panipat.
3. Director, Environment Department, Haryana, Sec-17, Chandigarh.
4. Secretary, MOEF, CGO Complex, Lodhi Road, New Delhi.

Scientist-C I (HQ)
for Chairman



Classification of Sectors into Red, Orange, Green, White and Blue Categories

(A tool for progressive environmental management)

Central Pollution Control Board

"Parivesh Bhawan", East Arjun Nagar

Delhi-110032

(January 2025)

तन्मय कुमार, भा.प्र.से.
अध्यक्ष
Tanmay Kumar, I. A. S.
Chairman

सत्यमेव जयते

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

FOREWORD

The concept of classifying industries into different pollution categories originated in 1989 with the Doon Valley (Uttarakhand) Notification issued by Ministry of Environment and Forests. Subsequently the concept of pollution index was developed by Central Pollution Control Board (CPCB) during 2016 to classify the sectors into different category. The 2016 classification helped State Pollution Control Boards (SPCBs)/Pollution Control Committees (PCCs) in streamlining consent management, prioritizing regulatory oversight & environmental monitoring, taking decision related to siting of units, etc. However, necessity felt for refining the concept of calculating Pollution Index to overcome certain limitation and to bifurcate sub-sectors based on pollution load, scale of operation etc.

Accordingly, draft methodology was prepared and widely circulated for inputs/comments/suggestions by placing the same on CPCB website (public domain) as well as by inviting comments from MoEF&CC/SPCBs/PCCs. As of 11.08.2024, i.e. the extended date for receipt of suggestions, CPCB received 170 representations, comprising over 700 comments from PSUs, NGOs, industries, industrial associations, including feedback from SPCBs of Kerala, Nagaland, Tamil Nadu, Mizoram, West Bengal, Punjab and Lakshadweep. The report has been finalised after examining all the comments by a working committee.

The 2025 classification methodology bifurcates sub-sectors based on pollution load, scale of operation, production technology, and type of fuel used into Red, Orange, Green, White and Blue categories. Red indicates the highest pollution potential, requiring stringent regulatory oversight, while White signifies minimal or no pollution, with much reduced compliance burden of merely intimation to the concerned SPCBs/PCCs. **A new Blue Category has also been introduced to distinguish the Essential Environmental Services** required for management of environmental concerns arising from anthropogenic pollution due to domestic/household activities which otherwise will have large littering potential. Additional 2 years validity for consent to operate (as per Pollution Index) is prescribed for the blue category.

This report also outlines the implementation pathway, which includes guidelines for State Pollution Control Boards/Pollution Control Committees to follow and implement the new classification system. Earlier classified 257 sectors have now been bifurcated and classified into 403 sectors (including sub sectors) and additionally, 16 new sectors have been introduced. Thus, the revised classification of 273 key sectors comprising of total 419 sectors/sub-sectors are further classified into Red Category (125 nos.), Orange Category (137 nos.), Green Category (94 nos.), White Category (54 nos.) and Blue Category (9 nos.). Progression between red, orange and green categories for the industrial sectors is also incorporated based on the use of less polluting available processes and technologies.

The report also comprises provisions for individual units to adopt cleaner technologies and practices resulting in reduction of pollution load in any sector. Incentives, such as extended validity for Consent to Operate (CTO) and reduced inspection frequencies, are outlined to encourage continual improvement of environmental performance. The incentive mechanism allowing progression between categories will thereby promote Ease of Doing Business by extended consent validity and enhance duration between inspections, thereby leading to reduced compliance burden.

To sum up, this report aims to create a more transparent, consistent, and incentivized regulatory mechanism for better environment management, promoting sustainable industrial development and better governance. I hope the report will be useful to all concerned in the field of industrial pollution control in the country and would incentivise the industries to switch over to cleaner process and technology leading to reduced air, water and soil pollution and also encourage setting up of blue category industries.

I would like to place on record my sincere appreciation for the hard work and valuable contributions by the CPCB team comprising of Shri Amit R. Thakkar, Add. Director, Shri Saubhagya Dixit, Scientist D, and Dr. Anantha N. S., SSA under the guidance of Shri Bharat Kumar Sharma, Member Secretary. I would also like to extend my thanks to Dr. Prashant Gargava, former Member Secretary, Shri P. K. Gupta, former Director and Shri Ajay Aggarwal, former Director, for their contribution. I would also express gratitude to the Working Committee, CPCB, MoEF&CC, SPCBs/PCCs and others for their contributions in the preparation of this report.

(Tanmay Kumar)

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6.	Smt. Anamika Sagar, Scientist 'E' and Div. Head, IPC-IV & V, CPCB, Delhi	:	Member
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8.	Shri Amit Thakkar, Scientist 'E', IPC-VI & VII Division, CPCB, Delhi	:	Member Convenor

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Development of Online Calculator:

Dr. Anantha N. S., Senior Scientific Assistant, Regional Directorate, Bengaluru

EXECUTIVE SUMMARY

The concept of classification of industrial sectors into red, orange, and green categories based on the size of operations and consumption of resources was first introduced in 1989 for Doon Valley, Uttarakhand. This classification aimed to aid decisions regarding siting of industries. Over the period of time, this concept was extended nationwide to manage consents and establish norms for surveillance and inspection of industry. In 2012, to have uniformity in classification throughout the country, the Central Pollution Control Board (CPCB) issued a standardized list of 244 sectors, classified under red (85 sectors), orange (73 sectors) and green (86 sectors) categories.

In 2016, the Central Pollution Control Board (CPCB) developed a scoring methodology based on the Pollution Index (PI) to harmonize the criteria for categorizing industries. This PI was determined by evaluating water pollution, air pollution, and hazardous waste generation. Using this methodology, CPCB classified 257 industrial sectors into four categories: Red (63 sectors), Orange (91 sectors), Green (65 sectors), and White (38 sectors). The White category was introduced for sectors considered "practically non-polluting" during 2016. Additionally, State Pollution Control Boards (SPCBs) and Pollution Control Committees (PCCs) were authorized to categorize any new or left over sectors according to the CPCB's 2016 methodology.

Further, based on the experience gained over the years, the increased use of cleaner fuels like PNG and bio-CNG, adoption of cleaner technology resulting into reduced wastewater generation, normalisation approach & different formula for calculating PI etc. a need was felt to revisit the classification methodology of 2016 for several such identified areas for improvement. Separate scoring for trade effluent and sewage effluent was also required due to differing characteristics and treatment methods.

Considering the scope of revision, CPCB published a draft report revising the methodology for calculating PI and accordingly classification of sectors into Red, Orange, Green, and White categories based on pollution index range was placed in the public domain for inputs/comments. Around 160 representations comprising more than 700 comments were received. Based on feedback/suggestions and examination of same by the working committee constituted for the purpose, the methodology was finalised. As per the final methodology, the scoring criteria for the following three major pollutant groups are as follows:

i. Water Pollutant Score (PI_W): Assesses the water pollution potential considering the oxygen demand of wastewater, other pollutants in the wastewater and quantity of wastewater generated.
ii. Air Pollutant Score (PI_A): Evaluates the potential air pollution due to process emissions (point source), work zone emissions (fugitive and odour) and type & quantity of fuel used.
iii. Waste Pollutant Score (PI_H): Considering the type and quantity of waste (which are hazardous/toxic/infectious/bulk in nature) generated.

Each pollutant group is scored out of 100, and the Cumulative Pollution Index is calculated. The category of the sector is decided based on the pollution index range, if $PI \geq 80$ the category

of sector is Red, if PI ranges between 55 ≤ PI < 80, the category of sector is orange, similarly for the range of PI between 25 ≤ PI < 55, the category is Green and for PI < 25, the category of the sector is white.

Further, based on the stakeholders' comments, a need was felt to introduce a separate "blue category" for Essential Environmental Services (ESS) required for management of waste generated from domestic/household activities and, an incentive mechanism to promote units in a particular sector, taking measures resulting into better environmental performance. An addendum was prepared, shared and presented to all SPCBs/PCCs. The addendum was also placed in the CPCB Website on 11.07.2024 for inputs/comments. 09 representations were received in the addendum. All representations were examined, and classification based on revised methodology is finalised. Based on the revised methodology, CPCB has classified total 419 sectors and sub-sectors under Red (125), Orange (137), Green (94), White (54) and Blue (9) categories.

The report introduced incentive mechanism for the units in any sector that adopt environment friendly practices such as treatment and recovery of 100% wastewater, use of 100% cleaner fuel/renewal energy etc. and ensuring continuous compliance. These incentives are designed to encourage continuous improvement in environmental performance and to reward units that demonstrate proven implementation of sustainable practices and compliances.

Following are the salient features of the revised classification methodology:

- Methodology focusses on "Potential to pollute the environment" by the sector.
- Simplified single formula for Cumulative Pollution Index for all cases.
- Equal weightage to all three pollutant groups- Air, Water, and Waste.
- Cumulative PI based on weighted proportionate scores of pollutant groups.
- Separate scoring criteria for sectors generating sewage (such as Building & construction projects, STPs, Airports, etc.) and bio-medical waste (Health Care Facilities).
- Introduced Blue Category for 9 sectors under Essential Environmental Services required for management of waste generated from domestic/household activities.
- Appropriate weightage to scale of operations by introducing more slabs to bifurcates sub-sectors based on pollution load, scale of operation, production technology and type of fuel used.
- Introduction of sub-categories for sectors based on cleaner technologies, fuel types, integrated/segregated operations etc.
- Motivation to industries for progressive environmental management.
- A tool to assess the Cumulative Pollution Index and category based on revised method.

This report, prepared by the Central Pollution Control Board (CPCB), presents a revised methodology for classifying sectors based on their pollution potential. The classification aims to enhance environmental management and regulatory oversight by classifying sectors into red, orange, green, white, and blue categories. The report covers in detail about the genesis of

classification, need for the revision of 2016 methodology, scoring methodology for calculation of cumulative PI, etc.

The report also outlines guidelines for implementing the classification system. The classification may be used for consent management, inspection frequency, siting criteria, cluster development, pollution control plans, levying environmental compensation, promoting progressive environmental management, etc.

*****

LIST OF ABBREVIATION

CBG: Compressed Biogas

CNG: Compressed Natural Gas

CPI: Cumulative Pollution Index

CPCB: Central Pollution Control Board

CTE: Consent to Establishment

CTO: Consent to Operate

EC: Environment Compensation

ETP: Effluent Treatment Plant

EES: Essential Environmental Services

Gen-Set: Generator Set

HAPs: Hazardous Air Pollutants

HCFs: Health Care Facilities

HW: Hazardous Waste

MoEF&CC: Ministry of Environment, Forest & Climate Change

LNG: Liquefied Natural Gas

LPG: Liquefied Petroleum Gas

NGT: National Green Tribunal

NOC: No Objection Certificate

OCEMS: Online Continuous Effluent/Emission Monitoring System

PCC: Pollution Control Committee

PM: Particulate Matter

PI: Pollution Index

PI_A: Air pollutant score

PI_H: Waste pollutant score

PI_W: Water pollutant score

PNG: Piped Natural Gas

SPCB: State Pollution Control Board

TTZ: Taz Trapezium Zone

VOCs: Volatile Organic Compounds

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1

Genesis and Journey of Classification

1.1 Introduction

The notifications issued by the Ministry of Environment and Forest during 1989 for Doon Valley, Uttarakhand introduced the concept of classification of industries as red, orange, and green categories. The purpose of this classification was to facilitate decisions related to location of these industries. The criteria for classification of industries was primarily based on quantity of industrial effluent, quantity of fuel/coal, and the number of employees, and amount of waste generated. The notification included list of 129 sectors, classified under red (45), orange (35), and green (39) categories. The criteria used for Doon Valley Notification, 1989 is summarized in the **Figure I**.

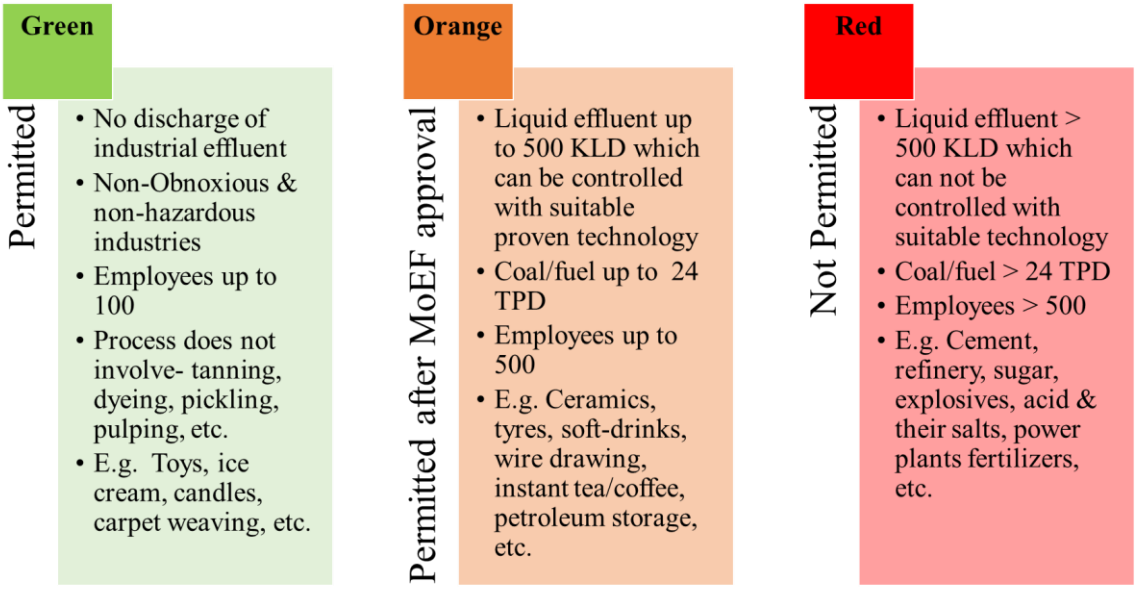

Figure I: Criteria for classification of industries in Doon Valley Notification, 1989

Subsequently, the application of this concept was extended to other parts of the country not only for the purpose of location of industries, but also for the purpose of consent management and formulation of norms related to surveillance/inspection of industries. As the State Pollution Control Boards (SPCBs) and Pollution Control Committees (PCCs) were following different

categorization of industries, to maintain the uniformity across the country, during 2012, CPCB issued a list of 244 sectors, classified under red (85), orange (73) and green (86) categories.

In order to harmonize the criteria for categorization, during the year 2016, CPCB developed the scoring methodology to classify the industries based on the Pollution Index (PI) which was a function of water pollution, air pollution and hazardous waste generation. Based on this methodology, CPCB has classified 257 sectors under red (63), orange (91), green (65) and white (38) categories and directed SPCBs/PCCs to adopt the same. During 2016, CPCB introduced white category as a new category for such sectors which are "practically non-polluting". SPCBs/PCCs were also empowered to categorize any new/left-out sector at their own level, following the methodology prescribed by CPCB. Additionally, during 2020, CPCB also segregated the list of non-industrial operations/facilities. The overall journey of classification may be understood with the help of milestone chart shown in **Figure II**.

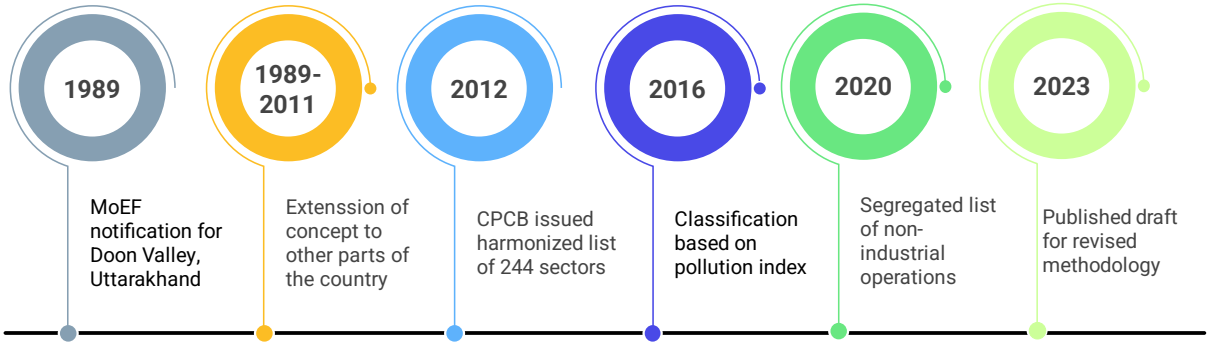

Figure II: Genisis and journey of classification of sectors

The concept of categorization is based on the "Precautionary Principle", which focuses on potential of industries to pollute the environment. The purpose of categorization is to ensure that the industry is established in a manner consistent with the environmental objectives and to prompt industrial sectors to adopt cleaner technologies, ultimately resulting in generation of minimum pollutants.

*****

2

Modified Methodology for Classification

2.1 Need and scope for revision of methodology

Based on the experience gained over the years, a need was felt to revisit the 2016 methodology for classification of sectors considering following scope of improvement:

i. Assessment of Pollution Index:

The category of any industrial sector depends on the Pollution Index (PI), which comprises of scores of three pollutant groups i.e., air pollution, water pollution and hazardous waste. The water and air pollutants were each assigned a weight of 40%. However, the hazardous waste generation was given 20% weightage in pollution index.

As per the classification methodology of 2016, in case of absence of any pollutant groups, pollution index was normalized to 100. As a result, different formulas were required to compute pollution index.

Further, the normalization method has certain limitations while comparing pollution potential among sectors having scores for all three pollutant groups verses score only for any one/two pollutant group(s). Moreover, it was also observed that in some sectors normalization involved subjectivity based on perception.

ii. Size of operations of industrial activities:

It was observed that, there was less variation in PI score of industry based on size of operation in same sector. Limited variables/slabs were considered for the quantity of wastewater discharge and fuel consumption. It was also observed that adequate weightage in the considered variables/slabs to account the variation in size of operations of industrial activities need to introduce.

iii. Consideration to segregated industrial activities:

Although there were differences in pollution potential of integrated and standalone units of a particular sector, the classification methodology (2016) classifies the integrated or standalone units in the same sector. For example, standalone cement grinding units will have less pollution potential than integrated cement plants, but both were classified under red category.

iv. Consideration of type of fuel used:

In industrial operations requiring fuels, the amount of emissions is governed by many factors such as the type of fuel and its calorific value, combustion efficiency, emission factors, etc. Use of biomass and cleaner gaseous fuels such as Piped Natural Gas (PNG), Liquefied Petroleum Gas (LPG), Compressed Natural Gas (CNG), bio-CNG etc. have increased significantly in recent years. It was observed that adequate weightage based on type of fuel used is required.

v. Separate scoring for sewage and trade effluent:

It is desirable to have separate wastewater scoring criteria for the sectors generating trade effluent and sewage effluent, as characteristics, treatment method and impact are different for trade effluent generated from industrial sectors and sewage effluent generated from infrastructure & development sectors.

vi. Motivation to industries for progressive environmental management:

In the previous classification regime, there was no effective provision for change in category of industries based on the variation in pollution potential of a sector, even if the industries adopt cleaner technologies or switch over to cleaner raw material/cleaner fuel etc., resulting into reduction in pollution index.

2.2 Modified methodology for classification of sectors

Considering the scope of revision, CPCB prepared a draft report on "Classification of Industrial Sectors into Red, Orange, Green and White Categories: A Tool for Progressive Environmental Management". As per the draft report, a revised methodology for the classification is proposed which incorporates, water pollutant score, air pollutant score and waste generation score, based on the pollution potential of a sector on the environment. Scores out of 100 were given to each three pollutant groups and formula for calculating cumulative score based on the impact pollutant is devised. These scores are used for computation of pollution index for deciding the

category of industrial sector. The cut-offs for deciding the category were based on the quartiles of pollution indices, pollution potential of sectors, etc. The draft report was placed on CPCB website in July 2023, for comments/feedback from stakeholders.

CPCB received 161 representations, comprising more than 700 comments from various State Pollution Control Boards, research and technical institutions, industrial associations, NGOs, individual industries, and the public. The stakeholder-wise representations are shown with the help of pie-chart in **Figure III**.

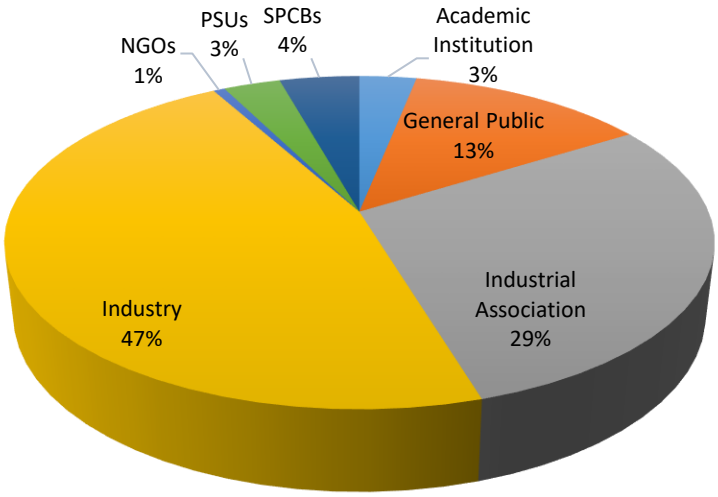

Figure III: Stakeholder-wise representations received

Subsequently, CPCB constituted a committee to critically examine and analyse the comments and to make recommendations for suitable incorporation in the final methodology and classification. After incorporating the feedback received from stakeholders, the Committee has finalized the basic methodology which can be used as a yardstick for classification of the sectors into Red, Orange, Green and White Categories.

Further, based on the stakeholders' comments, a need was felt to introduce a separate "blue category" for Essential Environmental Services (ESS) required for management of waste generated from domestic/household activities and, an incentive mechanism to promote units in a particular sector, taking measures resulting into better environmental performance. An addendum was prepared, shared and presented to all SPCBs/PCCs. The addendum was also placed in the CPCB Website on 11.07.2024 for inputs/comments. Till last date (i.e. 11.08.2024) 09 representations were received in the addendum. All representations were examined, and classification based on revised methodology is finalised.

It is worth to mention that to safeguard the environment, following the fundamental principle of classification i.e., “Precautionary Principle", scope is always available for application of mind and collective wisdom. As per the precautionary principle, when human activities may lead to morally unacceptable harm that is scientifically plausible but uncertain, actions shall be taken to avoid or diminish that harm. Therefore, variation from methodology is possible in case of projects having high chances of damage to the environment/eco-system such as river mining, etc. or having associated accidental risk such as major accident hazards installations wherein risk is associated with industrial activities having potential in terms of operation or process, manufacturing, transportation, and storage of one or more hazardous chemicals as prescribed by the Manufacture, Storage, and Import of Hazardous Chemical Rules, 1989.

Considering the above issues, the classification methodology was modified based on the potential of three pollutant groups, namely, water pollutant, air pollutant and waste pollutant (which are hazardous/toxic/infectious/bulk in nature), which have been given scores out of 100, each. Slabs are assigned for selection of pollutant groups respectively for water, air, and waste. Score can be decided based on dominant pollutants in the pollutant groups and quantity as detailed in Table-I, Table-II and Table-III. These scores are used for computation of pollution index for deciding the category of sector. The scoring methodology is based on the pollution potential during generation and not at the end of pipe/ after treatment considering the fact that all pollutants need to be treated and disposed as per the provisions/rules notified under the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981 and the Environment (Protection) Act, 1986 and as amended.

The details of scoring criteria for PI_W for “water pollutant,” PI_A for “air pollutant” and PI_H for “waste generating sector” are as follows:

2.2.1 Scoring criteria for Water Pollutant “PI_W”

Water pollution score consider the potential water pollution load from any sector in terms of characteristics and quantity of untreated trade effluent (wastewater). The “trade effluent” includes any liquid, gaseous or solid substance which is discharged from any premises used for carrying on any [industry, operation or process, or treatment and disposal system], other than domestic sewage.

The water pollutant score (PI_W) is the addition of three sub-scores which are based on organic content in terms of oxygen demand of wastewater (W1), potential of other pollutants (W2) and

quantum of wastewater (W3). The weightages of W1, W2 and W3 in the water pollution score are 35%, 30% and 35%, respectively.

Proportionate higher scores are assigned to the sectors generating trade effluent of high BOD and/or high COD, heavy metals/toxic compounds, and large volume of wastewater. The scores are assigned considering the potential for causing damage to the environment. It may be noted that for sectors generating industrial effluent, dominant quantity of trade effluent is considered in score W3 (W3-1 to W3-5). Whereas, for sectors generating huge volume of sewage effluent such as railway stations, STPs, residential building projects, airports etc., the separate scores W3 (W3-6 to W3-10) are assigned. The term used, "Sewage effluent" means effluent from any sewerage system or sewage disposal works and includes sullage from open drains. The scoring criteria for water polluting sectors are given in **Table-I**.

Table I: Scoring Criteria for Water Polluting Sector

Water Pollutant Group	Description	Score
Score W1: Score based on the oxygen demand of wastewater (Maximum of the following scores to be considered)		
W1-1	BOD ≥ 5,000 mg/l or COD ≥ 10,000 mg/l	35
W1-2	1000 ≤ BOD < 5,000 mg/l or 5000 ≤ COD < 10,000 mg/l	30
W1-3	500 ≤ BOD < 1,000 mg/l or 1000 ≤ COD < 5,000 mg/l	25
W1-4	100 ≤ BOD < 500 mg/l or 250 ≤ COD < 1,000 mg/l	20
W1-5	10 ≤ BOD < 100 mg/l or 50 ≤ COD < 250 mg/l	10
Score W2: Score based on other pollutants in the wastewater (Maximum of the following scores to be considered)		
W2-1	Pollutants like pesticides, heavy metals, and toxic compounds: *(Aluminium, Anionic detergents, Barium, Chloramines, Copper, Fluoride, Total residual chlorine, Iron, Manganese, Mineral oil, Phenolic compounds, Selenium, Silver, Sulphide, Cadmium, Cyanide, Lead, Zinc, Mercury, Tin, Vanadium, Antimony, Benzene, Benzo-a-pyrene, Molybdenum, Nickel, Phosphates, Polychlorinated biphenyls, Polynuclear aromatic hydrocarbons, Arsenic, Total/Hexavalent Chromium, Trichloroethane, Trichloroethylene, Adsorbable Organic Halogens (AOx), Pesticides compounds, Residual antibiotic, Radioactive materials, etc.)*	30
W2-2	Pollutants like Nitrate Nitrogen, Nitrate, Ammonical Nitrogen, Total Kjeldahl Nitrogen (TKN), Oil & grease, pH<5.5 or > 9	25
W2-3	Pollutants mainly in terms of inorganic dissolved solids and associated other impurities due to process e.g. wastewater generated from DM water rejects, boiler blowdowns, brine solution rejects, fresh-water RO rejects, etc.	20
W2-4	Pollutants mainly in terms of inorganic dissolved solids e.g. wastewater from cooling towers, cooling-re-circulation processes, etc.	15

Score W3: Score based on quantity of wastewater generated		
A. For sectors generating Industrial Trade effluent (Maximum score to be considered)		
W3-1	Wastewater ≥ 500 KLD	35
W3-2	100 KLD ≤ Wastewater < 500 KLD	30
W3-3	50 KLD ≤ Wastewater < 100 KLD	25
W3-4	10 KLD ≤ Wastewater < 50 KLD	20
W3-5	Wastewater < 10 KLD	15
B. For sectors such as STPs, building projects, etc. generating/handling only high-volume Sewage (Maximum score to be considered)		
W3-6	Sewage ≥ 5,000 KLD	35
W3-7	2,000 KLD ≤ Sewage < 5,000 KLD	30
W3-8	500 KLD ≤ Sewage < 2,000 KLD	25
W3-9	100 KLD ≤ Sewage < 500 KLD	20
W3-10	Sewage < 100 KLD	15
Water Pollutant Score (PI_W) = W1+W2+W3		

2.2.2 Scoring criteria for Air Pollutant "PI_A":

Air pollution score consider the potential air pollution load from any sector in terms of characteristics of emissions and its quantum/scale in terms of quantity of fuel. The air pollutant score is based on generation of emission. The "air pollutant" means any solid, liquid, or gaseous substance (including noise) present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment.

The air pollution score (PI_A) is the addition of three sub-scores which are based on the type of pollutants in emissions (A1), work zone emission/fugitive emissions & odour nuisance (A2), and fuel type & quantity (A3). The weightages of A1, A2 and A3 in air pollution score are 35%, 30% and 35%, respectively.

Proportionate higher scores are assigned to the sectors generating emissions with hazardous air pollutants, process-based fugitive emissions and using solid/liquid fuels, as such pollutants have higher potential to damage the environment.

The California Air Resources Board defines fugitive emissions as "Emissions not caught by a capture system which are often due to equipment leaks, evaporative processes and windblown disturbances." The fugitive emissions from any process having acid mist, VOCs, etc. are given higher weightage (score A2=30) as compared to the fugitive emissions of inert material (score A2=25). Sectors having persistent foul odour issue, will get score A2=20. Sectors/units using solid/liquid fuel will get higher score-A3, compared to the sectors using cleaner gaseous fuel or electricity. The scoring criteria for air polluting sectors are given at **Table-II.**

Table II : Scoring criteria for air polluting sectors

Air Pollutant Group	Description	Score
Score A1: Score based on Process emissions (point source) (Maximum of the following scores to be considered)		
A1-1	Hazardous Air Pollutants (HAPs) and heavy metals: *HAPs (Phosgene, Benzene, Benzo(α)pyrene, Butadiene, Toluene Di-isocyanate, Methylene-di-phenyl Di-isocyanate, Ethylene Oxide, Ethylene Di Chloride, Acrylonitrile, Propylene Oxide), Dioxins & Furans, Asbestos, Polycyclic Aromatic Hydrocarbons (PAHs), HCN, Cd, Th, Hg, Sb, As, Pb, Co, Cr, Cu, Mn, Ni, V, etc.*	35
A1-2	Halogens, acids, and pesticides-based pollutants: *H_2S, HF, HBr, P_2O_5 as H_3PO_4, NH_3, TOC, Cl, HCl, SO_3, CH_3Cl, Total Fluoride, PM having pesticide compounds/other organic compounds, Acid mist, etc.*	30
A1-3	Pollutants due to combustion of fuel or due to process: *PM, CO_2, CO, NOx, SO_2, etc.*	25
A1-4	Volatile Organic Compounds (VOCs): *Ethyl benzene, Styrene, Toluene, Xylene, Aromatics, Propylene Glycol, Ethylene Glycol, etc.*	20
Score A2: Score based on fugitive emissions and odour nuisance (Maximum of the following scores to be considered)		
A2-1	Fugitive emissions of Particulate Matter (PM), acid mist, VOCs, etc. from process	30
A2-2	Fugitive emissions of Particulate Matter (PM), acid mist, VOCs, etc. due to storage and handling, etc.	25
A2-3	Odour nuisance, including odour due to the use of binding gums, cements, adhesives, enamels etc.	20
Score A3: Score based on quantity of fuel (Maximum of the following scores to be considered)		
	Coal or liquid fuels	
A3-1	Fuel consumption ≥ 24 TPD	35
A3-2	12 TPD ≤ Fuel consumption < 24 TPD	30
A3-3	Fuel consumption < 12 TPD	25
	Biomass-based fuels	
A3-4	Fuel consumption ≥ 48 TPD	25
A3-5	24 TPD ≤ Fuel consumption < 48 TPD	20
A3-6	Fuel consumption < 24 TPD	15
	Cleaner/gaseous fuels, such as, PNG, CNG, LPG, Compressed Biogas (CBG), propane, butane etc.	
A3-7	Fuel consumption ≥ 120 TPD	20
A3-8	60 TPD ≤ Fuel consumption < 120 TPD	15
A3-9	Fuel consumption < 60 TPD	10
A3-10	Electricity	0
Air Pollutant Score (PI_A) =A1+A2+A3		
Note: In case, any sector/unit is using more than one type of fuel, the most polluting fuel category, will be considered.		

2.2.3 Scoring criteria for Industrial Waste Generating Sector "PI_H"

Industrial waste generating sectors are considered based on the generation of hazardous waste/high volume low effect waste. As per the Hazardous and Other Wastes (Management & Trans-boundary Movement) Rules, 2016, the "hazardous waste" means any waste which by reason of characteristics such as physical, chemical, biological, reactive, toxic, flammable, explosive or corrosive, causes danger or is likely to cause danger to health or environment, whether alone or in contact with other wastes or substances and shall include waste as per the Schedule I, Schedule II and Schedule III of the rule. Further, scores are also assigned to the high-volume low effect wastes such as fly ash, phosphogypsum, red mud, jarosite, slags from pyro-metallurgical operations, mine tailings and ore beneficiation rejects.

The score for waste comprises of two sub-scores H1 and H2. The H1 score is based on the different type of hazardous waste which are generated during the process, and which required to be managed/disposed through common facility OR based on the generation of high-volume low effect waste/ HW like contaminated bags/ drums etc. The H2 score is based on the total quantum of waste generated.

The desirable disposal method such as incineration, landfill after treatment, landfill etc. signifies the potency of hazardous waste. In recent time, the utilization of hazardous waste as per the Rule-9 of Hazardous and Other Wastes (Management & Trans-boundary Movement) Rules, 2016, as alternate fuel and raw material in cement kilns, as recyclable hazardous waste etc. has increased. The classification is based on the pollution potential due to generation of such types of hazardous waste from any sector. The score for the quantum of hazardous waste is total potential of generation of such hazardous waste by any sector., Score H1: Based on potency of hazardous waste and score H2: Based on quantum of hazardous waste, are given weightage of 30% and 70%, respectively. Considering the higher risk due to amount of hazardous waste generated rather than its disposal method, more weightage is given to the quantity. Overall waste generation score in case of waste generating sector will be PI_H =H1+H2. The scoring criteria for hazardous waste generating sectors are given at **Table-III**.

A separate scoring criterion has been included for sectors generating bio-medical waste. Bio-medical waste means any waste, which is generated during the diagnosis, treatment or immunisation of human beings or animals or research activities pertaining thereto or in the production or testing of biological or in health camps, including the categories mentioned in Schedule-I appended to the Bio-Medical Waste Management Rules, 2016. As any Health Care

Facilities (HCFs) generates all types of bio-medical waste (red, yellow, blue, and white) and quantities of such wastes may vary considerably based on the type of facility/location of facility (rural/urban), and other such factors. Therefore, scoring based on number of beds in a healthcare facility is considered as sole criteria for assigning waste score (H: B-1 to B-7) as tabulated in **Table-III**.

Least score of 25 is given to non-bedded healthcare facilities and maximum score of 100 is given to facilities having more than 1,000 beds. Overall waste generation score in case of bio-medical waste generating sector will be PI_H.

Table III: Scoring criteria for waste generating Sectors

Waste Pollutant Group	Description	Score
A. Score for sectors generating hazardous waste		
Score H1: Score based on the hazardous waste management/disposal method. (Maximum of the following scores to be considered)		
H1-1	Hazardous wastes which are flammable, ignitable, corrosive, oxidizing toxic, etc. and requiring disposal through incineration	30
H1-2	Hazardous wastes which are reactive, capable of yielding another material post disposal, etc. and requiring disposal in secured landfill after stabilization/treatment	25
H1-3	Hazardous wastes which are requiring direct disposal in secured landfill without stabilization	20
H1-4	High volume and low effect wastes, contaminated bags/ drums/ containers etc.	10
Score H2: Score based on quantity of hazardous waste generation. (Maximum of the following scores to be considered)		
H2-1	Hazardous Waste ≥ 5000 TPA	70
H2-2	1000 TPA ≤ Hazardous Waste < 5000 TPA	50
H2-3	200 TPA ≤ Hazardous Waste < 1000 TPA	30
H2-4	10 TPA ≤ Hazardous Waste < 200 TPA	20
H2-5	Hazardous Waste < 10 TPA	10
B. Scores for the sectors generating bio-medical waste		
B-1	No. of beds ≥ 1,000	100
B-2	500 ≤ No. of beds < 1,000	80
B-3	200 ≤ No. of beds < 500	60
B-4	50 ≤ No. of beds < 200	50
B-5	10 ≤ No. of beds < 50	40
B-6	No. of beds < 10	30
B-7	Non-bedded facility	25
For sectors generating hazardous waste PI_H =H1+H2 **For sectors generating bio-medical waste PI_H =B**		

2.3 Computation of Cumulative Pollution Index and criteria for deciding category of sector

In the revised methodology of classification (2025), all three pollutant scores due to water, air and industrial waste generation are taken into account while computing pollution index. The formula for computing cumulative pollution index (PI) is as follows:

$$PI = i_{max} + (100 - i_{max})\left(\frac{i_2 + i_3}{200}\right)$$

Where, $i_{max,}$ is the maximum score among Water (PI_W), Air (PI_A), and Waste (PI_H) pollutant scores and i_2 & i_3 are the remaining pollutant scores.

The category of the sector will be decided based on the pollution index ranges given at **Table-IV.**

Table IV: Ranges of Cumulative Pollution Index for different categories

Cumulative Pollution Index (PI)	Category of industrial sector
PI ≥ 80	Red
55 ≤ PI < 80	Orange
25 ≤ PI < 55	Green
PI < 25	White

The purpose of classification is to have uniform consent mechanism, defined routine monitoring frequency by concerned SPCB/PCC, environmental protection plans etc. Modified methodology also considers the variation in pollution potential due to various type of activities and operations in a particular sector.

The scores/pollution index/category of any two sectors may be same, however, comparing two different sectors based on the category or pollution index is not desirable as the cumulative PI is a function of air pollutant, water pollutant, and waste pollutant and the cumulative score is arithmetically relates the maximum score of one pollutant with the remaining other two pollutants. Hence, PI/category of sectors may be same but may have different impact on environment.

2.4 Blue Category Projects- Essential Environmental Services for management of environmental pollution arising from domestic/household activities

Essential Environmental Services may be defined as those facilities which are essential to control, abate and mitigate pollution generated from Domestic and Industrial activities. Such Essential environment services for Industrial Activity includes CETP, CHWTSDF, Effluent conveying system etc. and essential environment services for domestic activities includes STP, MSW etc. Both the type of EES plays a vital role in Environment Management. However, during the treatment of waste, some EES generates/handle hazardous waste/infectious waste. The EES which do not generate Hazardous Waste, and which otherwise have large littering potential can be categorised as Blue Category Projects. Further, there are past legal references wherein Hon'ble Apex court has also considered the importance and requirement of such Essential Environment Services.

Human settlements whether located in rural/urban/eco-sensitive area generate sewage, solid waste, and C&D waste, which are required to be managed to prevent adverse impact on environment and human health. Basic environment management facilities are required to be set-up to manage such waste which includes STP, C&D waste processing facility, MSW management facility like sanitary landfill, material recovery facility & waste processing units, bio-methanation, bio-composting, waste to energy, etc.

These facilities are basically essential environment services which play a vital role in protecting environment and human health. These facilities may also bring value addition by producing various by-products such as secondary raw material, compost, energy, etc. and promotes circular economy and sustainable development by converting waste into wealth. Moreover, these categories do not generate hazardous or infectious wastes.

As the role and importance of these facilities is different in nature as compared to other activities and industries in the sense that they are primarily set-up for prevention, control and abatement of soil, water and air pollution. It is more appropriate to have a separate colour category-Blue Category for essential environmental services facilizes related to environmental pollution arising from domestic/household activities. These activities are required to meet all the prescribed environmental norms/rules notified from time to time and the pollution index for such Essential Environmental Services (EES) shall continue to be calculated as per the formula and consent to operate will be governed based on the pollution index. However, the

category of the EES will be termed "Blue Category sector" and as an incentive for the essential services, additional 2 years validity for consent to operate (as per PI) will be provided.

The list of EES facilities is given at **Annexure-II**.

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3

Classification of Sectors as per Revised Methodology

3.1 Types of sectors based on their activities

The revised methodology of classification will be applicable to all industries which may have potential for generation of environmental pollutants. As per the Section 2(j) of the Industrial Disputes Act, 1947, "Industry" means any business, trade, undertaking, manufacture, or calling of employers and includes any calling, service, employment, handicraft or industrial occupation or avocation of workman", however, based on type of operational activities, the industries are divided into following four sectors:

i. Industrial Sectors
ii. Essential Environmental Services (EES)
    a. EES for Industrial Waste
    b. EES for Domestic Waste (Blue Category Sector)
iii. Service/Infrastructure Development Sectors
iv. Others/Special Category Sectors

The sectors which are involved in production of goods, products, etc. are considered under "Industrial Sectors". The sectors covered under "Essential Environmental Services (EES)" are those facilities which are essential to control, abate and mitigate pollution generated from Domestic and Industrial activities. These services are essential facilities which are required to reduce pollution load on the environment, such as sewage treatment plants, common bio-medical waste treatment facilities, construction & demolition waste processing plants, etc. Essential Environmental Services Sectors are sub classified as "EES for industrial waste" and "EES for domestic waste (Blue category sectors which do not handle or generate infectious or hazardous waste)". On the other hand, sectors which carry out service-related activities such as infrastructure projects, railways, airports, hospitals, etc. are covered under "Service/infrastructure development sectors".

"Other/special category sectors" include those projects which cannot be classified based on the scoring methodology of pollution index but require classification based on precautionary principle and considering the potential of ecological damage/ health and environment related risk, etc. Few such sectors are sand mining, hydel power plants, etc.

The revised methodology of classification, sub-categorises the main sector based on the usage of cleaner technology/cleaner production/cleaner fuel which has proven reduction in trade effluent generation, emissions, waste, etc., for better environmental management, resulting into overall reduction of pollution index compared to main sector. For example, if coffee seeds processing industries use eco-pulping technology, which generates less water pollution, the pollution index of the said sector gets reduced and category changes from orange to green. Similarly, variation in type/scale of activities in a particular sector is also considered for classification of sub-sectors.

The methodology and scores have been screened through stakeholder feedback/consultation and public opinion. Available standard literature, various documents and guidelines, inspection reports, etc. were also referred, while assessing the scores for water pollution, air pollution, and waste generation for classification of sectors. Based on the modified methodology, the list of sectors and sector specific sub-classification is given at **Annexure-I to Annexure-IV**. Summary of classified sectors is given in **Table-V**.

Table V: Number of sectors classified under different categories

Sl. No.	Type of sector	Total number of sectors/sub-sectors	Red	Orange	Green	White	Blue
1.	Industrial Sectors	**359**	**108**	**120**	**80**	**51**	-
2.	Essential Environmental Services (ESS)						
2.a.	ESS for domestic waste	**9**	**-**	**-**	-	-	**9**
2.b.	ESS for industrial waste	**9**	**8**	**-**	1	-	-
3.	Service/Infrastructure Development Sectors	**37**	**7**	**15**	**13**	**2**	-
4.	Others/Special Category Sectors	**5**	**2**	**2**	`	**1**	-
	Total	**419**	**125**	**137**	**94**	**54**	**9**

3.2. Usage of classification of sectors

The classification of sectors may be used for the following purposes:

i. **Consent management:** SPCBs/PCCs may grant Consent to Operate (CTO) to red, orange, and green categories of industries for validity up to 5 years, 10 years, and 15 years, respectively as per existing provisions which would be later governed as per the provisions/guidelines under Jan Vishwas (Amendment of Provisions) Act, 2023/Water Act, as amended. The validity of blue category sectors will be 2 years more than the category based on PI.

ii. **Inspection frequency:** SPCBs/PCCs may prioritize their environmental surveillance programs based on the categories of sectors. SPCBs/PCCs are required to ensure inspection of red, orange, and green category of industries at least once in six-months, one-year, and two-years, respectively. Common facilities and 17 categories of industries are to be inspected at least once in every three-months.

iii. **Siting criteria:** The categorization may be used as a tool for deciding the location/siting of an industry in a particular location.

iv. **Development of cluster:** The classification will help in planning of sector specific cluster, based on scoring of various pollutants and development of adequate environment management infrastructure facility, accordingly.

v. **Sector specific plans for pollution control:** The plans for control of pollution may be prepared and implemented on priority for the sectors having higher pollution index and overall higher pollution load.

vi. **Levying environmental compensation:** Pollution index may be used for determining and levying environmental compensation on industries violating the environmental norms.

vii. **A tool for progressive environmental management:** Industrial units may adopt cleaner technologies, cleaner fuels, etc. which may result in reduction of pollution index, thus, moving to lower pollution potential category. It will provide incentives to industries in terms of less consent renewal fees, less environmental surveillance/compliance burden, more validity period for consents/authorizations, etc.

3.3 Classification of left-out/new sectors

The revised methodology of classification (2025) and list of sectors classified by CPCB is required to be adopted and implemented by all SPCBs/PCCs. In case of any new or left-out

sector, the SPCB/PCC may categorize the sector at its own level. For this purpose, a committee headed by the Member Secretary, SPCB/PCC and comprising of at least two senior cadre engineers/scientists of the SPCB/PCC (as nominated by the Member secretary of the concerned SPCB/PCC) may be constituted to examine the matter and classify the sector in accordance with the methodology prescribed by CPCB. The State Level Committee may also co-opt subject experts, industrial association representative, etc., as member, as per requirement. CPCB has also developed a tool to assess the Cumulative Pollution Index and category of any sector, which is available on CPCB website (https://cpcb.nic.in/categorization-of-industrial-sectors/).

In addition, all SPCBs/PCCs are required to submit list of all such sector classified under white category to CPCB in the prescribed format (**Annexure-V**), for notification as per provisions of Jan Vishwas (Amendment of Provisions) Act, 2023.

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4

Incentives to unit in a sector for adopting measures resulting to better environmental performance

A methodology has been strategized to provide incentives to the unit in a sector which are dedicated to reduce environmental impacts from their operations/process. The objective can be achieved by 100% treatment and reuse of wastewater generated, having complete dependency on cleaner fuel alternatives (such as PNG, LPG, compressed biogas, propane, butane, electricity etc. for meeting energy requirement), implementation & achievements of targets of sector-specific charters of CPCB/SPCB for environmental management, EPR obligations and use of cleaner process/cleaner technology to eliminate generation of toxic/hazardous pollutants.

The units fulfilling the following eligibility criteria may submit their formal proposal to the concerned SPCB/PCC for consideration:

4.1 Eligibility Criteria

- The unit should have completed at least one year of completion of production/operations with demonstrated, verifiable steps and submitted audit report from institute of repute for considering the unit for the purpose by concerned SPCB/PCC. To facilitate verification, the unit must have properly maintained logbooks/bills for production, electricity consumption, fuel, water consumption, wastewater treatment and use of treated wastewater.
- The unit should be located in conforming area with applicable Environment Clearance, Consent to Establishment (CTE) and Consent to Operate (CTO) and hazardous/bio-medical waste authorization from SPCB/PCC.
- Unit should comply with all the norms/conditions stipulated under EC, CTO and Guidelines/Rules issued by CPCB.

- In case, unit using ground water resource, it should have valid permission/NOC and also required to install electronic flowmeter.
- No penalty or legal obligation is imposed/pending against unit for violation of environmental norms. Records for last 5 years may be verified. In case establishment period of the unit is less than 5 years, the past records since the start of production may be verified.
- Unit should not be involved in any sort of accident/incident resulting into emission /discharge into the environment. Records for last 5 years may be verified.

All such units, interested in availing incentives are required to demonstrate and prove their initiatives to the Committee (to be constituted at the level of concerned SPCB/PCC), comprising of members as mentioned in **Table VI**.

Table VI: Structure of Committee to evaluate the request of units adopting measures resulting in better environmental performance

Sl. No.	Members	Role
1	Member Secretary, SPCB/PCC	Chairman
2	Subject expert from Indian Institute of Technologies (IITs) or National Institute of Technologies (NITs) or any other institute/university of repute.	Member
3	Expert from CSIR institute/laboratories, having expertise in industrial process and pollution control technologies/ environmental management	Member
4	Two officials of concerned SPCB/PCC, as nominated by the Member Secretary, SPCB/PCC	Member

4.2. Evaluation Criteria

The committee shall scrutinize the proposals based on the eligibility criteria. The basis of evaluation will be- (i) Measures taken for treatment and reuse of wastewater to reduce freshwater consumption, (ii) Use of alternative cleaner fuel to reduce emissions, and (iii) Use of cleaner technology/ cleaner production which results in reduction in pollution/hazardous waste generation (iv) Recycling units identified for EPR obligations and has fulfilled all requirement including Environmentally Sound Management Facility for recycling.

The unit is required to demonstrate the successful implementation of measures by annual submission of third-party audit report (through institute of repute) regarding performance of environmental management measures. The Committee members may also inspect unit, collect samples, and get it analysed, check logbooks, electricity/water bills, examine system feasibility through mass-balances, ensure real-time submission of environment data to SPCB/PCC server, etc. The check and balances to examine the industry claims are summarized in **Table VII.**

Table VII: Checks and balances to assess the adequacy of environment management measures

Criteria	Checks and balances
I. Wastewater Management	
Installation of wastewater recovery system resulting into treatment and 100% reuse of treated wastewater in industrial process.	• Unit must have adequate operational Effluent Treatment Plant (ETP). The freshwater requirement of the unit has shown proportionate reduction. • There should not be any flow/ponding of wastewater inside the premises or discharge outside from the premises. Further, there should not be any by-pass. • Electronic flowmeters and Pan-tilt-zoom (PTZ) camera should have been installed with connectivity for continuous transmission of data to SPCB/PCC and CPCB servers (as applicable). • Recirculation system should be clearly mapped and visible for inspection and flow meter should be installed at required locations with records. • Mass/water balance based on actual production need to be checked. The claim regarding reduction in freshwater consumption should have concurrency with the readings of flow meters, water bill, log-books, etc. • Treated wastewater should not be used for horticulture or agriculture purposes. • Sludge generated from treatment of wastewater should be managed properly as per the authorization issued by the concerned SPCB/PCC and timely submission of Form-IV as per the requirement of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.
II. Air Pollution Management	
100% fuel dependency on cleaner fuels, such as- Piped Natural Gas (PNG), Compressed Natural Gas (CNG), Liquefied Natural Gas (LNG) Liquefied Petroleum Gas (LPG), Compressed	• No other fuel (coal, pet-coke, furnace oil, etc.) should be stored/used in the unit premises. Diesel for Gensets (as an auxiliary power source) may be allowed. Preference may be given to the units using gas based Gensets. • Adequate facility for stack monitoring (port holes, zig-zag ladder etc.) should be available with provision of OCEMS (as applicable).

Biogas (CBG), propane, butane, etc.	• Use of upgraded air pollution control devices with higher efficiency for the reduction of emissions. • Adoption of cleaner technology, advanced pollution control systems etc. to control fugitive/emissions • Use of alternate cleaner raw material for generation of less pollution. • Use of renewable energy as an alternate to conventional fuel/power should be considered.
III. Waste Management	
The unit has adopted cleaner technology/ cleaner production which results in reduction in pollution/ hazardous waste generation	• Reduction in generation of pollution/waste due to adoption of cleaner technology/change in raw material etc. • Mass balance based on actual production need to be checked. There should be concurrency in generation of hazardous waste, utilization, disposal, etc. with respect to net reduction in generation.
IV. EPR Targets (for recycling facilities)	
Recycling units identified for EPR obligations and has fulfilled all requirement including Environmentally Sound Management Facility for recycling.	• Complying with the requirement of EPR obligation identified by CPCB from time to time.

4.3. Re-assessment of Pollution Index (PI)

The purpose of giving star category is to classify the unit in the sector as star performing units. The category of the unit may be re-assessed as detailed below:

A. For Industries, Service/Infrastructure facilities and Essential Environmental Services Sectors for management of waste.

The pollution index of the units in any sector which have proven reduction in trade effluent generation and/or air pollution management and/or waste management measures, can be calculated based on submission of same with the supporting documents for considering the modified score based on the same methodology.

The revised cumulative pollution index (PI) will be calculated with modified air/water/waste scores as discussed in the methodology given in previous section. If revised, cumulative PI results to change in the category of unit in the sector, the nomenclature for revised category will be as per the **Table VIII**.

Table VIII: Nomenclature for revised category

Change in category	Nomenclature of revised category
Red to Orange	Red*
Orange to Green	Orange*
Green to White	Green*

B. Essential Environmental Service Sectors for Domestic/Household Waste- "Blue Category Sectors":

Units under Blue Category are required to reduce their existing PI score by 25%, by meeting evaluation criteria/check and balances, as mentioned in **Table III** to qualify for change in category to Blue*.

4.4 Incentives to the units for better environmental management

Units which have demonstrated the successful implementation of environmental management measures and verified by the Committee, shall be eligible for the incentives, as listed in the **Table IX**.

Table IX: Incentives to units for better environmental performance

Category	Incentives
Red*	• CTO may be granted for the validity of max. 10 years. • Prescribed random environmental surveillance inspection frequency may be once a year, considering the change in category.
Orange*	• CTO may be granted for the validity of max. 15 years. • Prescribed random environmental surveillance inspection frequency may be once in two years, considering the change in category.
Green*	• CTO may be granted for the validity of max. 20 years. • Prescribed random environmental surveillance inspection frequency may be once in four years, considering the change in category and given incentives twice the original category.
Blue*	• CTO may be granted with additional 3 years validity period. • Prescribed random environmental surveillance inspection frequency may be once in 3 months.

In case of non-compliance(s) observed in future, the State Board can remove the star status and for calculation of EC, the PI of original category shall be considered.

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5 Implementation pathway/guidelines

The revised methodology and classification of sectors will be implemented in prospective manner. For this purpose, following guidelines may be referred:

i. All pending application for consideration of CTE/CTO and future such application shall be processed as per the revised methodology of classification. In case CTE granted before the revised classification, applicability of CTO will be as per new classification.

ii. New classification will be applicable to existing units at the time of renewal of CTO or within one year from the date of directions issued by CPCB regarding implementation of revised classification, whichever is earlier. The annual fees or cumulative fees for the remaining period shall be as per the revised category.

iii. SPCBs/PCCs may grant Consent to Operate (CTO) to units under red, orange, and green categories for maximum validity up to 5 years, 10 years, and 15 years, respectively as per existing provisions which would be later governed as per the provisions/guidelines under Jan Vishwas (Amendment of Provisions) Act, 2023/Water Act, as amended. SPCBs/PCCs may grant Consent to Operate (CTO) to units under Blue Category sectors with additional 2 years validity, considering their role as Essential Environmental Services for management of waste generated from domestic/household activities.

iv. Requirement of intimation/consent for white category of industries, shall be governed as per the provisions/guidelines under Jan Vishwas (Amendment of Provisions) Act, 2023//Water Act, as amended.

v. All sectors irrespective of category shall follow guidelines for pollution control, if any, issued by SPCB/PCC/CPCB time to time.

vi. Siting of units shall be only in the conforming area as per the guidelines of CPCB/SPCB/PCC. Further, as per the Section 17(1)(n) of the Water Act, 1974 and the Section 17(1)(h) of the Air Act, 1981, SPCB/PCC may also frame policies/advisory with respect to the location of any industry/operations, the carrying on of which is likely to cause air/water pollution, considering the scale/type of industries and sensitivity of area. Siting of units in eco-sensitive area will be governed by their respective notifications.

vii. The classification of sectors shall not be linked to sanction of loans/finance of bank proceedings.

viii. In the matter of Taz Trapezium Zone (TTZ), for air pollution scores of 10 and 20 (as per 2016 methodology), equivalent scores of 30 and 60 (as per 2025 methodology), respectively, may be considered for sectoral guidelines/opinion from NEERI (Ref: Order dated 08.12.2021, in the matter of M.C. Mehta v/s Union of India, Writ Petition (Civil) No.13381/1984, before Hon'ble Supreme Court).

ix. As per CPCB directions dated 12.12.2019, issued under Section 18(1)(b) of the Water Act, 1974 and the Air Act, 1981, SPCBs/PCCs are required to ensure inspection of red, orange, and green category of industries at least once in six-months, one-year, and two-years, respectively. Common waste treatment facilities and 17 categories of industries are to be inspected at least once in every three-months. (Ref: Order dated 05.11.2019, in the matter of Shailesh Singh v/s State of Haryana & Ors., OA No.639/2018, before Hon'ble National Green Tribunal, Principal Bench).

x. The sectors which are classified under white or green category and if such sectors have installed Genset(s) of higher capacity which are classified under orange/green category, then such sector will be considered under higher category.

xi. All Industrial units are encouraged to adopt measures such as cleaner technology/cleaner production, cleaner raw material, cleaner fuel etc., for better environmental management. If such measures result into overall reduction of pollution

index, request regarding change in category of such sectors/units may be made to concerned SPCB/PCC as detailed under Section 8 of this report.

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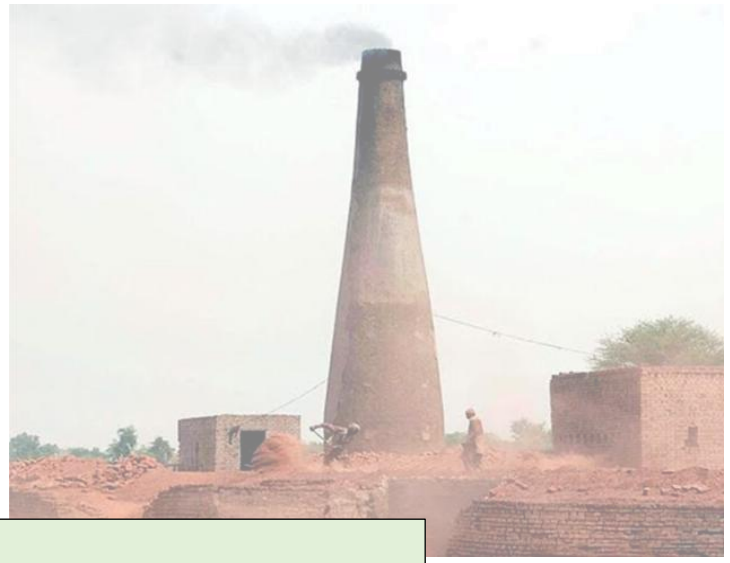


ANNEXURE-I

(LIST OF INDUSTRIAL SECTORS CLASSIFIED UNDER RED, ORANGE, GREEN, AND WHITE CATEGORIES)

LIST OF INDUSTRIAL SECTORS

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
	~A~															
1	Manufacturing of **Automobiles** (integrated facilities)	20	30	25	**75**	0	25	0	**25**	25	20	**45**	83.8	Red	i. Such types of plants are having either one or combinations of polluting activities viz. washing, metal surface finishing operations, pickling, plating, electro-plating, phosphating, painting, heat treatment etc. ii. Some of such plants may outsource some /all of the polluting activities or may have stand-alone units. In such cases, after thorough inspection of such units by concerned SPCB, re-categorization of the industry shall be made accordingly.	IPC-V
2	**Asbestos** and asbestos based industries	10	30	25	**65**	35	30	30	**95**	25	30	**55**	98	Red	Asbestos is carcinogenic and banned in many countries.	IPC-II
3	**Almirah**, Grill Manufacturing (Dry Mechanical Process)	0	0	0	**0**	0	30	0	**30**	0	0	**0**	30	Green		IPC-V
	~B~															
4.0	**BAKERY**, CONFECTIONERY AND SWEETS PRODUCTS															
4.1	Bakery, confectionery, sweets with production capacity ≥ 1 TPD	25	0	20	**45**	25	0	25	**50**	0	0	**0**	61.3	Orange		IPC-III

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
4.2	Bakery, confectionery, sweets with production capacity ≥ 1 TPD. (using cleaner/gaseous fuel)	25	0	20	**45**	25	0	10	**35**	0	0	**0**	54.6	Green		IPC-III
5.0	**BRICK** MANUFACTURING															
5.1	Brick kilns using coal as fuel	0	0	0	**0**	25	25	25	**75**	0	0	**0**	75	Orange		IPC-V
5.2	Brick kilns using biomass as fuel	0	0	0	**0**	25	25	15	**65**	0	0	**0**	65	Orange		IPC-V
5.3	Tunnel brick kilns (gas fired)	0	0	0	**0**	25	25	10	**60**	0	0	**0**	60	Orange		IPC-V
6.0	MANUFACTURING OF AUTOCLAVED AERATED CONCRETE (AAC) **BRICKS/BLOCKS.**															
6.1	AAC bricks/blocks manufacturing using coal as fuel (12 TPD and above)	0	0	0	**0**	25	25	30	**80**	0	0	**0**	80	Red		IPC-V
6.2	AAC bricks/blocks manufacturing using coal as fuel (less than 12 TPD)	0	0	0	**0**	25	25	25	**75**	0	0	**0**	75	Orange		IPC-V
6.3	AAC bricks/blocks manufacturing using biomass as fuel	0	0	0	**0**	25	25	20	**70**	0	0	**0**	70	Orange		IPC-V
6.4	AAC bricks/blocks manufacturing using gas as fuel	0	0	0	**0**	25	25	15	**65**	0	0	**0**	65	Orange		IPC-V
7.0	FLY ASH **BRICKS / BLOCK** MANUFACTURING															
7.1	Fly ash bricks/ block manufacturing (with boiler)	0	0	0	**0**	25	25	25	**75**	0	0	**0**	75	Orange		IPC-V
7.2	Fly ash bricks/ block manufacturing (without boiler)	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
8.0	MANUFACTURING OF NON-ALCOHOLIC **BEVERAGES**															
8.1	Wastewater generation ≥ 100 KLD	25	20	30	**75**	25	0	25	**50**	0	0	**0**	81.3	Red		IPC-III
8.2	Wastewater generation < 100 KLD	25	20	25	**70**	25	0	25	**50**	0	0	**0**	77.5	Orange		IPC-III

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
9.0	**BATTERY** MANUFACTURING															
9.1	Lead-acid **Battery** manufacturing (excluding assembling and charging of lead acid **Battery** in micro-scale)	0	30	20	**50**	35	30	25	**90**	25	10	**35**	94.3	Red		IPC-V
9.2	Dry cell **Battery** (excluding manufacturing of electrodes) and assembling & charging of acid lead battery on micro scale	0	30	15	**45**	25	25	10	**60**	25	10	**35**	76	Orange		IPC-V
9.3	**Battery** manufacturing without boiler (excluding lead acid battery)	0	0	0	**0**	0	25	0	**25**	25	10	**35**	43.1	Green		IPC-V
10	**Briquette** manufacturing (coal/biomass/coke)	0	0	0	**0**	0	30	0	**30**	0	0	**0**	30	Green	The process involves mixing, mechanized compression and drying.	IPC-II
11	Assembly of **Bicycles** , **Baby** carriages and other small non motorizing vehicles	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
12	**Bailing** (hydraulic press) of waste papers	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
13	**Bio fertilizer** and bio-pesticides without using inorganic chemicals	0	0	0	**0**	0	20	0	**20**	0	0	**0**	20	White		IPC-V
14	**Block** making of printing without foundry (excluding wooden block making)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
15	Flavoured **Betel** nuts production/ grinding (completely dry mechanical operations)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
16	Manufacturing of shoe **Brush** and wire **Brush**	0	0	0	**0**	0	20	0	**20**	0	0	**0**	20	White		IPC-V
	~C~															
17.0	MANUFACTURING OF INDUSTRIAL **CARBON** INCLUDING ELECTRODES AND GRAPHITE BLOCKS, ACTIVATED **CARBON**, **CARBON BLACK**															
17.1	Carbon black manufacturing	20	15	20	**55**	25	30	30	**85**	30	20	**50**	92.9	Red		IPC-I
17.2	Industrial carbon including electrodes & graphite blocks and calcined pet coke	20	15	20	**55**	25	25	25	**75**	30	10	**40**	86.9	Red		IPC-II
17.3	Activated carbon manufacturing (with steam activation)	20	15	20	**55**	25	25	15	**65**	0	0	**0**	74.6	Orange		IPC-V
18.0	INORGANIC **CHEMICALS**															
18.1	Basic inorganic chemicals and electro chemicals and its derivatives including manufacturing of acid	10	30	25	**65**	30	30	20	**80**	20	20	**40**	90.5	Red		IPC-I
18.2	Phosphorous and its compounds, including phosphorous rock processing	20	30	20	**70**	35	25	10	**70**	10	30	**40**	86.5	Red		IPC-I
18.3	Chlorates, per-chlorates & peroxides	20	30	20	**70**	30	20	25	**75**	20	20	**40**	88.8	Red		IPC-I
18.4	Chlorine, fluorine, bromine, iodine, and their compounds	10	30	25	**65**	35	20	10	**65**	20	20	**40**	83.4	Red		IPC-I
19	Coke oven plant, coal liquefaction, coal tar distillation and fuel gas-making	30	30	30	**90**	25	30	35	**90**	25	50	**75**	98.3	Red		IPC-II

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
20.0	**CEMENT** PLANTS															
20.1	With co-processing with CPP (Captive Power Plant)	20	25	35	**80**	35	30	35	**100**	10	50	**60**	100	Red		IPC-II
20.2	With co-processing without CPP	20	0	20	**40**	35	30	35	**100**	30	20	**50**	100	Red		IPC-II
20.3	Without co-processing with CPP	10	25	35	**70**	35	30	35	**100**	10	50	**60**	100	Red		IPC-II
20.4	Without co-processing without CPP	0	0	0	**0**	25	30	35	**90**	30	10	**40**	92	Red		IPC-II
20.5	Stand-alone grinding units with CPP	20	25	35	**80**	25	30	35	**90**	10	50	**60**	97	Red		IPC-II
20.6	Stand-alone grinding units without CPP	0	0	0	**0**	25	30	0	**55**	30	10	**40**	64	Orange		IPC-II
20.7	Bulk terminals for storage and packaging of cement	0	0	0	**0**	0	30	0	**30**	0	0	**0**	30	Green		IPC-II
21.0	**CHLOR** ALKALI															
21.1	Chlor alkali	10	20	25	**55**	30	25	25	**80**	20	20	**40**	89.5	Red		IPC-I
21.2	Chlor alkali using washed salt	10	20	15	**45**	30	25	25	**80**	20	10	**30**	87.5	Red		IPC-I
21.3	Chlor alkali using cleaner/gaseous fuel	10	20	25	**55**	30	25	10	**65**	20	20	**40**	81.6	Red		IPC-I
21.4	Chlor alkali using cleaner/gaseous fuel and washed salt	10	20	15	**45**	30	25	10	**65**	20	10	**30**	78.1	Orange		IPC-I
22	Manufacturing of **Compact** disc **Computer** (CD/DVD) / cassette manufacturing / reel manufacturing	0	15	15	**30**	30	0	0	**30**	20	10	**30**	51	Green		IPC-V
23.0	MANUFACTURING OF **COIR/COIR** PITH AND **COIR** PRODUCTS															
23.1	Coir bleaching and dyeing/printing units	25	0	25	**50**	25	25	20	**70**	0	0	**0**	77.5	Orange		IPC-V
23.2	Coir fibre/pith processing units generating effluent	25	0	20	**45**	0	25	0	**25**	0	0	**0**	51.9	Green		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
23.3	Coir fibre/pith processing and/or Manufacturing of coir products from coir (only dry process)	0	0	0	**0**	0	20	0	**20**	0	0	**0**	20	White		IPC-V
24.0	**CERAMICS**															
24.1	Ceramics/ Glass /Earthen potteries and tile manufacturing using coal/oil fired kilns (fuel consumption: 12 TPD and above)	0	0	0	**0**	25	25	30	**80**	0	0	**0**	80	Red		IPC-V
24.2	Ceramics/ Glass /Earthen potteries and tile manufacturing using coal/oil fired kilns (fuel consumption: less than 12 TPD)	0	0	0	**0**	25	25	25	**75**	0	0	**0**	75	Orange		IPC-V
24.3	Ceramics/ Glass /Earthen potteries and tile manufacturing (using gas fired kilns)/tunnel kiln	0	0	0	**0**	25	25	10	**60**	0	0	**0**	60	Orange		IPC-V
24.4	Ceramics/ Glass /Earthen potteries and tile manufacturing (using only electrical kiln)	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
25	**Coal Washeries**	20	25	30	**75**	0	25	0	**25**	0	0	**0**	78.1	Orange		IPC-II
26	Liquid floor **Cleaner**, black phenyl, liquid soap, glycerol mono-stearate manufacturing	25	25	15	**65**	0	20	0	**20**	0	0	**0**	68.5	Orange		IPC-V
27	Phenyl/toilet **Cleaner** formulation and bottling	10	0	15	**25**	0	20	0	**20**	0	0	**0**	32.5	Green		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
28	**Cashew** nut processing	20	0	15	**35**	25	20	15	**60**	0	0	**0**	67	Orange		IPC-III
29.0	**COFFEE** SEEDS PROCESSING INDUSTRY															
29.1	Coffee seeds processing (wet process)	35	0	20	**55**	25	0	15	**40**	0	0	**0**	64	Orange		IPC-III
29.2	Coffee seeds processing with eco-pulper	20	0	15	**35**	25	0	15	**40**	0	0	**0**	50.5	Green		IPC-III
30	Manufacturing of **Candy**	10	0	15	**25**	0	0	0	**0**	0	0	**0**	25	Green		IPC-V
31	**Cardboard** or corrugated box and paper products (excluding paper or pulp manufacturing and without using boilers)	0	0	0	**0**	0	20	0	**20**	0	0	**0**	20	White		IPC-V
32	Manufacturing of precast **Cement** products (without using asbestos/ boiler / steam curing) like pipe ,pillar, jafri, well ring, block/tiles etc.(should be done in closed covered shed to control fugitive emissions)	0	0	15	**15**	0	25	0	**25**	0	0	**0**	30.6	Green		IPC-V
33	Manufacturing of **Ceramic Colour** by mixing & blending only (not using boiler and wastewater recycling process)	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
34.0	**CHILLING** PLANT, COLD STORAGE AND ICE-MAKING															
34.1	Chilling plant	20	15	15	**50**	0	0	0	**0**	0	0	**0**	50	Green		IPC-IV
34.2	Cold storage	0	15	15	**30**	0	0	0	**0**	0	0	**0**	30	Green		IPC-V
34.3	Ice Making	0	20	15	**35**	0	0	0	**0**	0	0	**0**	35	Green		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
35	Decoration of **Ceramic Cup**s and plates by electric furnace	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
36	Ready mix **Cement Concrete**	0	0	0	**0**	0	30	0	**30**	0	0	**0**	30	Green		IPC-V
37	**CO2** recovery plant	0	0	0	**0**	0	0	0	**0**	20	10	**30**	30	Green	Exhausted molecular sieves are generated as hazardous waste.	IPC-V
38	Assembly of air **Coolers/Conditioners**, repairing and servicing	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
39	**Chalk** making from plaster of Paris (only casting without boilers etc.(sun drying / electrical oven)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
40	Standalone manufacturing of **Concrete** admixtures up to 1000 MT per Month capacity by physical mixing (without boiler and reactor and no generation of wastewater)	0	0	0	**0**	0	0	0	**0**	10	10	**20**	20	White	The sector may become green category if it generates wastewater. The unit needs to be re-classified as per the methodology in case the capacity exceeds 1000 MT per Month.	IPC-V
										c						
41	Used **Cooking** oil (UCO) collection centers	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
								~D~								
42.0	**DYES, DYE** INTERMEDIATES AND PIGMENT PRODUCTIONS															
42.1	Dyes, Dye Intermediates and Pigments produced by chemical synthesis	35	30	25	**90**	30	20	25	**75**	30	20	**50**	96.3	Red		IPC-I
42.2	Natural Dye and Pigments requiring acidic/ alkaline/ solvent extraction	30	30	20	**80**	25	20	25	**70**	20	10	**30**	90	Red		IPC-I
42.3	Natural Dye and Pigments not require acidic/ alkaline/ solvent extraction	30	20	20	**70**	25	0	25	**50**	0	0	**0**	77.5	Orange		IPC-I
43.0	SYNTHETIC **DETERGENT** AND SOAPS															
43.1	Synthetic detergents and soaps (wastewater generation ≥ 100 KLD)	20	20	30	**70**	25	0	25	**50**	25	10	**35**	82.8	Red		IPC-I
43.2	Synthetic detergents and soaps (wastewater generation < 100 KLD)	20	20	25	**65**	25	0	25	**50**	25	10	**35**	79.9	Orange		IPC-I
43.3	Synthetic detergents and soaps (only formulation)	0	0	0	**0**	25	0	25	**50**	0	0	**0**	50	Green		IPC-I
43.4	Soap manufacturing (handmade -without steam boiling / boiler)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
								DISTILLERIES AND FERMENTATION SECTORS								
44.0	**DISTILLERIES** AND FERMENTATION INDUSTRIES															
44.1	Distillery (Molasses based)	35	25	35	**95**	25	25	35	**85**	0	0	**0**	97.1	Red		IPC-III
44.2	Distillery (Grain based)	35	25	30	**90**	25	25	25	**75**	0	0	**0**	93.8	Red		IPC-III
44.3	Distillery (Grain based) with Distiller's Dried Grains with Soluble (DDGS) as by-product	25	25	20	**70**	25	25	25	**75**	0	0	**0**	83.8	Red		IPC-III
44.4	Standalone yeast manufacturing units	35	25	35	**95**	25	20	25	**70**	0	0	**0**	96.8	Red		IPC-III

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
44.5	Breweries and malteries industry (with fermentation)- Wastewater generation ≥ 100 KLD	30	15	30	**75**	25	0	25	**50**	0	0	**0**	81.3	Red		IPC-III
44.6	Breweries and malteries industry (with fermentation)- Wastewater generation < 100 KLD	30	15	25	**70**	25	0	25	**50**	0	0	**0**	77.5	Orange		IPC-III
44.7	Potable alcohol by blending, bottling of alcohol products	20	0	25	**45**	0	0	0	**0**	0	0	**0**	45	Green		IPC-III
45	**Diesel** pump repairing and servicing (complete mechanical dry process)	0	0	0	**0**	0	0	0	**0**	10	10	**20**	20	White		IPC-V
~E~																
46	Manufacturing of **Explosives**, detonators, fuses, etc.	25	30	15	**70**	0	30	0	**30**	30	10	**40**	80.5	Red	Explosives manufacture contribute to release of hazardous pollutants, including generation of other toxic chemicals. Accident/safety hazard is also associated with such sector during manufacturing and usages.	IPC-I
47	Manufacturing of coated **Electrode**	0	15	15	**30**	0	25	0	**25**	0	0	**0**	38.8	Green	Process involves preparation of core wire / rod, preparation of dry mix, preparation of wet mix, application of coating by extrusion, baking of coated electrodes.	IPC-V
48	**Emery** powder (fine dust of sand) manufacturing	0	0	0	**0**	0	30	0	**30**	0	0	**0**	30	Green	Fugitive emissions from grinding operations.	IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
49	**Electric** lamp (bulb) and CFL manufacturing by assembling only	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
50	**Electrical** and electronic item assembling (completely dry process)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
51	**Engineering** and fabrication units (dry process without any heat treatment / metal surface finishing operations / painting)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
	~F~															
52.0	**FIBRE** GLASS (FIBRE REINFORCED PLASTIC) PRODUCTION															
52.1	Fibre glass (containing lead) production and processing (excluding moulding)	0	0	0	**0**	35	0	25	**60**	25	20	**45**	69	Orange		IPC-V
52.2	Fibre glass (without lead) production and processing (excluding moulding)	0	0	0	**0**	30	0	25	**55**	25	20	**45**	65.1	Orange	The use of styrene in most methods of fibre glass production causes hazardous air pollution that is harmful to breathe at excessive levels.	IPC-V
53	Manufacturing of **Firecrackers** including improved crackers/green crackers, etc.	0	0	0	**0**	35	30	0	**65**	30	10	**40**	72	Orange	Various hazardous chemicals are used in the manufacturing process. Accident/safety hazard is also associated with such sector during manufacturing and usages.	IPC-V
54.0	SYNTHETIC **FIBRES** MANUFACTURING															
54.1	Synthetic fibres-PSF & PFY, generated from petrochemical	35	30	35	**100**	30	25	35	**90**	30	20	**50**	100	Red		IPC-I

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
54.2	Synthetic fibres including rayon, tyre cord, viscose filament yarn/staple fibre, acrylic fibres	25	20	25	**70**	30	20	25	**75**	20	10	**30**	87.5	Red		IPC-I
54.3	Synthetic fibres including rayon, tyre cord, viscose filament yarn/staple fibre, acrylic fibres using cleaner/gaseous fuel	25	20	25	**70**	30	20	10	**60**	20	10	**30**	83.5	Red		IPC-I
55.0	**FERTILIZERS** PRODUCTION															
55.1	Fertilizers (Urea)	10	30	35	**75**	30	30	20	**80**	20	30	**50**	92.5	Red		IPC-I
55.2	Fertilizers (Calcium Ammonium Nitrate/Ammonium Nitrate)	10	30	25	**65**	30	25	25	**80**	20	20	**40**	90.5	Red		IPC-I
55.3	Fertilizers (NPK)	10	30	25	**65**	30	25	25	**80**	20	20	**40**	90.5	Red		IPC-I
55.4	Fertilizers (Straight Phosphatic Fertilizers)	10	30	25	**65**	30	25	25	**80**	20	20	**40**	90.5	Red		IPC-I
55.5	Fertilizer (granulation /formulation / blending) generating wastewater through floor washings, cooling towers etc.	10	30	15	**55**	30	30	0	**60**	10	10	**20**	75	Orange		IPC-I
55.6	Fertilizer (granulation /formulation / blending) not generating wastewater	0	0	0	**0**	30	30	0	**60**	10	10	**20**	64	Orange		IPC-I
56.0	**FOOD** AND **FOOD PROCESSING** INCLUDING FRUITS AND VEGETABLE PROCESSING															
56.1	Wastewater generation ≥ 10 KLD	25	0	25	**50**	25	0	25	**50**	0	0	**0**	62.5	Orange		IPC-III
56.2	Wastewater generation < 10 KLD (without boiler)	25	0	15	**40**	0	0	0	**0**	0	0	**0**	40	Green		IPC-III
57.0	**FISH** FEED, POULTRY FEED AND CATTLE FEED															
57.1	Fish feed, poultry feed and cattle feed (with boiler)	0	20	15	**35**	25	25	25	**75**	0	0	**0**	79.4	Orange		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
57.2	Fish feed, poultry feed and cattle feed (without boiler)	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
58	**Fish** processing and packing (excluding chilling of fishes)	25	25	20	**70**	0	20	0	**20**	0	0	**0**	73	Orange		IPC-IV
59.0	MANUFACTURING OF MODULAR WOODEN **FURNITURE**															
59.1	Modular wooden furniture from particle board, MDF, swan timber etc, Ceiling tiles/ partition board from saw dust, wood chips etc., and other agricultural waste using synthetic adhesive resin, wooden box making (With boiler)	0	0	0	**0**	25	25	10	**60**	0	0	**0**	60	Orange		IPC-V
59.2	Modular wooden furniture from particle board, MDF, swan timber etc, Ceiling tiles/ partition board from saw dust, wood chips etc., and other agricultural waste using synthetic adhesive resin, wooden box making (Without boiler)	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
60.0	CARPENTRY & WOODEN **FURNITURE** MANUFACTURING															
60.1	Carpentry & wooden furniture manufacturing with spray painting (excluding saw mill) with the help of electrical (motorized) machines such as electrical wood planner, steel saw cutting circular blade, etc.	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
60.2	Carpentry & wooden furniture manufacturing without spray painting (excluding saw mill) with the help of electrical (motorized) machines such as electrical wood planner, steel saw cutting circular blade, etc.	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
61	**Foam** manufacturing	0	0	0	**0**	35	0	0	**35**	20	10	**30**	44.8	Green	Emissions of VOCs and HAPs. Raw materials are polyurethane, latex etc.	IPC-V
62	**Flour** mills (dry process)	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green	Separate classification for domestic flour mills may not require.	IPC-V
63.0	STEEL **FURNITURE** INDUSTRY (Obnoxious gases from welding.)															
63.1	Steel furniture with spray painting	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
63.2	Steel furniture without spray painting	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
	~G~															
64.0	MANUFACTURING OF **GLUE** AND **GELATIN**															
64.1	Manufacturing of glue and gelatin using coal/liquid fuel	25	20	15	**60**	25	20	25	**70**	10	10	**20**	82	Red		IPC-I
64.2	Manufacturing of glue and gelatin by using biomass/cleaner fuel	25	20	15	**60**	25	20	15	**60**	10	10	**20**	76	Orange		IPC-I
65.0	MANUFACTURING OF **GLASS** (INCLUDING PRINTING OR ETCHING OF **GLASS** SHEET USING HYDROFLUORIC ACID)															
65.1	Manufacturing of glass (Oil/coal fired)	0	15	15	**30**	25	25	25	**75**	0	0	**0**	78.8	Orange		IPC-V
65.2	Manufacturing of glass (gas fired)	0	15	15	**30**	25	25	10	**60**	0	0	**0**	66	Orange		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
66	Producer **Gas** plant using conventional coal **Gasification**	20	25	15	**60**	25	0	25	**50**	30	10	**40**	78	Orange		IPC-V
67.0	COMPRESSED **BIOGAS** (CBG)/BIO-CNG PLANTS															
67.1	CBG plants based on Municipal Solid Waste (MSW) as feed	30	25	25	**80**	0	20	0	**20**	0	0	**0**	82	Red		IPC-III
67.2	CBG plants based on crop residue (paddy straw /wheat straw /corn sweet sorghum/ Napier grass, etc.) as feed	30	25	25	**80**	0	20	0	**20**	0	0	**0**	82	Red		IPC-III
67.3	CBG plants based on process waste (industrial/ process liquid effluent & solid waste like press mud, organic sludge, molasses, etc.) as feed	30	25	20	**75**	0	20	0	**20**	0	0	**0**	77.5	Orange		IPC-III
67.4	CBG plants based on animal waste (dairy farms, poultry farms, and other animal waste) as feed	30	25	20	**75**	0	20	0	**20**	0	0	**0**	77.5	Orange		IPC-III
67.5	CBG plants producing Fermented Organic Manure (FOM) & Liquid Fermented Organic Manure (LFOM) as by-products	0	0	0	**0**	0	20	0	**20**	0	0	**0**	20	White	CBG plants producing FOM & LFOM as by-products in conformity with requirements of Gazette Notification No. 2051 dated 14.07.2020 & No. 1972 dated 01.06.2021, respectively, and utilizing entire FOM & LFOM as a fertilizer or manure on land and also not discharging any waste-water, to be considered under White category, subject to verification by SPCB on case-to-case basis.	IPC-III

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
68.0	STANDALONE PRODUCTION OF **HYDROGEN** AND/OR **AMMONIA** (WITHOUT CAPTIVE POWER PLANT USING FOSSIL FUEL)															
68.1	Integrated unit for production of Ammonia through Hydrogen generated by pyrolysis/gasification	20	25	20	**65**	20	25	25	**70**	30	20	**50**	87.3	Red	i. Pyrolysis of biomass will generate syn gas and other condensable gases having hydrocarbons and other impurities. ii. Purification of gas will generate wastewater having high organic content and tarry residue as hazardous waste. iii. The process will generate fugitive emissions and due to pyrolysis operation.	IPC-I
68.2	Integrated unit for production of ammonia through Hydrogen generated by electrolysis using renewable energy (capacity ≥ 15 TPD)	10	25	35	**70**	0	20	0	**20**	30	20	**50**	80.5	Red	i. Ammonia manufacturing process (Haber process) and associated safety hazards remain same as per the chemical properties of ammonia. ii. Wastewater generation due to the production of hydrogen through electrolysis and condensation of ammonia, other scrubbed liquid etc. iii.Generation of ETP sludge, exhausted membranes, molecular sieves, spent catalysts, etc. as hazardous waste.	IPC-I

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
68.3	Integrated unit for production of Ammonia through hydrogen generated by electrolysis using renewable energy (Capacity < 15 TPD)	10	25	20	**55**	0	20	0	**20**	30	10	**40**	68.5	Orange	i. Ammonia manufacturing process (Haber process) and associated safety hazards remains same as per the chemical properties of ammonia. ii. Wastewater generation due to production of hydrogen through electrolysis and condensation of ammonia, other scrubbed liquid etc. iii.Generation of ETP sludge, exhausted membranes, molecular sieves, spent catalysts, etc. as hazardous waste.	IPC-I
68.4	Hydrogen production through pyrolysis/gasification	20	25	20	**65**	20	25	25	**70**	30	10	**40**	85.8	Red	i. Pyrolysis of biomass will generate syn gas and other condensable gases having hydrocarbons and other impurities. ii. Purification of gas will generate wastewater having high organic content and tarry residue as hazardous waste. iii.The process will generate fugitive emissions and due to pyrolysis operation.	IPC-I

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
68.5	Hydrogen production through electrolysis using raw/seawater and renewable energy (capacity ≥ 2.5 TPD)	0	20	35	**55**	0	0	0	**0**	30	10	**40**	64.0	Orange	i. Type of electrolysers may include Alkaline Water Electrolyser (AWE), Proton Exchange Membrane (PEM), Solid Oxide Electrolyser Cell (SOEC) and Anion Exchange Membrane (AEM), etc. ii. Generation of DM reject, cooling tower blowdown, draining of alkaline/electrolyser water during maintenance, etc. as wastewater. iii. Generation of ETP sludge, exhausted membranes, molecular sieves, spent catalysts, etc. as hazardous waste.	IPC-I
68.6	Hydrogen production through electrolysis using raw/sea water and renewable energy (capacity < 2.5 TPD)	0	20	20	**40**	0	0	0	**0**	30	10	**40**	52.0	Green	i. Type of electrolysers may include Alkaline Water Electrolyser (AWE), Proton Exchange Membrane (PEM), Solid Oxide Electrolyser Cell (SOEC) and Anion Exchange Membrane (AEM), etc. ii. Generation of DM reject, cooling tower blowdown, draining of alkaline/electrolyser water during maintenance, etc. as wastewater. iii. Generation of ETP sludge, exhausted membranes, molecular sieves, spent catalysts, etc. as hazardous waste.	IPC-I
68.7	Hydrogen production through electrolysis (using	0	0	0	**0**	0	0	0	**0**	0	10	**10**	10.0	White	i. DM water as feed water for electrolyser and cooling/chilling	IPC-I

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
	renewable energy) on BOO/BOOT/BOT, mode etc., located in the premises of end user industry and directly using de-mineralized water & other utilities (cooling tower, ETP, etc.) sourced from end user industry														water requirement to be met by the end user industry. ii. Wastewater and other waste generated during O&M shall also be managed by the end user industry.	
69	**Glue** from starch (physical mixing) with Gas/ electrically operated oven /boiler.	0	0	0	**0**	25	0	10	**35**	0	0	**0**	35	Green		IPC-V
70	**Gold** and silver smithy (purification with acid smelting operation and sulphuric acid polishing operation) (using less or equal to 1 litre of sulphuric acid/ nitric acid per month)	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
71	Compressed oxygen **Gas** from crude liquid oxygen (without use of any solvents and by maintaining pressure & temperature only for separation of other **Gases**)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
72	**Glass** and ampules and vials making from **Glass** tubes	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
73	**Ground** nut decorticating	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
74	**Medical Oxygen**	0	0	0	**0**	0	0	0	**0**	10	10	**20**	20	White	The sector may become green category if it generates wastewater	IPC-V
~H~																
75.0	**HOT** MIX PLANTS															
75.1	Hot mix plants using oil as fuel	0	0	0	**0**	25	25	25	**75**	0	0	**0**	75	Orange		IPC-V
75.2	Hot mix plants using gaseous as fuel	0	0	0	**0**	25	25	10	**60**	0	0	**0**	60	Orange		IPC-V
76	**Hazardous** waste pre-processing/processing facility including spent acid processing, spent solvent recovery, etc.	25	30	15	**70**	25	25	15	**65**	30	20	**50**	87.3	Red		WM-I
77	**Handloom**/ carpet weaving (without dying and bleaching operation)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
~I~																
78	**Ice** cream manufacturing units	25	25	20	**70**	25	0	25	**50**	0	0	**0**	77.5	Orange		IPC-IV
79	Printing **Ink** Manufacturing	20	30	15	**65**	0	20	10	**30**	30	10	**40**	77.3	Orange	In the process pigments, binders and solvents are used. VOCs are generated.	IPC-I

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
80	Manufacturing of scientific and mathematical **Instrument** (assembling only)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
	~J~															
81.0	**JUTE** PROCESSING															
81.1	Jute processing (with dyeing / with boiler)	25	20	25	**70**	25	0	25	**50**	0	0	**0**	77.5	Orange		IPC-III
81.2	Jute processing (without dyeing / without boiler)	20	0	20	**40**	0	0	0	**0**	0	0	**0**	40	Green		IPC-III
81.3	Manufacturing of products from jute (without dyeing/ without boiler)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-III
	~L~															
82	**Lime** manufacturing (using lime kiln)	0	0	0	**0**	25	0	30	**55**	0	0	**0**	55	Orange		IPC-V
83	**Leather** foot wear and **Leather** products (excluding tanning and hide processing)	0	0	0	**0**	0	20	0	**20**	0	0	**0**	20	White	Fumes due to use of adhesives / gums.	IPC-IV
84	Manufacturing of optical **Lenses** (using electrical furnace)	0	20	15	**35**	0	0	0	**0**	0	0	**0**	35	Green		IPC-V
85	**Leather** cutting and stitching (more than 10 machine and using motor)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
	~M~															
86	**Mobile** towers using genset(s)	0	0	0	**0**	25	0	25	**50**	0	0	**0**	50	Green	i. The used oil/waste oil generated during repair and maintenance need to be disposed through authorized hazardous waste recycler by service provider/OEM. ii. Order dated 24.08.2017 in the related matter with OA No. 83(THC) OF 2012 (Bharti Infratel Ltd.) may be referred for issuance of composite consent in case of mobile towers.	UPC-I
87.0	**MILK** PROCESSES AND DAIRY PRODUCTS															
87.1	Milk processes and dairy products (integrated project)	30	25	30	**85**	25	20	30	**75**	0	0	**0**	90.6	Red		IPC-IV
87.2	Dairy and dairy products (Small scale units), using coal/biomass as fuel (Wastewater generation ≥ 100 KLD)	25	25	30	**80**	25	0	25	**50**	0	0	**0**	85	Red		IPC-IV
87.3	Dairy and dairy products (Small scale units), using coal/biomass as fuel (Wastewater generation < 100 KLD)	25	25	20	**70**	25	0	25	**50**	0	0	**0**	77.5	Orange		IPC-IV
87.4	Dairy and dairy products, (Small scale units), using PNG as fuel	25	25	20	**70**	0	0	10	**10**	0	0	**0**	71.5	Orange		IPC-IV
88.0	**MINING** AND ORE BENEFICIATION															
88.1	Open-cast coal mining	10	25	35	**70**	25	30	35	**90**	10	70	**80**	97.5	Red		IPC-II
88.2	Underground coal mining	0	25	35	**60**	25	30	35	**90**	0	0	**0**	93	Red		IPC-II

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
88.3	Mining of major minerals and ore beneficiation	20	30	35	**85**	25	30	35	**90**	25	70	**95**	99.4	Red	Includes captive limestone mining.	IPC-II
88.4	Mining of minor minerals (except Sand/riverbed material mining)	10	0	20	**30**	25	25	25	**75**	0	0	**0**	78.8	Orange		IPC-II
88.5	Grinding, processing, and screening of minor minerals	0	0	0	**0**	25	30	0	**55**	0	0	**0**	55	Orange		IPC-II
89	Manufacturing of **Mirror** from sheet glass	0	0	0	**0**	30	20	0	**50**	25	10	**35**	58.8	Orange		IPC-V
90	**Mineral** processing, industries involving ore sintering, pelletisating, grinding & pulverization	0	0	0	**0**	25	25	25	**75**	0	0	**0**	75	Orange		IPC-II
91	**Malteries** (without fermentation)	30	15	25	**70**	25	0	25	**50**	0	0	**0**	77.5	Orange		IPC-III
92	Manufacturing of **Mosquito** repellent & coil	0	0	0	**0**	30	0	25	**55**	0	0	**0**	55	Orange	Toxic fumes may be released.	IPC-V
93	Organic **Manure** (physical mixing)	0	0	0	**0**	0	20	0	**20**	0	0	**0**	20	White		IPC-V
94	Packing of powdered **Milk**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
METALS AND METALLURGICAL SECTORS																
95.0	**IRON & STEEL** (PRIMARY PROCESSING FROM ORE, INTEGRATED STEEL PLANTS AND SPONGE IRON UNITS)															
95.1	Integrated iron and steel plants	25	30	35	**90**	25	30	35	**90**	25	50	**75**	98.3	Red		IPC-II
95.2	Stand-alone sintering/palletisation	0	0	0	**0**	25	30	35	**90**	0	0	**0**	90	Red		IPC-II
95.3	Sponge iron with CPP (Captive Power Plant)	20	25	35	**80**	25	30	35	**90**	10	50	**60**	97	Red		IPC-II

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
95.4	Sponge iron without CPP	20	15	30	**65**	25	30	35	**90**	10	50	**60**	96.3	Red		IPC-II
95.5	Stand-alone coke oven gas plants	25	30	30	**85**	25	30	35	**90**	25	50	**75**	98	Red		IPC-II
96.0	**ALUMINIUM** PROCESSING															
96.1	Aluminium Refinery	10	30	35	**75**	25	25	35	**85**	10	70	**80**	96.6	Red		IPC-II
96.2	Aluminium Smelter	10	30	35	**75**	30	25	35	**90**	25	70	**95**	99.1	Red		IPC-II
97	**Copper Smelter**	10	30	35	**75**	30	25	35	**90**	10	70	**80**	97.8	Red		IPC-II
98	**Zinc smelter**	10	30	35	**75**	30	25	35	**90**	10	70	**80**	97.8	Red		IPC-II
99.0	**FERROUS AND NON-FERROUS METAL** SECONDARY PROCESSING/REPROCESSING UNITS INVOLVING DIFFERENT FURNACES THROUGH MELTING, REFINING, CASTING, ALLOY-MAKING															
99.1	All Ferrous and Non-ferrous metal secondary processing/reprocessing units involving different furnaces through melting, refining, casting, alloy-making (using coal/liquid fuels)	0	15	15	**30**	25	25	25	**75**	25	10	**35**	83.1	Red		IPC-V
99.2	Ferrous and Non-ferrous metal (excluding lead, nickel, and manganese) secondary processing/reprocessing units involving different furnaces through melting, refining, casting, alloy-making (using cleaner fuels/electricity)	0	15	15	**30**	25	25	10	**60**	10	10	**20**	70	Orange		IPC-V
100	Aluminium & copper extraction from scrap using an oil-fired furnace (dry process only)	0	0	0	**0**	25	25	25	**75**	0	0	**0**	75	Orange		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
101.0	INDUSTRY OR PROCESS INVOLVING **METAL** SURFACE TREATMENT OR PROCESS/HEAT TREATMENT															
101.1	Industry or process involving metal surface treatment or process such as pickling/ electroplating/paint stripping/ heat treatment using cyanide bath/ phosphating or finishing and anodizing / enamellings/ galvanizing	25	30	20	**75**	30	25	0	**55**	25	30	**55**	88.8	Red		IPC-V
101.2	Plasma electrolytic polishing (electroplating)	25	30	15	**70**	30	25	0	**55**	0	0	**0**	78.3	Orange		IPC-V
101.3	Heat treatment using furnace (without cyaniding)	0	0	0	**0**	25	0	25	**50**	0	0	**0**	50	Green		IPC-V
101.4	Heat treatment with any of the new technology like ultrasound probe, induction hardening, ionization beam, gas carburizing etc.	0	15	15	**30**	0	25	0	**25**	0	0	**0**	38.8	Green		IPC-V
102.0	FORGING OF **FERROUS AND NON- FERROUS METALS**															
102.1	Forging of ferrous and non-ferrous metals using liquid fuel	0	0	0	**0**	25	25	20	**70**	30	10	**40**	76	Orange		IPC-V
102.2	Forging of ferrous and non-ferrous metals using gaseous fuel	0	0	0	**0**	25	25	10	**60**	30	10	**40**	68	Orange		IPC-V
102.3	Forging of ferrous and non-ferrous metals using electricity	0	0	0	**0**	25	25	0	**50**	30	10	**40**	60	Orange		IPC-V
102.4	Forging of ferrous and non-ferrous metals (cold forging, without any heat treatment)	0	0	0	**0**	0	0	0	**0**	30	10	**40**	40	Green		IPC-V
103.0	ROLLING **MILLS**															
103.1	Rolling and pickling	25	30	15	**70**	25	30	25	**80**	25	10	**35**	90.5	Red		IPC-V
103.2	Rolling mills (oil and coal fired)	0	15	15	**30**	25	0	25	**50**	0	0	**0**	57.5	Orange		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
103.3	Rolling mills (gas fired)	0	15	15	**30**	25	0	10	**35**	0	0	**0**	44.8	Green		IPC-V
103.4	Cold rolling mill (without heat treatment)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
104.0	**FOUNDRY OPERATIONS**															
104.1	Cupola furnace	**0**	**0**	**0**	**0**	25	25	25	**75**	10	10	20	77.5	Orange		IPC-V
104.2	Induction furnace/arc furnace	0	0	0	**0**	25	30	0	**55**	10	10	**20**	59.5	Orange		IPC-V
105.0	**WIRE** DRAWING AND **WIRE** NETTING															
105.1	Wire drawing and wire netting (with pickling)	25	30	15	**70**	30	25	0	**55**	10	10	**20**	81.3	Red		IPC-V
105.2	Wire drawing and wire netting (without pickling and with heat treatment)	0	0	0	**0**	25	0	20	**45**	10	10	**20**	50.5	Green		IPC-V
105.3	Wire drawing and wire netting (without pickling and without heat treatment)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
106	**Die-casting** /extrusion process only	0	0	0	**0**	25	0	25	**50**	0	0	**0**	50	Green		IPC-V
107	Manufacturing of aluminium utensils from aluminium circles pressing/ Brass and bell **Metal** utensils manufacturing from circles (dry mechanical operation only)	0	0	0	**0**	0	30	0	**30**	0	0	**0**	30	Green	Emissions during buffing	IPC-V
108	Manufacturing of **Metal** caps containers etc	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
	~N~															
109	Formulation/palletisation of camphor tablets, **Naphthalene** balls from camphor/ naphthalene powders.	0	0	0	**0**	35	20	0	**55**	0	0	**0**	55	Orange	Emissions of benzene, hydrocarbons etc. are expected.	IPC-V
110	Organic and inorganic **Nutrients** by physical mixing (without boiler and without any reactor)	0	0	0	**0**	0	0	0	**0**	10	10	**20**	20	White	The sector may become green category if it generates wastewater	IPC-V
111.0	**ORGANIC** CHEMICALS INCLUDING HALOGENATED HYDROCARBONS															
111.1	Organic chemicals including halogenated hydrocarbons (using solid/liquid fuel)	30	30	25	**85**	35	0	30	**65**	30	20	**50**	93.6	Red		IPC-I
111.2	Organic chemicals including halogenated hydrocarbons (using cleaner fuel)	30	30	25	**85**	35	0	10	**45**	30	20	**50**	92.1	Red		IPC-I
112	**Oil** and gas extraction (offshore & onshore extraction through drilling wells), Coal Bed Methane (CBM) drilling and shale gas, including group gathering stations (GGS), etc.	25	30	15	**70**	20	25	0	**45**	30	10	**40**	82.8	Red		IPC-I
113.0	EDIBLE **OIL** MILLS															
113.1	Vegetable oil manufacturing including solvent extraction and refinery /hydrogenated oils	25	25	20	**70**	25	0	20	**45**	0	0	**0**	76.8	Orange		IPC-III

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
113.2	Oil mills Ghani and extraction without boiler (no refining/ hydrogenation)	10	25	15	**50**	0	0	0	**0**	0	0	**0**	50	Green		IPC-III
	~P~															
114.0	**POWER** GENERATION PLANTS															
114.1	Power plants based on coal	0	15	35	**50**	35	25	35	**95**	10	70	**80**	98.3	Red		IPC-II
114.2	Power plants based on liquid fuels	0	15	35	**50**	25	25	35	**85**	30	20	**50**	92.5	Red		IPC-II
114.3	Waste to energy power plants	0	15	30	**45**	35	25	35	**95**	10	50	**60**	97.6	Red		IPC-II
114.4	Biomass-based power plants	0	15	30	**45**	25	25	25	**75**	10	50	**60**	88.1	Red		IPC-II
114.5	Nuclear energy-based power plants (> 220 MW)	0	30	35	**65**	25	0	25	**50**	25	20	**45**	81.6	Red	Overall safety aspects related with radioactivity is regulated by Atomic Energy Regulatory Board (AERB).	IPC-II
114.6	Nuclear energy-based power plants (up to 220 MW)	0	30	35	**65**	25	0	25	**50**	25	10	**35**	79.9	Orange	Overall safety aspects related with radioactivity is regulated by Atomic Energy Regulatory Board (AERB).	IPC-II
114.7	Gas-based power plants	0	15	35	**50**	25	0	20	**45**	0	0	**0**	61.3	Orange		IPC-II
115.0	**PULP & PAPER** (AGRO & WOOD)															
115.1	Manufacturing of bleached chemical pulp, papers, and paperboards	30	30	35	**95**	30	0	35	**65**	30	30	**60**	98.1	Red		IPC-III
115.2	Unbleached or Totally Chlorine Free (TCF) bleaching for manufacturing of chemical pulp, papers, and paperboards	30	20	35	**85**	30	0	35	**65**	10	30	**40**	92.9	Red		IPC-III
115.3	Bleached grades of chemical pulp, paper, and paperboard having Totally Chlorine Free (TCF) bleaching	30	20	35	**85**	30	0	35	**65**	10	30	**40**	92.9	Red		IPC-III

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
116.0	**PULP AND PAPER** (RECYCLED FIBRE/WASTE PAPER BASED)															
116.1	Pulp & Paper (With bleaching)	30	15	35	**80**	25	0	25	**50**	10	30	**40**	89	Red		IPC-III
116.2	Pulp & Paper (Without bleaching, capacity ≥15 TPD)	25	15	35	**75**	25	0	25	**50**	10	30	**40**	86.3	Red		IPC-III
116.3	Pulp & Paper (Without bleaching; plant capacity <15 TPD)	25	15	20	**60**	25	0	25	**50**	10	10	**20**	74	Orange		IPC-III
117.0	MANUFACTURING OF **PAINTS**, VARNISHES (The process may cause considerable emissions of volatile organic compounds (VOC).)															
117.1	Manufacturing of solvent-based paints/varnish	35	30	20	**85**	25	20	25	**70**	25	30	**55**	94.4	Red		IPC-I
117.2	Manufacturing of water-based paints	25	30	20	**75**	25	20	25	**70**	20	20	**40**	88.8	Red		IPC-I
117.3	Manufacturing of powder coatings	0	15	15	**30**	20	30	25	**75**	10	20	**30**	82.5	Red		IPC-I
117.4	Manufacturing of paint and varnishes (only blending and mixing)	20	30	15	**65**	0	20	0	**20**	30	20	**50**	77.3	Orange		IPC-I
118.0	**PESTICIDE** INDUSTRIES															
118.1	Pesticide technical (organic chemicals based)	30	30	20	**80**	30	25	25	**80**	30	30	**60**	94	Red		IPC-I
118.2	Pesticide technical (inorganic chemicals based like Zinc Phosphide and Aluminium Phosphide)	20	30	20	**70**	30	25	25	**80**	20	20	**40**	91	Red		IPC-I
118.3	Pesticide formulation industries (Liquid formulation only) having boiler/thermopack	20	30	20	**70**	25	20	25	**70**	20	20	**40**	86.5	Red		IPC-I
118.4	Pesticide formulation industries (Liquid formulation only) without having boiler/thermopack	20	30	20	**70**	0	20	0	**20**	20	20	**40**	79	Orange	Considering that dry formulation industries can also generate effluent because of equipment cleaning, the water pollution score is given	IPC-I

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
118.5	Pesticide formulation industries (having both liquid and dry formulation or dry formulation only) without having boiler / thermopack	20	30	20	**70**	30	20	0	**50**	20	20	**40**	83.5	Red	Considering that dry formulation industries can also generate effluent because of equipment cleaning, the water pollution score is given	IPC-I
118.6	Pesticide formulation industries (having both liquid and dry formulation or dry formulation only) having boiler / thermopack	20	30	20	**70**	30	20	25	**75**	20	20	**40**	88.8	Red	Considering that dry formulation industries can also generate effluent because of equipment cleaning, the water pollution score is given	IPC-I
119	**Photographic** film and its chemicals	20	20	15	**55**	30	0	25	**55**	20	10	**30**	74.1	Orange	Silver salts and other chemicals are used	IPC-I
120	**Petroleum** oil refineries	35	30	30	**95**	35	20	35	**90**	20	20	**40**	98.3	Red		IPC-I
121.0	**PETROCHEMICALS**															
121.1	Petrochemicals (Naphtha cracker.)	30	30	30	**90**	35	25	35	**95**	30	20	**50**	98.5	Red		IPC-I
121.2	Petrochemicals (Gas cracker)	30	30	30	**90**	35	25	25	**85**	30	20	**50**	96.8	Red		IPC-I
121.3	Petrochemicals (without cracker)	25	30	20	**75**	25	25	15	**65**	20	20	**40**	88.1	Red		IPC-I
121.4	Petrochemicals (without cracker and using cleaner/gaseous fuel)	25	30	20	**75**	25	25	10	**60**	20	20	**40**	87.5	Red		IPC-I
122.0	MANUFACTURING OF LUBRICATING OILS, GREASE AND **PETROLEUM**-BASED PRODUCTS															
122.1	Manufacturing of lubricating oils, grease, and petroleum-based products	20	15	15	**50**	25	20	10	**55**	30	10	**40**	75.3	Orange	Such unit uses distillation columns/ boilers etc	IPC-I
122.2	Manufacturing of lubricating oils, grease, and petroleum-based products (only blending)	0	0	0	**0**	0	25	0	**25**	10	10	**20**	32.5	Green		IPC-I

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
123.0	**PHARMACEUTICAL** INDUSTRY															
123.1	Pharmaceuticals manufacturing	35	30	30	**95**	35	25	35	**95**	30	20	**50**	98.6	Red		IPC-I
123.2	Pharmaceuticals manufacturing using cleaner/gaseous fuel	35	30	30	**95**	35	25	10	**70**	30	20	**50**	98	Red		IPC-I
123.3	Pharmaceuticals (Formulation)	20	15	15	**50**	25	0	25	**50**	30	10	**40**	72.5	Orange		IPC-I
123.4	Pharmaceuticals (Formulation) using cleaner/gaseous fuel	20	15	15	**50**	25	0	10	**35**	30	10	**40**	68.8	Orange		IPC-I
123.5	Vaccine manufacturing	20	15	15	**50**	25	0	35	**60**	30	10	**40**	78	Orange		IPC-I
123.6	Vaccine manufacturing using cleaner/gaseous fuel	20	15	15	**50**	25	0	10	**35**	30	10	**40**	68.8	Orange		IPC-I
123.7	Pharmaceutical R&D facilities	20	15	15	**50**	25	0	25	**50**	30	10	**40**	72.5	Orange		IPC-I
123.8	Ayurvedic or Unani medicines manufacturing	20	15	15	**50**	25	0	25	**50**	30	10	**40**	72.5	Orange		IPC-I
123.9	Ayurvedic or unani medicines manufacturing using cleaner fuel	20	15	15	**50**	25	0	10	**35**	0	0	**0**	58.8	Orange		IPC-I
123.10	Ayurvedic or unani medicines manufacturing (Without boiler)	20	15	15	**50**	0	0	0	**0**	0	0	**0**	50	Green		IPC-I
124	Digital **Printing** on flex /vinyl, PVC etc. (more than 5 machines)	0	0	0	**0**	20	0	0	**20**	30	10	**40**	46	Green		IPC-V
125	Spray **Painting**, Paint baking, Paint shipping	0	0	0	**0**	0	25	0	**25**	30	10	**40**	47.5	Green	Emissions in the form of VOCs and HC are generated.	IPC-V
126	**Plywood**/board manufacturing (including Veneer and laminate) with	20	20	15	**55**	25	20	25	**70**	0	0	**0**	78.3	Orange		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
	biomass fired boiler / thermic fluid heater (without resin plant)															
127	**Printing** press (newspaper, books, magazines, etc./ Gravure printing	20	0	15	**35**	20	0	0	**20**	30	10	**40**	56.5	Orange		IPC-V
128	Manufacturing of bi-axially oriented **Polypropylene** (PP) film along with metalizing operations	0	15	15	**30**	0	0	0	**0**	0	0	**0**	30	Green	Mainly extrusion process involving	IPC-V
129	**Pulse**/Dal Mills	0	0	0	**0**	0	30	0	**30**	0	0	**0**	30	Green		IPC-V
130	Insulation and other coated **Papers** (excluding paper or pipe manufacturing)	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
131	**Packaging** materials manufacturing from non-asbestos fibre, vegetable fibre yarn	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
132	**Polythene** and plastic processed products manufacturing (virgin/compostable plastic)	0	15	15	**30**	0	20	0	**20**	0	0	**0**	37	Green		IPC-V
133	**Poultry**, piggery, and hatchery	0	0	0	**0**	30	20	0	**50**	0	0	**0**	50	Green		IPC-V
134	**Puffed** rice (muri) (using gas)	0	0	0	**0**	25	0	10	**35**	0	0	**0**	35	Green		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
135	Biscuits trays etc from rolled **PVC** sheet (using automatic vacuum forming machines)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
136	Fountain **Pen** manufacturing by assembling only	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
137	Glass **Putty** and sealant (by mixing with machine only)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
138	Manufacturing of **Paper** Pins, U-clips, etc.	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
139	Solar **Power** generation through solar photovoltaic cell and wind power	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
	~R~															
140	Synthetic **Rubber** excluding molding	20	15	15	**50**	20	0	25	**45**	20	10	**30**	68.8	Orange	Most synthetic rubber is created from two materials, styrene, and butadiene.	IPC-I
141.0	**REFRACTORIES**															
141.1	Refractories based on coal/liquid fuel (fuel consumption: 12 TPD and above)	0	0	0	**0**	25	25	30	**80**	0	0	**0**	80	Red		IPC-V
141.2	Refractories based on coal/liquid fuel (fuel consumption: less than 12 TPD)	0	0	0	**0**	25	25	25	**75**	0	0	**0**	75	Orange		IPC-V
141.3	Refractories based on cleaner fuels	0	0	0	**0**	25	25	10	**60**	0	0	**0**	60	Orange		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
142.0	**RUBBER** PRODUCTS MANUFACTURING															
142.1	Tyre and tube manufacturing	0	15	15	**30**	25	25	25	**75**	0	0	**0**	78.8	Orange		IPC-V
142.2	Tyres and tubes vulcanization/ hot retreading	0	15	15	**30**	25	20	10	**55**	0	0	**0**	61.8	Orange	Emissions of PM, VOCs and obnoxious odour are generated.	IPC-V
142.3	Rubber goods industry (with solid fuel/oil-based boiler)	0	15	15	**30**	25	0	25	**50**	0	0	**0**	57.5	Orange		IPC-V
142.4	Rubber goods industry (with gas-based boiler)	0	15	15	**30**	25	0	10	**35**	0	0	**0**	44.8	Green		IPC-V
143.0	SYNTHETIC **RESINS**															
143.1	Synthetic resins manufacturing	20	15	15	**50**	25	20	25	**70**	20	10	**30**	82	Red		IPC-I
143.2	Synthetic resins manufacturing (using only gaseous fuel)	20	15	15	**50**	25	20	10	**55**	20	10	**30**	73	Orange		IPC-I
144	Blending of melamine **Resins** & different powder, additives by physical mixing, including phenolic resin (without boiler)	0	15	15	**30**	0	30	0	**30**	20	10	**30**	51	Green		IPC-I
145.0	**RICE** MILLS															
145.1	Parboiled rice mill (with soaking and steam/drier)	25	0	20	**45**	25	0	25	**50**	0	0	**0**	61.3	Orange		IPC-V
145.2	Raw rice mill (Without soaking and steam/drier)/ hullers)	0	0	0	**0**	0	30	0	**30**	0	0	**0**	30	Green		IPC-V
146	**Repairing** of electric motors and generators (dry mechanical process)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
147	Manufacturing of plastic or cotton **Rope**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
148	Tyre **Retraders**	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		WM-III
RECYCLING AND REPROCESSING SECTOR																
149.0	INDUSTRIES ENGAGED IN **RECYCLING/REPROCESSING/ RECOVERY/REUSE** OF HAZARDOUS WASTE UNDER SCHEDULE IV OF H&OW(M & TBM) RULES, 2016 - ITEMS, NAMELY, SPENT CATALYSTS CONTAINING NICKEL, CADMIUM, ZINC, COPPER, ARSENIC, VANADIUM, AND COBALT, INCLUDING DRY BATTERY (EXCEPT LEAD), AND CLEARED METAL CATALYST.															
149.1	Hydro & pyro metallurgy	0	30	15	**45**	35	25	25	**85**	25	10	**35**	91	Red		WM-II
149.2	Hydro & pyro metallurgy (using cleaner/gaseous fuels & without crushing of materials)	0	30	15	**45**	35	25	10	**70**	25	10	**35**	82	Red		WM-II
149.3	Pyro metallurgy (using coal/liquid fuels)	0	0	0	**0**	35	25	25	**85**	20	10	**30**	87.3	Red		WM-II
149.4	Pyro metallurgy (using cleaner/gaseous fuels)	0	0	0	**0**	35	25	10	**70**	20	10	**30**	74.5	Orange		WM-II
149.5	Hydro metallurgy	0	30	15	**45**	30	25	0	**55**	25	10	**35**	73	Orange		WM-II
150.0	E-WASTE DISMANTLING / **RECYCLING**															
150.1	Industry engaged in recycling of e-waste generated from the electrical and electronic Equipment (EEE) listed in the E-Waste (Management) Rules 2022 using pyro/ hydro/ electro-metallurgical processing and recycling of plastic separated from Waste EEE	30	30	20	**80**	35	25	15	**75**	25	20	**45**	92	Red		WM-III

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
150.2	Industry engaged in recycling of e-waste generated from the electrical and electronic equipment (EEE) listed in the E-Waste (Management) Rules 2022 (PCB processing limited to only mechanical processing and separation without pyro/ hydro/ electro-metallurgical processing), production of Al, Cu, and other metals from non-PCB sources and/or recycling of plastic separated from Waste EEE.	0	15	15	**30**	20	25	15	**60**	25	10	**35**	73	Orange		WM-III
150.3	Industry engaged in dismantling (only) of e-waste, generated from the electrical and electronic equipment (EEE) listed in the E-Waste (Management) Rules 2022 and refurbishing centres	0	0	0	**0**	0	25	0	**25**	25	10	**35**	43.1	Green		WM-III
151.0	INDUSTRIES ENGAGED IN **RECYCLING/REPROCESSING/ RECOVERY/REUSE** OF HAZARDOUS WASTE (Items as per Schedule IV of H&OW(M & TBM) Rules, 2016.)															
151.1	Lead Recycling (Lead Acid Batteries with Acids; Lead Scrap Recycling) Rotary Furnace/ Pit Furnace (Mandir/Canopy Bhatti)	0	30	20	**50**	35	30	25	**90**	20	20	**40**	94.5	Red	This also includes battery scrap, namely: Lead battery plates covered by ISRI, Code word “Rails” Battery lugs covered by ISRI, Code word “Rakes.” Scrap drained/dry while intact, lead batteries covered by ISRI, Code word “rains.”	WM-II

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
151.2	Lead Recycling (Drained Lead Acid Batteries; Lead Scrap Recycling) Rotary Furnace/Mandir Bhatti on Cleaner Fuel	0	30	15	**45**	35	30	10	**75**	20	10	**30**	84.4	Red	This also includes, battery scrap, namely: Lead battery plates covered by ISRI, Code word "Rails" Battery lugs covered by ISRI, Code word "Rakes." Scrap drained/dry while intact, lead batteries covered by ISRI, Code word "rains."	WM-II
151.3	Isolated storages (as defined under Manufacture, Storage, and Import of Hazardous Chemicals Rules, 1989 as amended)	10	25	15	**50**	20	25	0	**45**	30	10	**40**	71.3	Orange		IPC-I
151.4	Paint and ink sludge / residues recycling	20	25	15	**60**	0	20	0	**20**	30	10	**40**	72	Orange		WM-II
151.5	Industries engaged in recycling / reprocessing/ recovery/reuse of Hazardous Waste, excluding lead, paint, and ink sludge	0	30	15	**45**	35	0	25	**60**	20	10	**30**	75	Orange	This includes items namely - Brass Dross, Copper Dross, Copper Oxide Mill Scale, Copper everts, Cake & Residues, Waste Copper and copper alloys in dispersible form, Slags from copper processing for further processing or refining, Insulated Copper Wire, Scrap/copper with PVC sheathing including ISRI-code material namely "Druid" Jelly filled Copper cables, Zinc Dross-Hot dip Galvanizers SLAB,, Zinc Dross-Bottom Dross, Zinc ash/Skimming arising from galvanizing and die casting operations, Zinc ash/Skimming/other zinc bearing wastes arising from smelting and refining,, Zinc ash and residues including zinc alloy residues in dispersible form.	WM-II

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
151.6	Refining of used oil by hydro-treating/using solvent extraction	10	25	25	**60**	25	0	25	**50**	20	20	**40**	78	Orange		WM-II
151.7	Refining of used oil by using thin film evaporation/vacuum distillation with clay treatment	10	25	15	**50**	25	0	15	**40**	20	10	**30**	67.5	Orange		WM-II
151.8	Recycling / reprocessing of waste oil	20	25	15	**60**	25	0	15	**40**	20	10	**30**	74	Orange		WM-II
152.0	**RECYCLING** OF PLASTIC WASTE															
152.1	Manufacturing of flakes/staple fibre/strip from the recycling of PET bottles	20	15	25	**60**	0	20	0	**20**	0	0	**0**	64	Orange		IPC-I
152.2	Plastic waste processing (manufacturing of flakes/granules)	20	15	15	**50**	0	20	0	**20**	0	0	**0**	55	Orange	Process using In-built heaters.Washwater and fugitive emission.	UPC-II
153.0	SCRAPING FACILITIES FOR **RECYCLING** END-OF-LIFE VEHICLES, WAGONS, AND COACHES															
153.1	Collection, Depollution and Dismantling Centers (Without shredding)	0	30	15	**45**	0	30	0	**30**	25	10	**35**	62.9	Orange		WM-II
153.1	Collection, Depollution, Dismantling and shredding Centers	0	30	15	**45**	0	30	0	**30**	25	10	**35**	62.9	Orange		WM-II
153.2	Common Shredders (Standalone)	0	0	0	**0**	0	30	0	**30**	25	10	**35**	44.8	Green		WM-II
153.3	Collection Centers (Without depollution, dismantling and shredding)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		WM-II
	~S~															
154	**Sugar** (excluding khandsari/jaggery)	30	25	35	**90**	25	0	25	**50**	30	10	**40**	94.5	Red	Generates large volume of wastewater.	IPC-III

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
155	**Ship** breaking industries	0	0	0	**0**	0	30	0	**30**	30	20	**50**	57.5	Orange	Ship breaking releases a large number of pollutants, including toxic waste, used/waste oil, poly-chlorinated biphenyls, and heavy metals.	WM-III
156	**Slaughterhouse** / **Slaughterhouse** (with rendering plant)/ integrated slaughtering unit, meat processing units, bone mill, processing of animal horns, hoofs and other body parts	30	25	30	**85**	25	20	25	**70**	0	0	**0**	90.3	Red		IPC-IV
157	Manufacturing of **Silica** gel	10	25	20	**55**	30	0	20	**50**	25	10	**35**	74.1	Orange		IPC-I
158	Manufacturing of Iodized **Salt** from Crude / Raw Salt	10	20	15	**45**	25	0	25	**50**	0	0	**0**	61.3	Orange	Process may involve boiling in evaporators (multiple effect evaporators), centrifuging, iodization, mixing, etc.	IPC-V
159	Manufacturing of **Starch** / Sago / Sorbitol	20	25	25	**70**	25	0	25	**50**	0	0	**0**	77.5	Orange		IPC-III
160	**Stone** crushers	0	0	0	**0**	25	30	0	**55**	0	0	**0**	55	Orange		IPC-V
161	**Stone** crushing/grinding/washing & screening of riverbed material(s)	10	0	25	**35**	25	30	0	**55**	0	0	**0**	62.9	Orange		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
162.0	MANUFACTURING OF **SURGICAL** AND MEDICAL PRODUCTS															
162.1	Manufacturing of **Surgical** and medical products	10	25	15	**50**	25	0	10	**35**	0	0	**0**	58.8	Orange		IPC-V
162.2	Surgical and medical products assembled only (with effluent-generating processes)	10	25	15	**50**	0	0	0	**0**	0	0	**0**	50	Green		IPC-V
162.3	Surgical and medical products assembled only (without effluent-generating processes)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
163.0	**SEMICONDUCTOR** MANUFACTURING INDUSTRIES i. Toxic wastewater is generated due to presence of Hydrofluoric acid (HF), Mixed Nitric HF (HF + HNO3), Phosphoric acid, Sulphuric acid (H2SO4), Hydrogen Peroxide, Isopropyl alcohol (IPA) / Methanol (Methanol Only), Stripper EKC-265 /ACT N396 (ACT N396 Only), BHF – 63 U, Choline etchant, etc. ii. The air pollutants which are being emitted during the manufacturing process are SiH4, PH3, B2H6, HF, HBr, DCS, NF3, SF6, BCl3, Cl2, HCL, NH3, C2F6, CHF3, CF4, C4F8, C2F6 etc. iii. Process waste, used oil etc. are generated as hazardous waste.)															
163.1	Semiconductor fabs manufacturing	25	30	35	**90**	35	30	0	**65**	25	10	**35**	95	Red		WM-III
163.2	Display fabs manufacturing	25	30	35	**90**	25	30	0	**55**	25	10	**35**	94.5	Red		WM-III
163.3	Compound semiconductors/ silicon photonics/ sensor fabs manufacturing	25	30	35	**90**	25	30	0	**55**	25	10	**35**	94.5	Red		WM-III
163.4	Semiconductor Assembly, Testing, Marking and Packaging Facility (ATMP)	0	0	0	**0**	0	25	0	**25**	25	10	**35**	43.1	Green		WM-III
164	**Saw** mills	0	0	0	**0**	0	30	0	**30**	0	0	**0**	30	Green		IPC-V
165	**Spice** grinding	0	0	0	**0**	0	30	0	**30**	0	0	**0**	30	Green		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
166	Cutting, **Sizing** and polishing of marble, granite and other stones	10	0	20	**30**	0	30	0	**30**	0	0	**0**	40.5	Green		IPC-V
167	Manufacturing of **Solar** module/ non-conventional energy apparatus	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
								~T~								
168.0	**TANNERIES**															
168.1	Tanneries (Raw to finish)	35	30	25	**90**	0	20	0	**20**	25	30	**55**	93.8	Red		IPC-IV
168.2	Tanneries (Raw to wet blue)	35	30	25	**90**	0	20	0	**20**	25	30	**55**	93.8	Red		IPC-IV
168.3	Tanneries (Wet blue to finish)	35	30	20	**85**	0	20	0	**20**	25	30	**55**	90.6	Red		IPC-IV
168.4	Vegetable tanning	20	25	25	**70**	0	20	0	**20**	20	10	**30**	77.5	Orange		IPC-IV
169.0	MANUFACTURING OF **TOOTH** POWDER, TOOTHPASTE, TALCUM POWDER AND OTHER COSMETIC ITEMS															
169.1	Manufacturing of toothpaste and other cosmetic items	20	25	20	**65**	25	0	25	**50**	0	0	**0**	73.8	Orange		IPC-V
169.2	Manufacturing of tooth powder, talcum powder	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
170.0	**THERMOMETER** MANUFACTURING															
170.1	Glass (mercury based) thermometer manufacturing	10	30	15	**55**	25	0	10	**35**	25	10	**35**	70.8	Orange	Process involves making of glass bulb, forming reservoir in the glass tube for fluid, inserting fluid, scale marking. Use of fuel to heat the glass tubes and hydrofluoric acid to seal the scaling. Small quantities of spent acids are generated.	IPC-V
170.2	Digital thermometer manufacturing	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
171	Manufacturing of **Teflon**-based products	10	0	15	**25**	25	25	25	**75**	0	0	**0**	78.1	Orange	Due to spraying applications, emissions (HC) are generated	IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
172	**Thermocol** manufacturing (with boiler)	0	20	15	**35**	25	0	25	**50**	0	0	**0**	58.8	Orange		IPC-V
173.0	MANUFACTURING OF **TOBACCO** PRODUCTS INCLUDING CIGARETTES AND TOBACCO PROCESSES															
173.1	Manufacturing of tobacco products including cigarettes and tobacco processes (with boiler)	20	0	15	**35**	25	20	25	**70**	0	0	**0**	75.3	Orange		IPC-V
173.2	Manufacturing of tobacco products including cigarettes and tobacco processes (without boiler)	20	0	15	**35**	0	20	0	**20**	0	0	**0**	41.5	Green		IPC-V
174	**Transformer** repairing/ manufacturing (dry process only)	0	0	0	**0**	0	25	0	**25**	30	10	**40**	47.5	Green		IPC-V
175	**Tyre** Pyrolysis Oil Industries-Applicable for advanced batch automated process / continuous TPO units	10	0	15	**25**	25	25	25	**75**	0	0	**0**	78.1	Orange		WM-III
176	**Tamarind** powder manufacturing	10	15	15	**40**	25	0	10	**35**	0	0	**0**	50.5	Green	Dried tamarind fruits are cleaned, soaked, and boiled in steam jacketed kettle. Then pulp is extracted in pulper and dried in drum type drier.	IPC-V
177.0	**TEA** PROCESSING AND BLENDING															
177.1	Tea processing (with boiler)	10	0	15	**25**	25	0	25	**50**	0	0	**0**	56.3	Orange		IPC-III
177.2	Tea processing (without boiler)	10	0	15	**25**	0	0	0	**0**	0	0	**0**	25	Green		IPC-III
177.3	Blending and packing of tea	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
TEXTILE SECTOR																
178.0	**TEXTILE** INDUSTRY															
178.1	Yarn / Textile processing involving any effluent/emission generating processes including bleaching, dyeing, printing, and colouring, including the garment and apparel manufacturing industry	30	30	30	**90**	25	0	35	**60**	30	20	**50**	95.5	Red		IPC-III
178.2	Yarn to grey fabric manufacturing with water jet machines	20	25	25	**70**	0	0	0	**0**	0	0	**0**	70	Orange		IPC-III
178.3	Garment and apparel manufacturing industry including Doubling / Reeling / TFO-Two for one unit (dry process)-with boiler	0	0	0	**0**	25	0	25	**50**	0	0	**0**	50	Green		IPC-III
178.4	Garment and apparel manufacturing industry including Doubling / Reeling / TFO-Two for one unit (dry process)-without boiler	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-III
179.0	**SAREE/FABRIC PRINTING** BY SCREEN / WOODEN BLOCK /HAND BLOCK															
179.1	Saree/fabric printing by screen / wooden block/hand block	25	0	25	**50**	25	0	20	**45**	30	10	**40**	71.3	Orange		IPC-III
179.2	Hand block printing without effluent generation	0	0	0	**0**	25	0	20	**45**	0	0	**0**	45	Green		IPC-III
180.0	**TEXTILE** SPINNING**,** SIZING AND WEAVING MILLS															
180.1	Textile spinning, sizing and weaving mills (wastewater generation≥ 10 KLD)	10	20	20	**50**	25	0	15	**40**	0	0	**0**	60	Orange		IPC-III

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
180.2	Textile spinning, sizing and weaving mills (wastewater generation <10 KLD)	10	20	15	**45**	25	0	10	**35**	0	0	**0**	54.6	Green		IPC-III
181	**Power looms** (without dye and bleaching)	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-III
182.0	REPROCESSING OF WASTE **TEXTILE** FABRIC															
182.1	Integrated facility for reprocessing of waste textile fabric (including washing, bleaching, dyeing etc.)	30	30	20	**80**	25	25	15	**65**	0	0	**0**	86.5	Red		IPC-III
182.2	Reprocessing of waste textile fabric (dry process)	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-III
183	**Cotton and woollen Hosiers** making (Dry process only without any dying / washing operation)	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0	White		IPC-V
~W~																
184	Seasoning of **Wood** in steam heated chamber	0	0	0	**0**	25	0	25	**50**	0	0	**0**	50	Green		IPC-V
185	Pulverization of bamboo and scrap **Wood**	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25	Green		IPC-V
186	Distilled **Water** (without boiler) with electricity as source of heat	0	20	20	**40**	0	0	0	**0**	0	0	**0**	40	Green		IPC-V
187	Purification of **Water** and packaging (mineralized/non-mineralized water)	0	20	25	**45**	0	0	0	**0**	0	0	**0**	45	Green	RO Rejects.	IPC-V

ANNEXURE-II

(LIST OF ESSENTIAL ENVIRONMENTAL SERVICES)

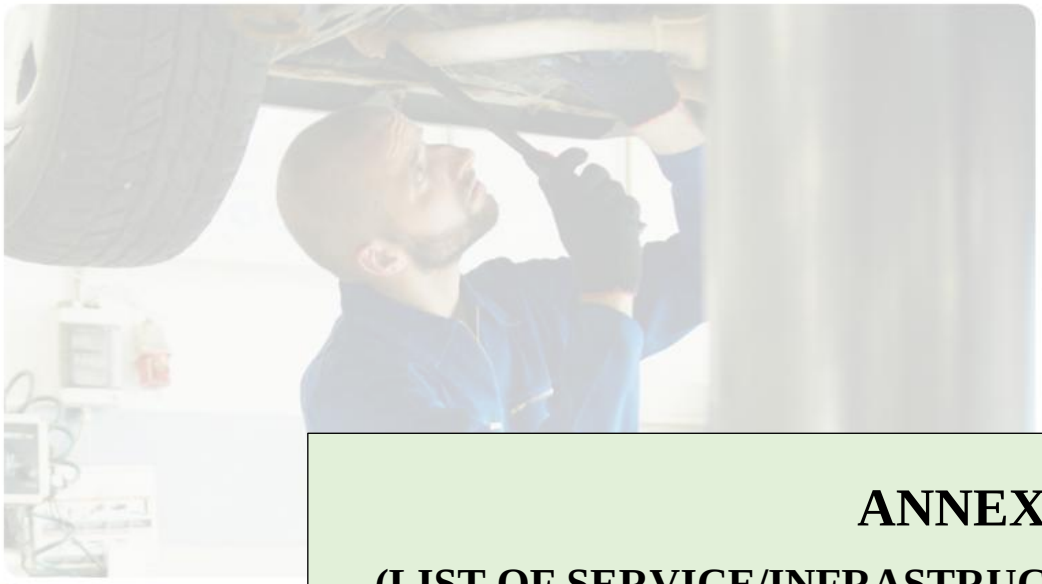
LIST OF ESSENTIAL ENVIRONMENTAL SERVICES

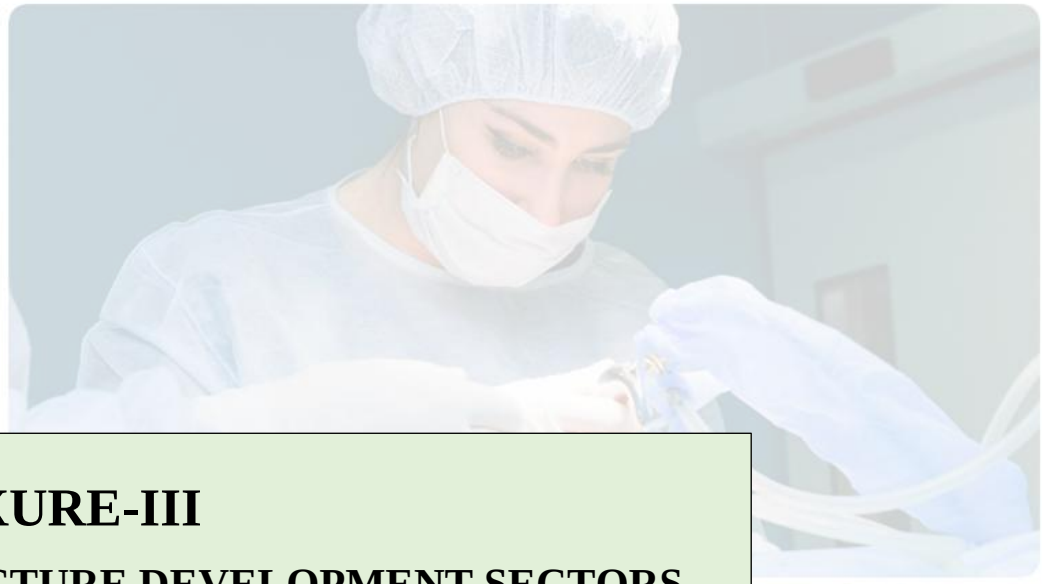
i. Essential Environmental Services for Industrial Waste Management

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
1.0	**COMMON EFFLUENT TREATMENT PLANT (CETP)**															
1.1	CETP having MEE/spray drier	30	30	35	**95**	25	0	25	**50**	25	50	**75**	98.1	Red		IPC-VII
1.2	CETP (without having MEE/spray drier), Common MEE/common spray driers	25	30	30	**85**	0	0	0	**0**	25	30	**55**	89.1	Red		IPC-VII
1.3	Common Sewage-Effluent Treatment Plant (CSETP)	25	30	30	**85**	0	0	0	**0**	25	20	**45**	88.4	Red		IPC-VII
2.0	Effluent conveyance projects	20	30	35	**85**	0	0	0	**0**	25	10	**35**	87.6	Red	Such projects during O&M operation will generate deposited sludge, spillage etc. in addition regular operation of handling of effluent and its disposal.	IPC-VII
3.0	**COMMON HAZARDOUS WASTE TREATMENT, STORAGE AND DISPOSAL FACILITY**															
3.1	Integrated facility (Secured landfill and incinerator)	35	30	15	**80**	25	25	15	**65**	30	70	**100**	100.0	Red		WM-I
3.2	Only secured landfill	35	30	15	**80**	0	25	0	**25**	25	70	**95**	97.6	Red		WM-I
3.3	Only incinerator	35	30	15	**80**	25	25	15	**65**	30	70	**100**	100.0	Red		WM-I
4.0	**COMMON BIO-MEDICAL WASTE TREATMENT FACILITY (CBWTF)**															
4.1	CBWTF	20	25	20	**65**	35	20	25	**80**	20	20	**40**	90.5	Red		WM-I
4.2	CBWTF using cleaner/gaseous fuel	20	25	20	**65**	35	20	10	**65**	20	20	**40**	83.4	Red		WM-I

ii. LIST OF BLUE CATEGORY SECTORS- Essential Environmental Services for Domestic/Household Activities:

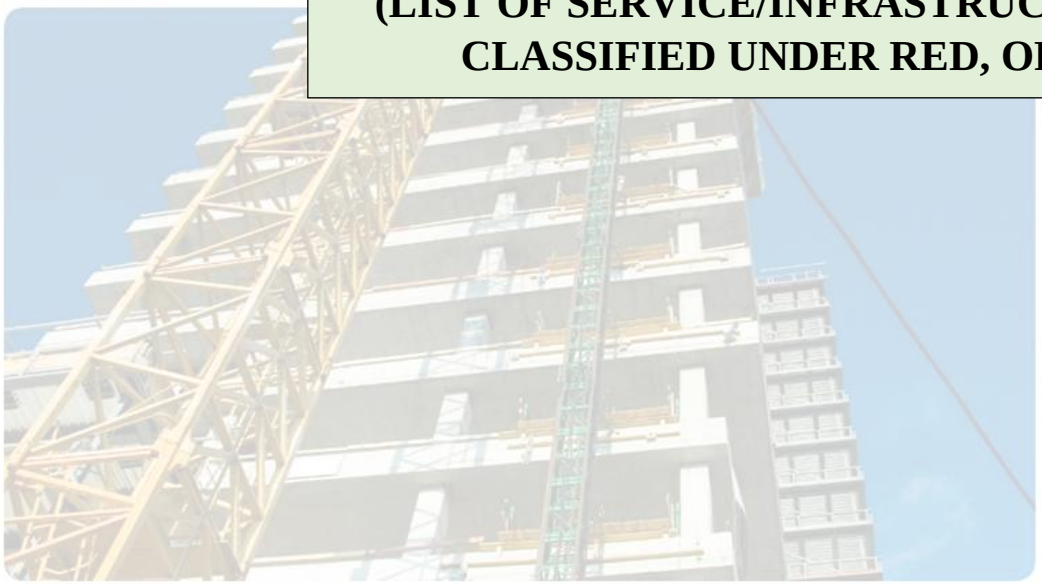
S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
1.0	**MUNICIPAL SOLID WASTE MANAGEMENT FACILITY**															
1.1	Municipal Solid Waste Management Facility (Sanitary landfill/ Integrated Sanitary landfill with material recycling facility/ refused derived fuel, etc.)	35	30	15	**80**	35	25	0	**60**	0	0	**0**	86.0	Blue		UPC-II
1.2	Waste to energy power plants	0	15	30	**45**	35	25	35	**95**	10	50	**60**	97.6	Blue		UPC-II
1.3	Bio-mining of legacy waste projects	35	30	25	**90**	35	25	0	**60**	0	0	**0**	93.0	Blue		UPC-II
1.4	Municipal Solid Waste Bio-methanation plant (Quantity of MSW ≥ 5 TPD)	30	25	25	**80**	0	20	0	**20**	0	0	**0**	82.0	Blue		UPC-II
1.5	Municipal Solid Waste Composting Facility (Quantity of MSW ≥ 5 TPD)	30	25	15	**70**	0	30	0	**30**	0	0	**0**	74.5	Blue		UPC-II
1.6	Municipal Solid Waste Material Recovery Facility (Quantity of MSW ≥ 5 TPD)	20	25	15	**60**	0	30	0	**30**	0	0	**0**	66.0	Blue		UPC-II
2.0	Construction and Demolition (C&D) Waste Processing Plants	10	0	15	**25**	25	25	0	**50**	0	0	**0**	56.3	Blue	Wastewater of high TDS of inorganic nature is generated.	UPC-I
3.0	**SEWAGE TREATMENT PLANT**															
3.1	Sewage Treatment Plant (5 MLD and above)	20	0	35	**55**	0	20	0	**20**	0	0	**0**	59.5	Blue		WQM-I
3.2	Sewage Treatment Plant (less than 5 MLD)	20	0	25	**45**	0	20	0	**20**	0	0	**0**	50.5	Blue		WQM-I

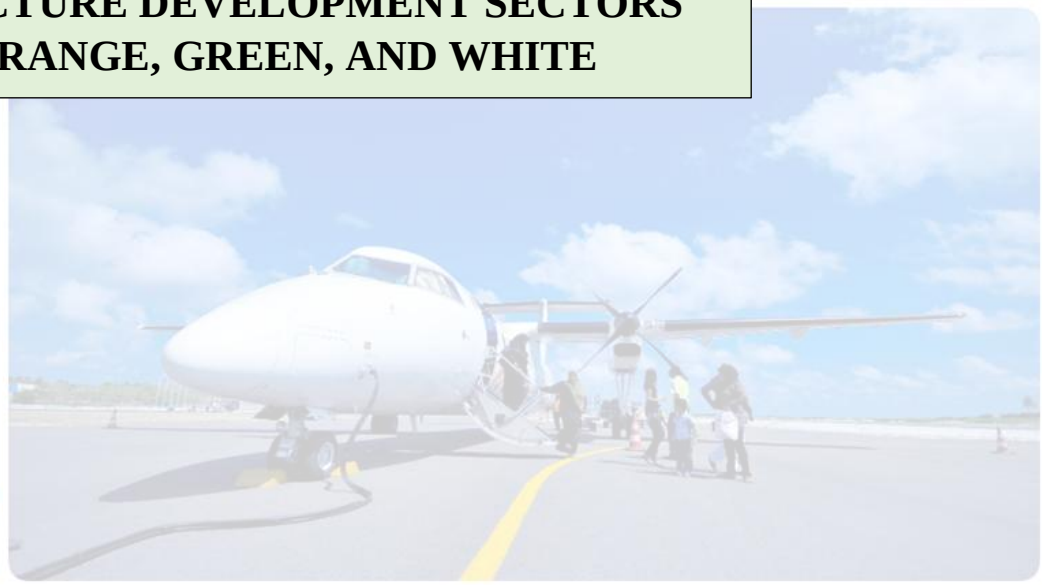




ANNEXURE-III

(LIST OF SERVICE/INFRASTRUCTURE DEVELOPMENT SECTORS CLASSIFIED UNDER RED, ORANGE, GREEN, AND WHITE





SERVICE/INFRASTRUCTURE DEVELOPMENT SECTORS

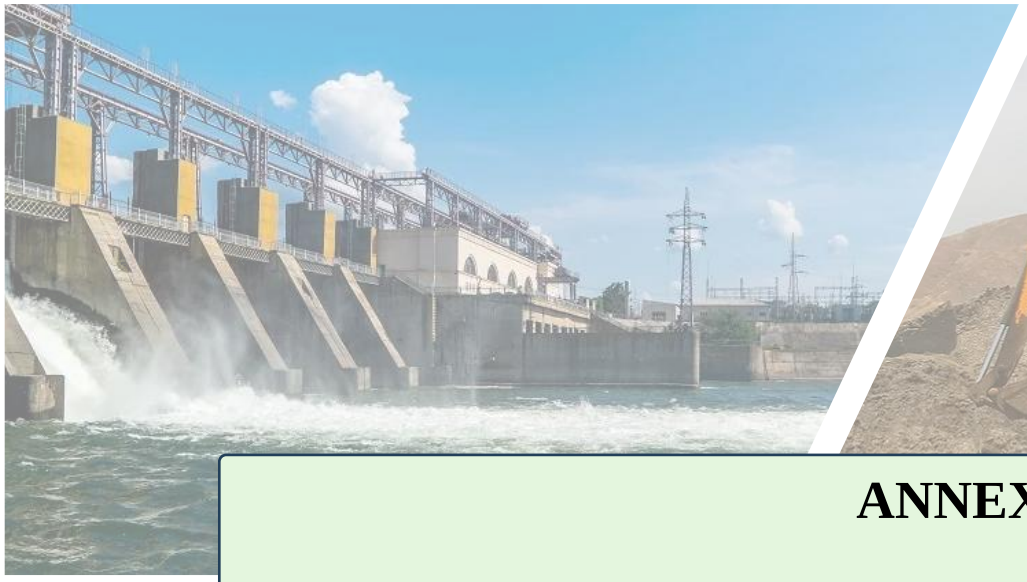
S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
1.0	**STANDALONE GENERATOR SET** (Genset) (i. Standalone genset(s) of total capacity less than 1000 KVA may not require additional classification. The used oil/waste oil generated during repair and maintenance need to be disposed through authorized hazardous waste recycler by service provider/OEM. ii. Projects such data centers etc. having pollution potential due to gensets only, may be classified based on the capacity and fuel used.)															
1.1	Genset(s) of total capacity ≥ 1 MVA, using liquid fuel	0	0	0	**0**	25	0	25	**50**	30	10	**40**	60.0	Orange		UPC-I
1.2	Genset(s) of total capacity ≥ 1 MVA, using cleaner/gaseous fuel	0	0	0	**0**	25	0	10	**35**	30	10	**40**	50.5	Green		UPC-I
2.0	Airports	20	0	35	**55**	25	0	25	**50**	30	10	**40**	75.3	Orange	Airports generates mainly domestic sewage as wastewater. Emissions and generation of hazardous waste due to overall operations in airport are considered.	UPC-I
3.0	**HEALTH CARE FACILITIES (HCFS) (AS DEFINED UNDER BIO-MEDICAL WASTE MANAGEMENT RULES, 2016)** (Sectors generates bio-medical waste. As per methodology scores assigned to H.)															
3.1	HCFs with captive incinerator, irrespective of number of beds	20	0	15	**35**	35	20	25	**80**			**50**	88.5	Red		WM-I
3.2	more than 1000 bedded HCFs	20	0	35	**55**	0	0	0	**0**			**100**	100.0	Red		WM-I
3.3	501 to 1,000 bedded HCFs	20	0	30	**50**	0	0	0	**0**			**80**	85.0	Red		WM-I
3.4	201 to 500 bedded HCFs	20	0	30	**50**	0	0	0	**0**			**60**	70.0	Orange		WM-I
3.5	51 to 200 bedded HCFs	20	0	20	**40**	0	0	0	**0**			**50**	60.0	Orange		WM-I
3.6	11 to 50 bedded HCFs	20	0	20	**40**	0	0	0	**0**			**40**	52.0	Green		WM-I
3.7	Up to 10 bedded HCFs	20	0	15	**35**	0	0	0	**0**			**30**	44.8	Green		WM-I
3.8	Non-bedded HCFs	0	0	0	**0**	0	0	0	**0**			**25**	25.0	Green		WM-I
4.0	**HOTELS/BANQUET HALLS HAVING ROOM FACILITY**															
4.1	Hotels (above 3 star) or having 100 & above rooms	20	25	30	**75**	25	0	25	**50**	0	0	**0**	81.3	Red		UPC-I

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
4.2	Hotels (above 3 star) or having 100 & above rooms (based on cleaner /gaseous fuel)	20	25	30	**75**	25	0	10	**35**	0	0	**0**	79.4	Orange		UPC-I
4.3	Hotels (up to 3 star) or having more than 20 rooms but less than 100 rooms.	20	25	20	**65**	25	0	25	**50**	0	0	**0**	73.8	Orange		UPC-I
4.4	Up to 20 rooms	10	25	15	**50**	0	0	10	**10**	0	0	**0**	52.5	Green		UPC-I
5.0	**RAILWAY LOCOMOTIVE WORK SHOP/ INTEGRATED ROAD TRANSPORT WORKSHOP/ AUTHORIZED SERVICE CENTERS**															
5.1	Railway locomotive work shop/ Integrated road transport workshop/ Authorized service centers (wastewater generation ≥ 10 KLD)	20	25	25	**70**	30	25	0	**55**	30	10	**40**	84.3	Red		IPC-V
5.2	Railway locomotive work shop/ Integrated road transport workshop/ Authorized service centers (wastewater generation <10 KLD)	20	25	15	**60**	30	25	0	**55**	30	10	**40**	79.0	Orange		IPC-V
6.0	**RAILWAY STATIONS**															
6.1	Railway Stations (Wastewater Generation ≥ 5 MLD)ss	20	0	35	**55**	25	0	25	**50**	30	10	**40**	75.3	Orange	Wastewater generating from public toilets, public taps, platform, and apron washing, coach cleaning, laundry, restaurants etc. Emissions and generation of hazardous waste due to overall operations are considered.	UPC-I
6.2	Railway Stations (Wastewater Generation ≥ 100 KLD, but < 5 MLD)	20	0	15	**35**	0	0	0	**0**	0	0	**0**	35.0	Green	Wastewater generating from various domestic uses as public toilets, public taps, platforms, and apron washing, restaurants etc.	UPC-I

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
7.0	**RAILWAY SIDINGS** (Fugitive emissions due to loading, unloading, storage and transportation of the minerals.)															
7.1	Railway sidings / Mineral stock yard	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25.0	Green		UPC-I
7.2	Railway sidings only for defence purpose	0	0	0	**0**	0	0	0	**0**	0	0	**0**	0.0	White		UPC-I
8.0	**PORTS AND HARBOURS**															
8.1	Ports and harbours, jetties and dredging operations	20	30	25	**75**	0	25	0	**25**	30	20	**50**	84.4	Red		WM-I
8.2	Ports and harbours (only containers handling)/ Captive jetties	20	25	20	**65**	0	25	0	**25**	30	10	**40**	76.4	Orange		WM-I
9.0	Automobile service stations/ workshops	20	25	20	**65**	20	0	0	**20**	30	10	**40**	75.5	Orange		IPC-V
10.0	**BUILDING CONSTRUCTION PROJECTS** (i. During the construction phase, the sector is mainly air polluting. However, in post construction phase it is mainly water polluting due to generation of sewage. Consent to Establish/Operate to be taken as per EC conditions, as applicable. ii. Building construction project ≥ 5,000 sq. m., but < 20,000 sq. m. built-up area (with connectivity to terminal STP) may not require separate classification. iii. For projects < 5000 the wastewater shall be managed according to on-site sanitation methods as mentioned in the Manual on Sewerage and Sewage Treatment System (2013), published by the Central Public Health and Environmental Engineering Organisation (CPHEEO), and as amended from time to time.)															
10.1	Building construction project ≥ 20,000 sq. m. built-up area	20	0	25	**45**	25	0	25	**50**	0	0	**0**	61.3	Orange		UPC-I
10.2	Building construction project ≥ 5,000 sq. m., but < 20,000 sq. m. built-up area (without connectivity to terminal STP)	20	0	20	**40**	0	0	0	**0**	0	0	**0**	40.0	Green		UPC-I
11.0	Standalone mechanized laundry (using boiler)	20	0	20	**40**	25	0	25	**50**	0	0	**0**	60.0	Orange		IPC-V
12.0	New highway construction project	0	0	0	**0**	25	25	25	**75**	0	0	**0**	75.0	Orange	Such projects involve use of hot mix plants, ready-mix concrete plants, construction activities generating fugitive emissions, etc.	UPC-I

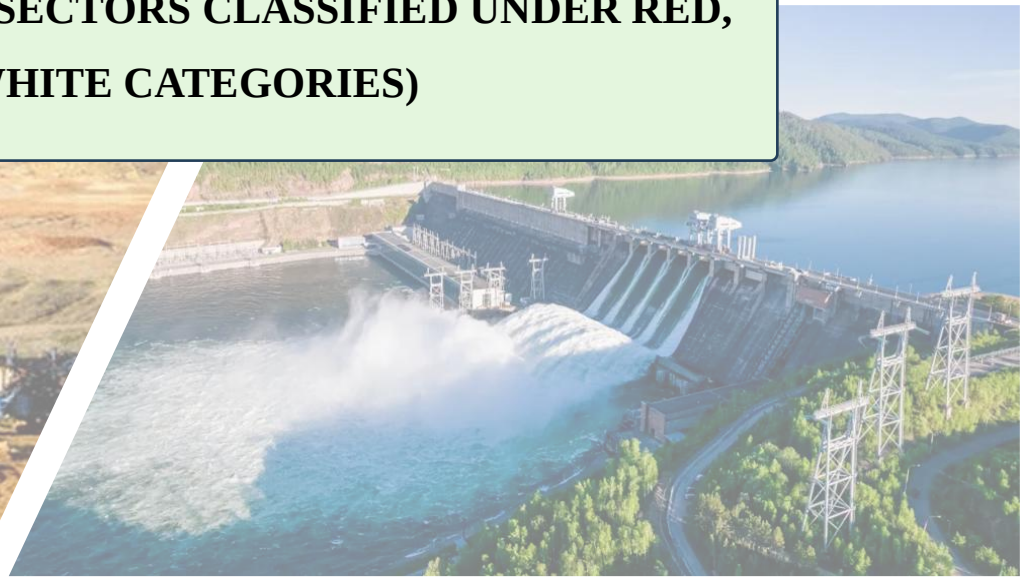
S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
13.0	**DAIRY FARM** (Dairy farms having less than 15 animals do not require separate classification.)															
13.1	Dairy Farm (having more than 500 animals)	30	25	25	**80**	0	20	0	**20**	0	0	**0**	82.0	Red		IPC-IV
13.2	Dairy Farm (having 101 to 500 animals)	30	25	20	**75**	0	20	0	**20**	0	0	**0**	77.5	Orange		IPC-IV
13.3	Dairy Farm (having 15 to 100 animals)	30	25	15	**70**	0	20	0	**20**	0	0	**0**	73.0	Orange		IPC-IV
14.0	Gold Assaying & Hallmarking Centres	0	0	0	**0**	35	0	0	**35**	25	10	**35**	46.4	Green	Lead oxide, nitrous fumes are generated during cupellation and parting acid treatment, respectively contributing to the air emissions.The hazardous waste is generated during fire assay in the form of spent cupels bearing lead, spent acid, scrubbed water etc.	IPC-V
15.0	Facility of handling, storage, and transportation of food grains in bulk	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25.0	Green		IPC-V
16.0	Flyash export or disposal operations	0	0	0	**0**	0	25	0	**25**	0	0	**0**	25.0	Green		IPC-V
17.0	Oil and gas transportation pipeline (excluding pipeline covered under definition of isolated storage of hazardous chemicals, as per Manufacture, Storage, and Import of Hazardous Chemicals Rules, 1989)	0	0	0	**0**	25	0	10	**35**	0	0	**0**	35.0	Green		IPC-I
18.0	Gaushalas	20	0	15	**35**	0	20	0	**20**	0	0	**0**	41.5	Green		IPC-IV

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
19.0	Household bio-digesters/gobar-gas (cow-dung) plants based on biodegradable wastes, etc.	0	0	0	**0**	0	20	0	**20**	0	0	**0**	20.0	White		IPC-V



ANNEXURE-IV

(LIST OF OTHERS/SPECIAL CATEGORY SECTORS CLASSIFIED UNDER RED, ORANGE, GREEN, AND WHITE CATEGORIES)



OTHERS/SPECIAL CATEGORY SECTORS

S. No.	Sector	W1	W2	W3	PI_W	A1	A2	A3	PI_A	H1	H2	PI_H	Pollution Index (PI)	Category	Remarks	Concerned Division
1.0	**HYDEL POWER PLANTS INCLUDING PUMPED STORAGE PROJECTS**															
1.1	Hydel power plants (Capacity > 50 MW)													Red	PI may be considered as 90.	IPC-II
1.2	Mini Hydel power plants (Capacity from more than 25 MVA and up to 50 MW)													Orange	PI may be considered as 67.5.	IPC-II
1.3	Mini Hydel power plants (Capacity ≤ 25 MW)													White	PI may be considered as 12.5.	IPC-II
2.0	**SAND / RIVERBED MATERIAL MINING FROM RIVERBED AND ITS FLOODPLAINS** (excluding manual excavation) (i. Sand / riverbed material mining from riverbed and its floodplains may cause ecological disturbances, erosion of riverbed, change in hydro-geological conditions & river ecosystem, etc. ii. Cluster mining means that the distance of mining lease area is less than 500 m from periphery of another lease area. iii. This categorization is made considering the ecological damages and not based on pollution potential/index. iv. Cluster mining as defined in 'Enforcement & Monitoring Guidelines for Sand Mining, 2020', issued by MoEF&CC.)															
2.1	Mining lease area more than 5 hectares or Mining lease area up to 5 hectares which is part of cluster mining													Red	PI may be considered as 90.	IPC-II
2.2	Standalone mining lease area up to five hectares in areas (not a part of any cluster mining)													Orange	PI may be considered as 67.5.	IPC-II

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ANNEXURE-V

FORMAT FOR SUBMISSION OF INFORMATION BY SPCBS/PCCS REGARDING SECTORS CLASSIFIED UNDER WHITE CATEGORY

S. No.	Sector	Water Pollutant Score (PI_W)				Air Pollutant Score (PI_A)				Waste Pollutant Score (PI_H)			Pollution Index (PI)	Remarks (including brief description of process and pollution potential)
		W1	W2	W3	W	A1	A2	A3	A	H1	H2	H		

A tool for progressive environmental Management

CPCB

Central Pollution Control Board

"Parivesh Bhawan", East Arjun Nagar, Delhi - 110032

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL,
Principal Bench, New Delhi

Original Application No. 581/2019

Residents of Gram Panchayat Jatal,
District Sonipat — Applicant

Vs.

State of Haryana — Respondent

Index

S. No.	Particulars	Page No.
1.	**2nd Progress Report** in compliance to the Hon'ble NGT order dated 04.11.2020 in OA No. 581/2019, Residents of Gram Panchayat Jatal, District Sonipat Vs. State of Haryana.	
2.	**Annexure-1**: A copy of Hon'ble NGT order dated 04.11.2020.	
3.	**Annexure-2**: A copy of directions issued by Haryana State Pollution Control Board to Panipat Thermal Power Plant vide letter dated 18.08.2021 to engage an institute of repute for assessment of damage caused to the environment.	
4.	**Annexure-3**: A copy of proposal of CSIR-NEERI regarding Damage Assessment due to PTPS Ash Dyke Pond on the surrounding Environment (Air, Agriculture, Ground Water and Public Health) and suggestions on Mitigation Measures.	
5.	**Annexure-4**: A copy of email dated 06.10.2021 by Panipat Thermal Power Plant to the joint committee requesting to examine the proposal CSIR-NEERI.	
6.	**Annexure-5:** A copy of data of public health of primary health centres as received from Civil Surgeon, Panipat.	

(Nazimuddin)
Scientist-F
Central Pollution Control Board,
Parivesh Bhawan, East Arjun Nagar
Delhi- 110032.

Date: 17.01.2022
Place: Delhi

2nd Progress Report in the matter of Original Application No. 581/2019: Residents of Gram Panchayat Jatal, District Sonipat Applicant Versus State of Haryana Respondent, in compliance of Hon'ble National Green Tribunal Order dated 04/11/2020.

1. Background and Directions of Hon'ble NGT:

The matter in OA No. 581 /2019; Residents of Gram Panchayat Jatal, District Sonipat Applicant Versus State of Haryana Respondent, is related to pollution caused in the nearby villages, during management of fly ash by Panipat Thermal Power Plant.

In the above matter, Hon'ble NGT vide order dated 04/11/2020 (copy attached as **Annexure-1**) directed as under:

"In view of separate order passed today in O.A. No. 117/2014, Shantanu Sharma v. UOI, further action may be taken with regard to the Thermal Power Plant, Panipat on same pattern by a joint Committee of CPCB and the Haryana State Pollution Control Board. The CPCB will be the nodal agency for coordination and compliance."

2. Compliance of the Orders of Hon'ble NGT:

In compliance of the Orders of Hon'ble NGT, a Joint Committee comprising of the following members was constituted:

i) Dr. Narender Sharma, Additional Director, Central Pollution Control Board(CPCB), Regional Directorate, Chandigarh
ii) Er. Sanjeev Kumar, SEE, Haryana State Pollution Control Board (HSPCB),Panchkula

It was directed by Hon'ble NGT to take action with regard to Thermal Power Plant, Panipat (OA No. 581/2019) on the same pattern, as per order passed in the matter of O.A. No. 117/2014; Shantanu Sharma Vs. UOI on 04/11/2020.

Therefore, joint committee studied the order passed in the matter of O.A. No. 117/2014 and the compliance submitted by CPCB and the following two points were found to be applicable in the matter of O.A. No. 581/2019, by the Joint Committee:

i. Environmental Compensation on account of non-utilization of 100% ash for theyears 2018 (2018-19) and 2019 (2019-20).
ii. Assessment of the Damage caused to environment and public health.

The Joint Committee visited the site on 1/7/2021 and 5/8/2021. The following details were sought by the Joint Committee from the Thermal Power Plant, Panipat, so as to compute the environmental compensation and also to assess the damage caused to the environment and public health in the nearby villages, as alleged by the applicant in the Original Application No. 581/2019:

i. The drawings of the Ash Dykes of Panipat Thermal Power Plant (PTPP)
ii. Mapping of the sprinklers provided in the as dyke area
iii. Last EIA report of the project of the year 2004
iv. Peizometer data for the ground water level and quality in the premises ofPTPS and Ash Dykes

v. Power generation data since the year 2015
vi. Coal Consumption data since the year 2015
vii. Ash generation data since the year 2015
viii. Ash utilization data since the year 2015
ix. Permission of CGWA for the bore-wells installed in the premises of PTPP andin ash dykes along with ground water analysis reports.
x. Ambient air quality monitoring data for the last six months
xi. Water consumption data for the water used, for sprinkling in ash dykes.
xii. The details of the Medical Check up Camps organized by PTPP in the nearby villages and the outcome of the same w.r.t diseases identified during medical check-up.

The details w.r.t (i) to (xi) were provided by Panipat Thermal Power Plant on August5, 2021 and the details w.r.t. (xii) were provided by the PTPS on August 10, 2021.

2.1. Progress Report of the Joint Committee:

2.1.1. Environmental Compensation on account of non-utilization of 100% ash for the years 2018 (2018-19) and 2019 (2019-20).

The Joint Committee obtained and examined the ash generation & utilization data from Thermal Power Plant, Panipat, for the financial years 2018-19, 2019-20 and 2020-21, to compute the Environmental Compensation (EC) for non-utilization of 100% ash for years 2018 (2018-19) and 2019 (2019-20).

The following formulae were used to compute the environmental compensation as revised and approved by Hon'ble NGT vide order dated 27/1/2020 (Uploaded on 12/2/2020) in the matter of O.A. No. 117/2014, Shantanu Sharma Vs. UOI:

EC = PI X R X X F X LF = Rs. 30000 per day (80 x 250 x 1.5) x N x LF

EC= Environmental compensation/penalty (Rs)
PI = Pollution Index of industrial sector (80 for red category of industries)R = Rs in per day (Rs 250)
N = Number of days of violations.
F = Scale of operation of industrial sector, small 0.5, medium 1.0 and large 1.5
LF= Location factor, 1.5 for all situations as the principal contributor to environmentaldegradation in area is TPP.

Therefore, for 330 days per year, the said figure would come to Rs. 9900000 or say Rs. 1 crore per annum.

In addition to above, the EC may be imposed on the basis of compliance of Fly Ash Notification after 31.12.2017 as below:

EC for 2018 & 2019:

EC = Rs. 1 crore / year x C x P x LF

C : Capacity factor 1 for 350 MW and MW/ 350 for other capacity instead of taking 500 MWas a base.
P : Non-compliance during the year i.e. (100-% utilization during the year/ 100)
LF = Location factor, 1.5 for all situations as the principal contributor to environmental degradation in area is TPP.

The environmental compensation as computed by using the above formulae for thePanipat Thermal Power Plant, by the Joint Committee, is as follows:

S. No.	Financial Year	Power Generation(MU)	Total Ash generation,MT	Total Ash Utilized, MT	% Ash Utilization	Environmental Compensation (EC), Rs.
1	2018-19	3378.90	824442	1238214	150.18	Nil
2	2019-20	1972.79	494595	1191254	240.85	Nil

Note: 1. The ash in excess of generation is taken from Ash Dykes (Legacy ash) 2. The ash utilization in 2020-21 has been 999.29% of annual generation.

2.1.2. Assessment of the Damage caused to environment and public health.

The available data obtained from PTPS, was examined against the baseline data of EIA report of the year 2001, to assess the damage caused to the environment and public health. It was observed that:

No ambient air quality monitoring station (CAAQMS or manual station) is available in the nearby villages in the vicinity of PTPP and no data w.r.t. PM_{10} and $PM_{2.5}$ of the ambient air environment is available with HSPCB. The data provided by PTPP is showing PM_{10} and $PM_{2.5}$ concentration on the much lower side in comparison to base line data and hence was not considered as relevant and representative data, by the Joint Committee.

Being monsoon season, Joint Committee could not collect the data of PM_{10} and $PM_{2.5}$ during the inspection and decided to generate and consider the post monsoon period data, for assessment of the damage. The HSPCB Regional Office was requested by the Joint Committee to generate PM_{10} and $PM_{2.5}$ data during management/handling/lifting of Ash from the ash dykes, for the post monsoon period, for comparison with the base line data available in the EIA report of PTPP for the year 2001.

It was informed by PTPP that the bore-wells have been installed by the agencies involved in lifting of the ash from as dykes only two months back and hence no data w.r.t. analysis of ground water is available.

As per information provided, PTPP has organized 09 medical Check-up Camps in the nearby villages. PTPP has been asked by the Joint Committee to provide the outcome of the Medical Check-up Camps.

The joint Committee could not assess the damage caused to the environment and public health due to non-availability of adequate data. The current data w.r.t. PM_{10} and $PM_{2.5}$ during lifting of ash from the ash dykes and ground water analysis is required for the post monsoon period (Sept. to Nov., 2021) for assessing the damage caused to the environment by PTPP, in nearby villages.

The Joint Committee also requested HSPCB to issue letter to PTPP to engage an institute of repute such as NEERI, National Institute of Occupational Health, Ahmadabad, IIT or such other institutions, for assessment of damage caused to the Environment, Agriculture, ground water and public health, so that assessment of damage in monetary terms could be finalized by the Joint Committee. The Directions in this regard have been issued by HSPCB to Panipat Thermal Power Plant vide letter No. HSPCB/PR/2020/2320 dated 18/8/2021 (Copy attached as **Annexure-2**).

In response to the above letter of HSPCB, Panipat Thermal Power plant obtained the offer of CSIR-NEERI for conducting the Assessment of Damage on the surrounding Environment (Air, Agriculture, Ground Water and Public Health) and Suggestions on Mitigation Measures. **As per offer submitted by CSIR-NEERI, the time required for conducting damage assessment was indicated as 12 months involving cost of Rs. 72 Lacs plus GST** (Copy attached as **Annexure-3**). Panipat Thermal Power Plant vide email dated October 6, 2021 requesting the Joint Committee to examine the proposal of CSIR-NEERI (**Annexure-4**).

The Joint Committee examined the proposal of CSIR-NEERI and observed that the **time-line indicated for carrying out damage assessment was too long to comply with the directions of Hon'ble National Green Tribunal within the time line granted to the Joint Committee in this matter**. In view of this, it was decided by the Joint Committee, to carry out the assessment of damage in two stages:

Stage 1: **Qualitative Assessment** of the damage as per following approach:

- **Site visit and interaction** with the local farmers to finalize the study area.
- **Ambient Air quality monitoring** in the study area, for the parameters relevant to thermal power plant ash against the control sample, to establish the impact on the air quality.
- **Ground water sampling** from various bore-wells up-stream and down-stream of the Panipat Thermal Power Plant Ash Dyke. The water quality parameters alongwith other parameters relevant to thermal power plant ash to be analyzed in EPA/NABL approved Laboratory.
- **Sampling of agriculture Soil** of the study area to determine the accumulation of contaminants in the soil over a period of time, by irrigation with contaminated water and deposition of ash over a period of time.
- **Sampling of agriculture crops and the produce (grains),** to estimate the bio-magnification of contaminants in plant (fodder) and produce (seeds).
- **Calculation of Transfer Factor (TF)**, for determining the bio-accumulation of metals/contaminants in plants from soil and **Health Risk Index (HRI)** by considering daily intake and reference oral dose.
- **Damage to Public Health, b**y obtaining data of cases reported w.r.t respiratory and other diseases/illness related to thermal power plant ash, from the nearby health centers followed by calculation of the damage to public health in monetary terms by using the following formula: Damage H (Rs): No. of cases Reported (X) x COI Affected area.

Stage 2: **Quantitative Damage Assessment by the methodology/Proposal as obtained by Panipat Thermal Power Plant from CSIR-NEERI** along with preparation of short term and long term remediation plan.

In the last progress report filed by the Joint Committee on 1/12/2021, request for the extension of time line was sought to assess the qualitative damage caused by PTPP.

The progress made by the Joint Committee w.r.t Assessment of damage as on 14/01/2022, is as follows:

Interaction with the Farmers:

Interaction of the farmers with the members of the Joint Committee was held on October 26, 2021. The following points were raised by the farmers:

- It was informed by the farmers that **visible impact of fly ash of PTPP can be observed as black cloud in this area, during the period from March-July** and it is very difficult to even breathe during this period. They requested Joint Committee **to conduct the ambient air quality monitoring during March-July to know the real status of the problem.**

- It was also informed by the farmers that **the most of the people in the area are suffering from skin, eye and respiratory problems.** However, all the villagers suffering from these problems do not visit local primary health centres for treatment due to lack of proper facilities.

Impact on Ambient Air quality:

The parameters relevant to thermal power plant ash were monitored in the ambient air environment of the study area on 22/11/2021-23/11/2021, to establish the impact on the ambient air quality. The result of analysis of the samples alongwith details of the monitoring locations is summarized in **Table 1**:

Table 1: **Analysis results of ambient air quality monitoring.**

S.No.	Parameter	Unit	MoEF &CC NAAQ Standard	GD Goenka School, Jattal (Panipat) at rear lawn	Maharishi Kashyap Govt. Polytechnic, Jattal (Panipat) near Parking Area	Govt. Model Sankriti Primary School, Jattal (Panipat) infront of classrooms	PTPS Guest House at rear side	Rajkiya Prathmic Pathshala, Sutana (Panipat) at near main gate
1	Sulphur dioxide (SO_2)	ug/m3	Max. 80 ug/m^3 (24-hr.)	8	6	6	6	6
2	Nitrogen Oxides (as NO_2)	ug/m3	Max. 80 ug/m3 (24-hr.)	59	49	55	40	56
3	Respirable Particulate Matter (PM10)	ug/m3	Max. 100 ug/m3 (24-hr.)	**356**	**330**	**347**	**339**	**397**
4	Fine Particulate Matter (PM $_{2.5}$)	ug/m3	Max. 60 ug/m3 (24-hr.)	**130**	**124**	**177**	**109**	**167**
5	Ozone (O3), avg [8 hr.]	ug/m3	Max. 100 ug/m3 (8-hr.)	49	43	51	38	47
6	Lead (Pb)	ug/m3	Max. 1 ug/m3 (24-hr.)	0.05	0.13	0.06	0.06	0.07

7	Carbon Monoxide (CO) avg [8 hr.]	mg/m3	Max. 2 mg/m3 (8-hr.)	1.7	1.7	1.6	1.8	1.8
8	Ammonia (NH3)	ug/m3	Max. 400 ug/m^3 (24-hr.)	37	94	65	52	57
9	Benzene (C_6H_6)	ug/m3	5 ug/m^3 (Annual Avg.)	2.6	5.6	BQL	0.95	1.46
10	Benzo (a) Pyrene (BaP)	ng/m3	1 ng/m3 (Annual Avg.)	BDL	**2**	**3.3**	**1.7**	**1.53**
11	Arsenic (As)	ng/m3	6 ng/m3 (Annual Avg.)	0.3	0.83	0.58	0.45	0.85
12	Nickel (Ni)	ng/m3	20 ng/m3 (Annual Avg.)	**29**	19	12	**43**	**25**

The results of the parameters PM_{10} and $PM_{2.5}$ were found to be exceeding the NAAQ Standards, at all the locations, with **PM_{10} concentration** ranging between **330-396 ug/m^3 (against the standard of 100 ug/m^3)** and **$PM_{2.5}$ concentration** ranging between 1**09 -167 ug/m^3 (against the standards of 60 ug/m3).** A comparison of PM_{10} and $PM_{2.5}$ conc. in the ambient air at the locations in the vicinity of Panipat Thermal Power Plant monitored by Joint Committee, was also made with the Continuous Ambient Air Quality Monitoring Station located at HSVP Office, Sector 18, Panipat. **It was observed that PM10 conc. in the villages located at the vicinity of PTPP is much higher (142-237 ug/m^3 vs. 330-396 ug/m^3) in comparison to CAQMS data located at Sector 18, Panipat. Similarly, PM2.5 conc. was also higher (67-94 ug/m^3 vs. 09 - 167 ug/m^3) at the locations in the vicinity of PTPP in comparison to CAAQMS located at Sector 18, Panipat.**

Out of 5 locations monitored by the Joint Committee, **Nickel concentration in the ambient air was found to be exceeding at 03 locations ranging between 25-43 ng/m^3 (24 hr) against the standard of annual average 20 ng/m^3.**

B**enzene concentration in the ambient air was found to be exceeding at one location with conc. of 5.6 ug/m^3 (24 hr) against the standard of annual average 5 ug/m^3.**

Benzo (a) Pyrene (BaP) concentration in the ambient air, was also **found to be exceeding at 04 locations out of 05 locations** monitored by the Joint Committee with concentration ranging **between 1.53-3.3 ng/m^3 (24 hr) against the standard of annual average 1 ng/m3.**

As per MoEF&CC NAAQ Standards "Whenever and wherever monitoring results on two consecutive days of monitoring exceeds the limits specified above for the respective category, it shall be considered adequate to institute regular or continuous monitoring and further investigation"

Impact on Ground water quality:

The ground water sampling was conducted at 07 locations from various bore-wells up-stream and down-stream of the Panipat Thermal Power Plant Ash Dyke. The water quality parameters alongwith other parameters relevant to thermal power plant ash were analyzed and the results are

summarized in **Table 2. T**he parameters specific to thermal power plant/fly ash was found to be within the prescribed parameters. **However, the microbiological parameters (Total Coliform) were found to be exceeding (52-72 cfu/100 ml > 20 cfu/100 ml)** in the 6 borewells, out of 7 bore-wells monitored by the Joint Committee. **This needs further investigation to find the root case and remedial action.**

Table 2: Ground water analysis.

Ground Water Analysis										
S. No.	**Characteristic**	**Requirement (Acceptable Limit)**	**Permissible Limit in the Absence of Alternate Source**	**1. Hand Pump 100 Ft, Rampal S/o Sh. Harphool, Sutana; Geo Cordinates: N29 22'7.33674 E 76 53'37.1112**	**2. Borewell 220 Ft, Rajkumar S/o Sh.Krisna Lal, Geo-coordinates: N 29 23'13.35588, E 76 54'18.3114**	**3. Borewell 200 Ft, Ramphal S/o Sh. Harphool, Sutana; Geo-coordinates: N 29 22'7.33764, E 76 53'37.1112**	**4. Borewell 180 Ft, Geo-coordinates: N 29 22'30.35244, E76 54'6.8088**	**5. Borewell 180 Ft, Anand S/o Dhoop Singh, Geo-coordinates: N 29 22'39.94248, E 76 54'4.554**	**6. Borewell 220 Ft, Ramesh Kumar S/o Karam Singh, Geo-coordinates N 29 23'18.86496, E76 54'12.98736**	**7. Borewell 200 Ft, GD Goenka School,Geo-coordinates: N 29 22'45.31548, E 76 54'48.5216**
(1)	**(2)**	**(3)**	**(4)**							
Organoleptic & Physical Parameters										
1	Colour, Hazen units, *Max*	5	15	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
2	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
3	Turbidity, NTU, *Max*	1	5	26	5	4	5	5	2	2
4	*p*H value	6.5-8.5	No relaxation	7.3	7.5	8	7.5	7.5	7.7	7.8
5	Total dissolved solids, mg/l, max	500	2,000	954	630	630	393	397	480	456
General Parameters Concerning Substances Undesirable in Excessive Amounts										
1	Aluminium (as Al), mg/l, *Max*	0.03	0.2	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
2	Ammonia (as total ammonia-N), mg/l, Max	0.5	No relaxation	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
3	Anionic detergents (as MBAS), mg/l, Max	0.2	1.0	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
4	Barium (as Ba), mg/l, *Max*	0.7	No relaxation	0.1	0.2	0.3	0.2	0.2	0.2	0.1
5	Boron (as B), mg/l, *Max*	0.5	1.0	0.4	0.3	0.3	0.5	0.2	0.2	0.1
6	Calcium (as Ca), mg/l, *Max*	75	200	19	20	9	34	26	27	23
7	Chloramines (as Cl_2), mg/l, *Max*	4.0	No relaxation	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
8	Chloride (as Cl), mg/l, *Max*	250	1,000	29	19	42	13	13	10	29

9	Copper (as Cu), mg/l, *Max*	0.05	1.5	0.02	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
10	Fluoride (as F) mg/l, *Max*	1.0	1.5	0.7	**1.3**	0.7	0.7	0.7	**1.1**	**1.3**
11	Iron (as Fe), mg/l, *Max*	0.3	No relaxation	**5.3**	**0.6**	**0.8**	**0.9**	**1.7**	0.02	0.02
12	Magnesium (as Mg), mg/l, *Max*	30	100	**67**	**54**	9	**49**	**31**	**39**	**32**
13	Manganese (as Mn), mg/l, *Max*	0.1	0.3	0.04	0.01	0.04	0.01	0.02	Not Detected	Not Detected
14	Mineral oil, mg/l, Max	0.5	No relaxation	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
15	Nitrate (as NO3), mg/l, Max	45	No relaxation	3	12	39	4	Not Detected	4	10
16	Phenolic compounds (as C6H5OH), mg/l, max	0.001	0.002	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
17	Selenium (as Se), mg/l, Max	0.01	No relaxation	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
18	Silver (as Ag), mg/l, Max	0.1	No relaxation	0.02	0.04	0.02	Not Detected	0.07	0.03	Not Detected
19	Sulphate (as SO4) mg/l, Max	200	400	107	112	81	78	55	78	77
20	Sulphide (as H2S), mg/l, Max	0.05	No relaxation	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
21	Total alkalinity as calcium carbonate, mg/l, Max	200	600	657	360	331	251	257	297	238
22	Total hardness (as CaCO3), mg/l, Max	200	600	328	277	59	288	196	230	192
23	Zinc (as Zn), mg/l, Max	5	15	3.6	0.2	0.06	0.02	0.04	0.04	0.01
Parameters Concerning Toxic Substances										
1	Cadmium (as Cd), mg/l, *Max*	0.003	No relaxation	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
2	Cyanide (as CN), mg/l, *Max*	0.05	No relaxation	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
3	Lead (as Pb), mg/l, *Max*	0.01	No relaxation	**0.08**	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
4	Mercury (as Hg), mg/l, *Max*	0.001	No relaxation	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
5	Molybdenum (as Mo), mg/l, *Max*	0.07	No relaxation	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
6	Nickel (as Ni), mg/l, *Max*	0.02	No relaxation	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected

7	Total arsenic (as As), mg/l, *Max*	0.01	0.05	BQL	BQL	BQL	BQL	BQL	0.001	0.001
8	Total chromium (as Cr), mg/l, *Max*	0.05	No relaxation	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Bacteriological Tests										
1	Total Coliform Bacteria, cfu/100 ml	20		68cfu	72cfu	58cfu	67cfu	61cfu	52cfu	Not Detected
2	E.coli, cfu/100 ml	2		11cfu	12cfu	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected

Impact on agriculture Soil:

To determine the **accumulation of contaminants in the soil over a period of time**, by irrigation with contaminated water and deposition of ash over a period of time, **soil samples from the five locations of the study area were drawn and analysed for various parameters including the parameters specific to thermal power plant/fly ash.** The results of analysis of soil samples are summarized in **Table 3**:

Table 3: Analysis of soil samples

S.No.	Parameters	Results of analysis					
		Soil-1	**Soil-2**	**Soil-3**	**Soil-4**	**Soil-5**	**Target value of Soil, mg/Kg (WHO)**
		Panchayat Land; Geo-coordinates: N 29 22'6.81492, E 76 53'34.72584	Mr. Raj kumar Land; Geo-coordintes: N 29 23'13.35588, E 76 54'18.3114	Mr. Ramesh Kumar Land; Geo-coordinates: N 29 23'18.86496, E 76 54'12.98736	Geo-coordinates; N 29 22'30.35244, E 76 54'6.8088	Mr. Anand Land; Geo-coordinates: N 29 22'39.94248, E 76 54'4.5544	
1	pH (30g in 75 ml. water) (on Received basis)	8.5	7.7	7.4	8.5	7.7	
2	Arsenic (as As), mg/Kg (on received basis)	0.32	0.17	0.15	0.48	0.5	
3	Mercury (as Hg), mg/Kg (on received basis)	Below Detection Limit	Below Detection Limit	Below Detection Limit	Below Detection Limit	Below Detection Limit	
4	Cadmium (as Cd), mg/Kg (on dry basis)	Below Detection Limit	Below Detection Limit	Below Detection Limit	Below Detection Limit	Below Detection Limit	**0.8**
5	Cobalt (as Co), mg/Kg (on dry basis)	Below Detection Limit	Below Detection Limit	Below Detection Limit	Below Detection Limit	Below Detection Limit	
6	Chromiun (as Cr), mg/Kg (on dry basis)	**175**	**139**	**151**	**140**	**155**	**100**
7	Copper (as Cu), mg/Kg (on dry basis)	**49**	**36**	**30**	**35**	**24**	**36**
8	Manganese (as Mn), mg/Kg (on dry basis)	435	290	298	337	317	

9	Nickel (as Ni), mg/Kg (on dry basis)	**49**	**31**	**37**	34	**37**	**35**
10	Lead (as Pb), mg/Kg (on dry basis)	24	24	20	20	17	**85**
11	Zinc (as Zn), mg/Kg (on dry basis)	**67**	**58**	**67**	**59**	**73**	**50**
12	Phosphate (as P2O5), % by mass (on dry basis)	0.11	0.11	0.13	0.11	0.12	
13	Iron (as Fe2O3), % by mass (on dry basis)	3.48	2.6	3.18	2.83	3.28	
14	Potassium (as K2O), % by mass (on dry basis)	1.54	1.34	1.26	1.37	1.46	
15	Nitrogen (as N), mg/Kg (on dry basis)	Below Detection Limit	Below Detection Limit	Below Detection Limit	Below Detection Limit	Below Detection Limit	
16	Cation Exchange Capacity, meq/100 g (on dry basis)	10	7.4	7.6	7.4	9.7	

It was observed from the analysis of soil samples that the concentration of chromium, copper, nickel and zinc is on much higher side in comparison of target values of these heavy metal in soil specified by WHO.

Impact on Plant and Seed:

The samples of the paddy plant and seed grown on the soils (**Table 3**) were also collected by the Joint Committee for analysis of various parameters including the parameters specific to thermal power plant/fly ash, **to study the bio-magnification of contaminants in plants and grains. The results of analysis are summarized in Table 4 (i) and Table 4 (ii):**

Table 4 (i): Analysis of crop (Plant) samples:

S.No.	**Parameters**	**Results of analysis**					
		Plant-1	**Plant-2**	**Plant-3**	**Plant-4**	**Plant-5**	**Target value of Plant, mg/Kg (WHO)**
		Panchayat Land; Geo-coordinates: N 29 22'6.81492, E 76 53'34.72584	Mr. Raj kumar Land; Geo-coordintes: N 29 23'13.35588, E 76 54'18.3114	Mr. Ramesh Kumar Land; Geo-coordinates: N 29 23'18.86496, E 76 54'12.98736	Geo-coordinates; N 29 22'30.35244, E 76 54'6.8088	Mr. Anand Land; Geo-coordinates: N 29 22'39.94248, E 76 54'4.5544	
1	pH (30 g in 75 ml. water) (on Received basis)	8	7.3	6.8	7.2	7.6	
2	Arsenic (as As), mg/Kg (on received basis)	0.1	0.09	Below Detection Limit	0.12	Below Detection Limit	

3	Mercury (as Hg), mg/Kg (on received basis)	0.04	0.02	0.03	0.06	0.04	
4	Cadmium (as Cd), mg/Kg (on dry basis)	Below Detection Limit	Below Detection Limit	Below Detection Limit	Below Detection Limit	Below Detection Limit	**0.02**
5	Cobalt (as Co), mg/Kg (on dry basis)	Below Detection Limit	Below Detection Limit	Below Detection Limit	Below Detection Limit	Below Detection Limit	
6	Chromiun (as Cr), mg/Kg (on dry basis)	134	78	91	111	58	**1.3**
7	Copper (as Cu), mg/Kg (on dry basis)	37	17	13	40	10	**10**
8	Manganese (as Mn), mg/Kg (on dry basis)	407	288	184	236	345	
9	Nickel (as Ni), mg/Kg (on dry basis)	18	11	10	16	Below Detection Limit	**10**
10	Lead (as Pb), mg/Kg (on dry basis)	Below Detection Limit	Below Detection Limit	Below Detection Limit	Below Detection Limit	Below Detection Limit	**2**
11	Zinc (as Zn), mg/Kg (on dry basis)	47	28	39	41	19	**0.6**
12	Phosphate (as P2O5), % by mass (on dry basis)	0.14	0.13	0.43	0.17	0.1	
13	Iron (as Fe2O3), % by mass (on dry basis)	0.81	0.63	0.29	1.06	0.26	
14	Potassium (as K2O), % by mass (on dry basis)	1.73	1.5	1.59	0.75	1.19	
15	Nitrogen (as N), mg/Kg (on dry basis)	0.2	0.49	0.17	0.06	0.27	
16	Cation Exchange Capacity, meq/100 g (on dry basis)	186	112	245	34	274	

Table 4 (ii): Analysis of Crop (Grain) samples:

S. No.	Parameters	Results of analysis					
		Seed-1	**Seed-2**	**Seed-3**	**Seed-4**	**Seed-5**	**Target value of Plant, mg/Kg (WHO)**
		Panchayat Land; Geo-coordinates: N 29 22'6.81492, E 76 53'34.72584	Mr. Raj kumar Land; Geo-coordintes: N 29 23'13.35588, E 76 54'18.3114	Mr. Ramesh Kumar Land; Geo-coordinates: N 29 23'18.86496, E 76 54'12.98736	Geo-coordinates; N 29 22'30.35244, E 76 54'6.8088	Mr. Anand Land; Geo-coordinates: N 29 22'39.94248, E 76 54'4.5544	
1	pH (30g in 75 ml. water) (on Received basis)	7	6.9	6.7	7	6.9	
2	Arsenic (as As), mg/Kg (on received basis)	Below Detection Limit	0.09	Below Detection Limit	Below Detection Limit	Below Detection Limit	
3	Mercury (as Hg), mg/Kg (on received basis)	0.03	0.03	0.04	0.03	0.02	
4	Cadmium (as Cd), mg/Kg (on dry basis)	Below Detection Limit	Below Detection Limit	Below Detection Limit	Below Detection Limit	Below Detection Limit	**0.02**
5	Cobalt (as Co), mg/Kg (on dry basis)	Below Detection Limit	Below Detection Limit	Below Detection Limit	Below Detection Limit	Below Detection Limit	
6	Chromiun (as Cr), mg/Kg (on dry basis)	35	36	24	41	118	**1.3**
7	Copper (as Cu), mg/Kg (on dry basis)	Below Detection Limit	Below Detection Limit	12	Below Detection Limit	11	**10**
8	Manganese (as Mn), mg/Kg (on dry basis)	21	16	12	49	73	
9	Nickel (as Ni), mg/Kg (on dry basis)	Below Detection Limit	Below Detection Limit	Below Detection Limit	Below Detection Limit	11	**10**
10	Lead (as Pb), mg/Kg (on dry basis)	Below Detection Limit	Below Detection Limit	Below Detection Limit	Below Detection Limit	Below Detection Limit	**2**
11	Zinc (as Zn), mg/Kg (on dry basis)	Below Detection Limit	Below Detection Limit	Below Detection Limit	12	26	**0.6**
12	Phosphate (as P2O5), % by mass (on dry basis)	0.24	0.23	0.2	0.37	0.69	
13	Iron (as Fe2O3), % by mass (on dry basis)	0.02	0.02	0.02	0.08	0.06	
14	Potassium (as K2O), % by mass	0.04	0.04	0.04	0.06	0.12	

	(on dry basis)						
15	Nitrogen (as N), mg/Kg (on dry basis)	1.09	1.08	1.22	1	1.05	
16	Cation Exchange Capacity, meq/100 g (on dry basis)	9.2	20	11	40	49	

The results of analysis of contaminants in the Crop (Plant and grain) samples indicate very high concentration for heavy metals specific to thermal power plant/fly ash viz, chromium, copper, nickel and zinc when compared with the target values of these heavy metals for plant specified by WHO.

Public Health:

The data of public health of primary health centres as received from Civil Surgeon, Panipat is attached as **Annexure-5**. However, **looking into the presence of contaminants in ambient air, soil, plant and grain and the feedback of the farmers during interaction with the Joint Committee, the data provided by primary health centre does not seem to be representative.**

3. Conclusion:

As per Orders of Hon'ble National Green Tribunal in the matter of O.A. No. 581/2019, the Joint Committee was directed to comply with the following two points

i. Environmental Compensation on account of non-utilization of 100% ash for theyears 2018 (2018-19) and 2019 (2019-20).

ii. Assessment of the Damage caused to environment and public health.

I. The environmental compensation as computed by using the prescribed formulae for the Panipat Thermal Power Plant, by the Joint Committee, is as follows:

S. No.	Financial Year	Power Generation (MU)	Total Ash generation, MT	Total Ash Utilized, MT	% Ash Utilization	Environmental Compensation (EC), Rs.
1	2018-19	3378.90	824442	1238214	150.18	Nil
2	2019-20	1972.79	494595	1191254	240.85	Nil

II. The Joint Committee has made an assessment of the qualitative damage caused by Panipat Thermal Power Plant and the outcome is as follows:

a. **The PM_{10} and $PM_{2.5}$ concentration in the ambient air were between 330-396 ug/m^3 (against the standard of 100 ug/m^3) and $PM_{2.5}$ concentration ranging between 109 - 167 ug/m^3 (against the standards of 60 ug/m3)** at all the locations in the vicinity of PTPP. The above concentration of PM_{10} and $PM_{2.5}$ is **also much higher (142-237 ug/m^3 vs. 330-396 ug/m^3) in comparison to CAQMS data located at Sector 18, Panipat. Similarly, $PM_{2.5}$ conc. was also higher (67-94 ug/m^3 Vs. 09 -167 ug/m^3)** at the locations

in the vicinity of PTPP in comparison to CAAQMS located at Sector 18, Panipat, t**hus clearly indicating the impact of PTPP, on the ambient air quality of the area.** Further, as per feedback given by farmers/ villagers of the area, **the maximum impact is observed during the period from March to July, thereby indicating need for further investigation.**

b. Out of 5 locations monitored by the Joint Committee, **Nickel concentration in the ambient air was found to be exceeding at 03 locations ranging between 25-43 ng/m^3 (24 hr) against the standard of annual average 20 ng/m^3. Benzene concentration in the ambient air was found to be exceeding at one location with conc. of 5.6 ug/m^3 (24 hr) against the standard of annual average 5 ug/m^3. Benzo (a) Pyrene (BaP) concentration in the ambient air, was also found to be exceeding at 04 locations out of 05 locations monitored by the Joint Committee with concentration ranging between 1.53-3.3 ng/m^3 (24 hr) against the standard of annual average 1 ng/m3.** However, as per MoEF&CC NAAQ Standards "Whenever and wherever monitoring results on two consecutive days of monitoring exceeds the limits specified above for the respective category, it shall be considered adequate to institute regular or continuous monitoring and further investigation".

c. The parameters specific to thermal power plant/fly ash was found to be within the prescribed parameters, in the 7 bore-wells monitored by the. **However, the microbiological parameters (Total Coliform) were found to be exceeding (52-72 cfu/100 ml > 20 cfu/100 ml) in the 6 borewells,** out of 7 bore-wells monitored by the Joint Committee. **This needs further investigation to find the root case and remedial action.**

d. The concentration of various **heavy metal specific to thermal power plant viz. chromium, copper, nickel and zinc is on much higher side in comparison of target values of these heavy metal in soil specified by WHO.**

e. **Very high concentration** for heavy metals specific to thermal power plant/fly ash viz, **chromium, copper, nickel and zinc, in paddy plant and grains in the study area establish transfer of these contaminants from soil to plant and the biomagnification of these contaminants**

f. The Joint Committee **didn't find the data of public health received from the primary health centres, as representative**, in view of the feedback of villagers during interaction and also based on the qualitative impact observed on ambient air, soil and crop. Further investigation including conducting medical camps to establish the impact on public health is required to arrive at conclusion.

Based on the above findings, it is established that qualitative damage has been caused to the environment and public health by the Panipat Thermal Power Plant (PTPP).

However, **it is submitted that further detailed investigation to generate extensive data is required for quantification of the affected area and the quantitative damage caused to the environment and Public health by involving subject experts, so as to prepare the remediation plan.**

The Joint Committee will abide by the further directions of Hon'ble NGT in this matter.

SANJEEV KUMAR

Digitally signed by SANJEEV KUMAR
DN: c=IN, o=Haryana State Pollution Control Board, ou=Engineering Department, postalCode=122052, st=Haryana, 2.5.4.20=ad23aef98bdd5bb279ec1168f3180c7d97281cf8d62f6e0b03c543082fa96e38f, serialNumber=63ecf071bdb0410d223fdf06670 1554faa328965480138bba295708c07a986fb8, cn=SANJEEV KUMAR
Date: 2022.01.17 12:37:06 +05'30'

17/1/22

Er. Sanjeev Kumar
HSPCB, Panchkula

Dr. Narender Sharma
CPCB, RD, Chandigarh

Dated: January 14, 2022

Annexure-1

Item No. 04 Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 581/2019

Residents of Gram Panchayat Jatal, District Sonipat Applicant

Versus

State of Haryana Respondent

Date of hearing: 04.11.2020

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

Respondent: Mr. Rahul Khurana, Advocate for HSPCB
Mr. Raj Kumar, Advocate for CPCB

ORDER

In view of separate order passed today in O.A. No. 117/2014, Shantanu Sharma v. UOI, further action may be taken with regard to the Thermal Power Plant, Panipat on same pattern by a joint Committee of CPCB and the Haryana State Pollution Control Board. The CPCB will be the nodal agency for coordination and compliance.

A status report may be filed before the next date by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF.

List again on 19.05.2021.

A copy of this order be sent to the CPCB and the HSPCB by e-mail for compliance.

Adarsh Kumar Goel, CP

S.K. Singh, JM

Dr. S.S. Garbyal, EM

Dr. Nagin Nanda, EM

November 04, 2020
Original Application No. 581/2019
SN

HARYANA STATE POLLUTION CONTROL BOARD
SCO No.55, SECTOR-25, HUDA, PANIPAT
Ph. – (0180) 2672037, Telefax – 2664951, E-mail: hspcbropr@gmail.com

No. HSPCB/PR/2020/ 2320 Dated : 18/08/2021

To

The Chief Engineer,
Panipat Thermal Power Station, Panipat.

Sub: **O.A. No.581/2019 titled as Residents of Gram Panchayat Jatal, District Panipat Versus State of Haryana before Hon'ble National Green Tribunal, New Delhi.**

Kindly refer to the subject noted above, O.A. No.581/2019 titled as Residents of Gram Panchayat Jatal, District Panipat Versus State of Haryana is pending before by the Hon'ble National Green Tribunal, New Delhi and Hon'ble tribunal has passed the following orders on dated 04/11/2020 . imperative part of the order is as mentioned below:

"In view of separate order passed today in O.A. No.117/2014, Shantanu Sharma v. UOI, further action may be taken with regard to the Thermal Power Plant, Panipat on same pattern by a joint committee of CPCB and the Haryana State Pollution Control Board. The CPCB will be the nodal agency for coordination and compliance.

In compliance of the above said order of Hon'ble Tribunal, Joint committee of CPCB and HSPCB has visited the site of disposal of fly ash generated from Panipat Thermal Power Plant on 05.08.2021. After detailed deliberation and observations, Committee has requested undersigned to direct Panipat Thermal Power Plant to engage an institute of repute such as NEERI, National Institute of Occupational Health, Ahmedabad, IIT or such other institutions, for assessment of damage caused to Environment, Agriculture, Ground Water and public Health on the similar pattern as recommended by the Joint committee in O.A. No.117/2014, Shantanu Sharma v. UOI for other thermal power plants.

In the above, you are hereby directed to engage an institute of repute such as NEERI, National Institute of Occupational Health, Ahmadabad, IIT or such other institutions, for assessment of damage caused to Environment, Agriculture, Ground Water and public Health by the Panipat Thermal Power Plant and submit report within 15 days so that same can be sent to the joint committee constituted by the Hon'ble NGT in the said matter.

Regional Officer
HSPCB, Panipat

Endst.No.HSPCB/PR/2020/ Dated

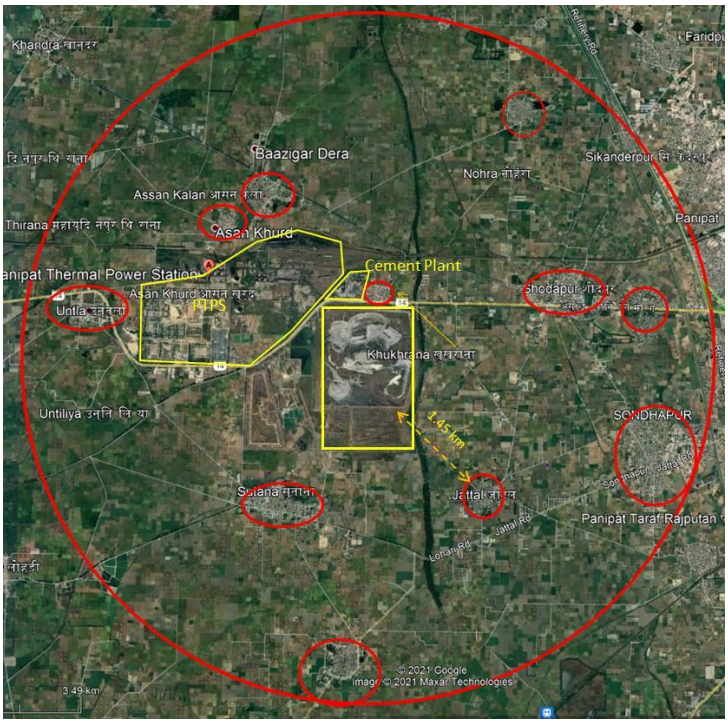
A copy of the above is forwarded to the followings for information and further necessary action, please:

1. Dr. Narender Sharma, Additional Director, CPCB, Regional Office, Chandigarh.
2. Senior Environmental Engineer (Coord.Cell) (HQ), HSPCB, Panchkula.

Regional Officer
HSPCB, Panipat

Damage Assessment due to PTPS Ash Dyke Pond on the surrounding Environment (Air, Agriculture, Ground Water and Public Health) and Suggestions on Mitigation Measures

(in context to the Hon'ble NGT Case O.A. 581/519)



Submitted to

Panipat Thermal Power Station, Panipat

CSIR-National Environmental Engineering Research Institute (NEERI),
Delhi Zonal Centre, Naraina, New Delhi – 110028

September 27, 2021

Damage Assessment due to PTPS Ash Dyke Pond on the surrounding Environment (Air, Agriculture, Ground Water and Public Health) and Suggestions on Mitigation Measures

1.0 Background

Air pollution problem becomes complex due to multiplicity and complexity of air polluting sources. The revolution in industrial sectors leads to consumption of fossil energy and release of pollutants in the atmosphere. Air pollution from coal based thermal power plant is well known problem throughout the country including fugitive dust emission from transport of raw material and bottom ash, natural erosion from ash from ash dyke pond. The present proposal is focused on the assessment of damage caused by Panipat Thermal Power Station's Ash Dyke Pond on the surrounding environment including Air, Agriculture, Ground Water and Public Health). Pond ash is being lifted for utilization by NHAI and Cement plants and is being transported through trucks. This activity has further added to the air pollution problem in the area.

Residents of Gram Panchayat Jatal, a village located in south east direction of PTPS ash dyke (at ~1.5 km) filed a case with the Hon'ble NGT (NGT Order: Original Application No. 581 of 2019). It is against the unscientific disposal of the fly ash by Thermal Power Plant at Panipat, Haryana which is adversely affecting the inhabitants of village Jatal, District Panipat. The complaint states that 30-40 people have died due to cancer, 70% people are suffering from Asthma, 90% people have suffered eye diseases, 70%-80% people are suffering from skin diseases, even the animals are affected by way of several diseases.

The NGT directed the HSPCB to take appropriate action in accordance with law and furnish a factual and action taken report to the Tribunal. In response to this, HSPCB submitted the report on 29.11.19 which is summarized as the ash dykes are covered and water sprinkling was being done. There was no health issue in the area. In later hearing, referring another case (O.A. No. 117/2014, Shantanu Sharma v. UOI,) NGT suggested that further action may be taken with regard to the Thermal Power Plant, Panipat on same pattern by a joint Committee of CPCB and the Haryana State Pollution Control Board. In continuation of that committee has visited the study area and suggested to conduct a study to assess the damage caused on the environment including Air, ground water, agriculture and public health due to disposal of power plant ash (HSPCB/PR/2020/2320) dt 18.08.2021).

In response to this, Panipat Thermal Power Station (PTPS) has requested CSIR-NEERI Delhi Zonal Centre to submit the proposal on the pre-defined scope of work as per committee suggestions. In view of above, CSIR-NEERI Team visited the study area including ash dyke, plant area, observed road conditions and discussed the problem with officials of PTPS and the residents of Jatal Village on September 17, 2021. Considering their views, inspection of the study area and committee's suggestions, the following scope of work and objectives have been formulated to resolve the issue.

	
Ash Dyke Pond Area	Road Condition near Ash Dyke
	
Re-suspension of dust near Cement Plant	Discussions with Residents of Jatal Village

Plate 1: Photographs taken during Field visit by NEERI Team (September 17, 2021)

2.0 Objectives, Study Domain and Scope of Work

2.1 Objectives

i) Assessment of damage caused to ambient air environment
ii) Assessment of damage caused to agriculture
iii) Assessment of damage caused to ground water
iv) Assessment of damage caused to public health
v) Suggestions for short-term and long-term mitigation measures to improve the situation/resolve the issue.

2.2 Study Domain

Fig. 1 shows the study area covering ash dyke pond as Centre and 5 km radius surrounding areas where cement plant, Thermal power plant and villages are marked. Further, **Fig. 2** shows the close view of ash dyke pond and its distance from Jatal village. **Fig.3** shows the monitoring locations on the study area map.

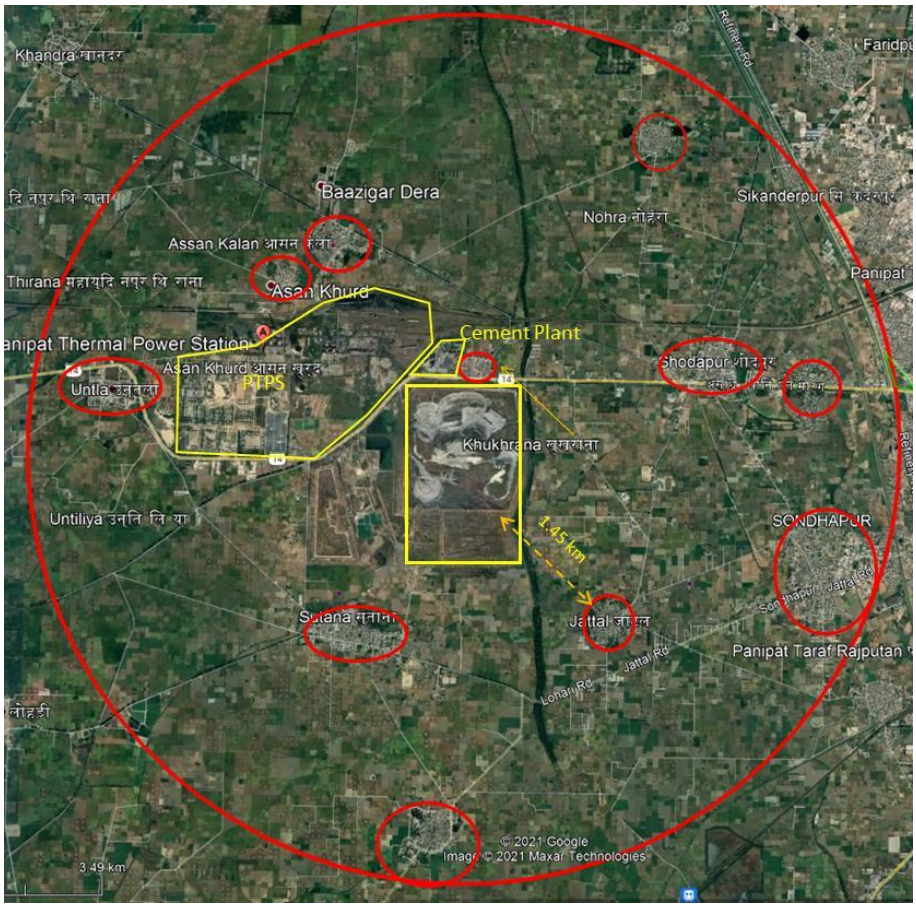


Fig. 1: Study Area around 5 km radius from Ash Dyke Pond, PTPS

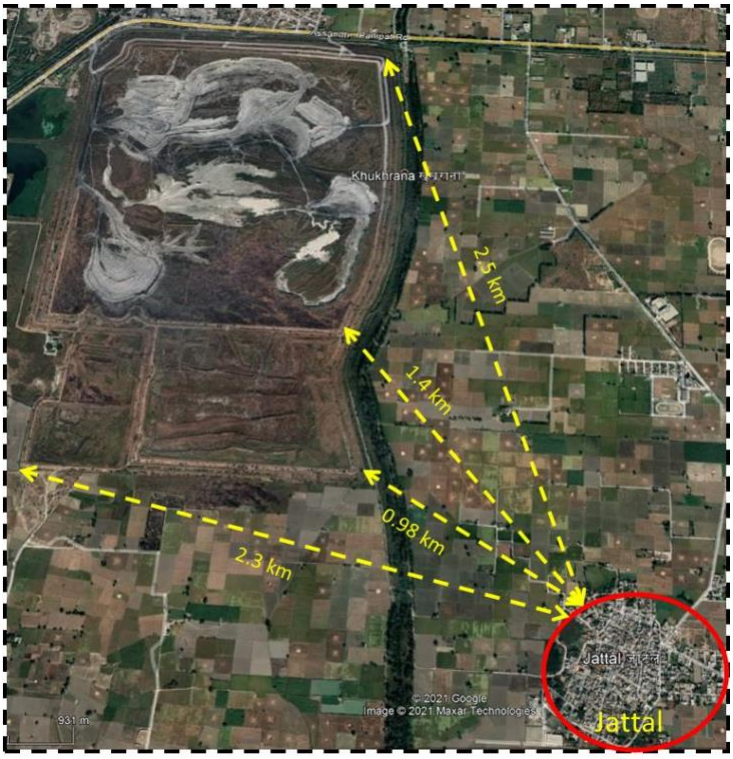


Fig. 2: Close view of Ash Dyke Pond and its distance from Jattal Village

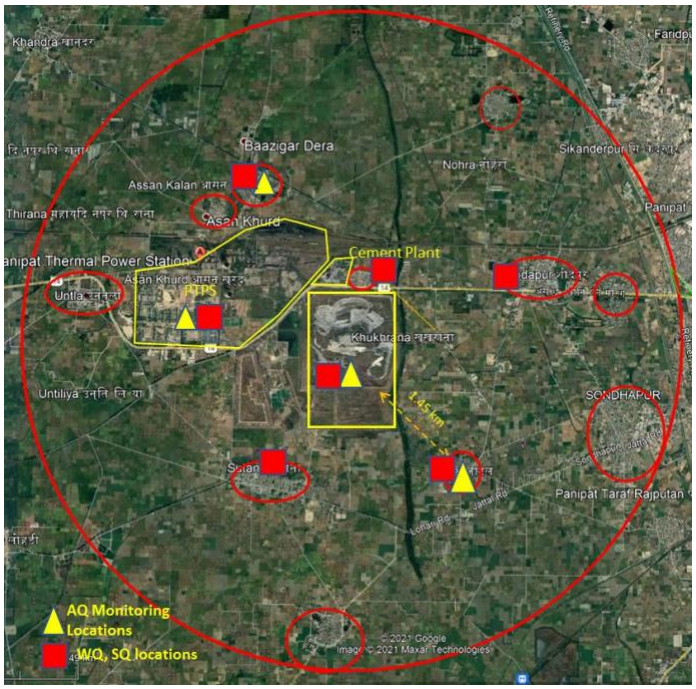
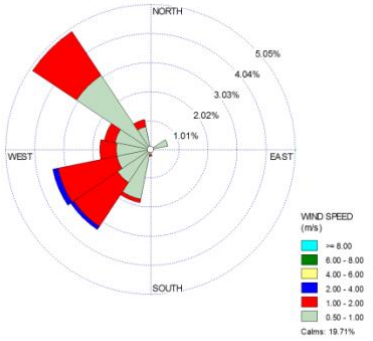
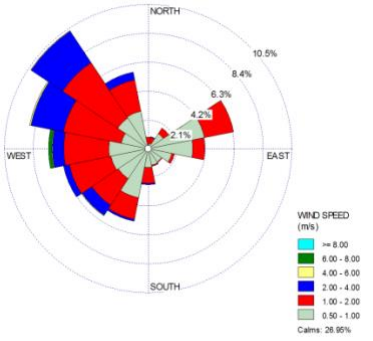


Fig. 3: Study area with proposed Monitoring Locations of Air, Water, Soil/Crop

2.3 Detailed Scope of Work

2.3.1 Meteorological Profile of the Panipat Region

The site-specific meteorological parameter will be monitored at the Ash Dyke Pond to study the wind pattern of the study area. Preliminary meteorology in form of wind speed and wind direction are evaluated through secondary data from CAAQMS, located at Sector 18, Panipat city which is approx. 9 Km from the ash dyke in Northeast direction. The wind patterns indicate the dominant wind blows from Northwest side in both season with second dominant from southwest and west side. The local urban structure around station may impact the wind direction. These are only considered for selection of monitoring locations of ambient air monitoring in the study region.

	
Windrose Plot for Winter Season (December 2020 to February 2021)	**Windrose Plot for Summer Season (March 2021 to May 2021)**

2.3.2 Air Quality Monitoring

- Particulate matter monitoring at selected sites in the study areas considering upwind and down wide side of the ash dyke. The PM_{10} and $PM_{2.5}$ concentration will be monitored on day and night hour's basis. The monitoring will be done in villages including Jatal village. The monitoring will be done at 3-4 four locations for a period of 4-5 days.

- The chemical characterization of collected particulate matter will be done to quantify the metal concentration in the ambient air sample.

- Collection of surface meteorological data during the sampling period.

2.3.2 Ground Water Monitoring

- Water samples will be collected from the area near ash dyke pond, and also from the surrounding villages. About 8-10 water samples shall be collected depending upon their significance.

- Apart from physico-chemical and biological parameters, metal analysis will also be done in the collected ground water samples.

2.3.3 Metal Analysis in Soil/Crop Samples

- 5-6 Representative samples of soils shall be collected from the agricultural fields along with the crop/plant samples, and metal content linked with power plant ash shall be analysed.

2.3.4 Data Collection on Public Health

- Secondary data will be collected from the hospital in the study area/nearby Health care centres/ hospitals. The major cancer related hospitals will be visited in the Panipat city to check the hospital admissions for the cancer patients coming from study area. The public perception about the issue will also be assessed through pre-defined questionnaire to get the view of other villages in the study area.

2.3.5 Primary data Collection from Road dust re-suspension

- Truck movement route will be studied and mapped on the study area

- Traffic counting will be done at major road during the monitoring period to assess the impact of traffic movement in the study area

- Silt content on the major road will be assessed to quantify the re-suspension of road dust, which further contribute to air pollution.

Note: The sampling locations shall be finalized in consultation with affected villagers/ farmers and PTPS.

The data collected by other industries in the region on air, water and soil quality and meteorology shall be taken into consideration/analysis (if made available by PTPS).

2.3.6 Damage Assessment

The monitoring data as mentioned in detailed scope of work will be further analyzed statistically to quantify the damage in respective environment such as Air, ground water, agriculture and public health. The damage will be assessed by comparing monitored values with standard values and calculate the exceedance factor. The air quality modeling will be carried out to see the impact of emission from ash dyke pond and traffic movement in the study area. Other sources will also be considered if found during the study.

2.2.7 Suggestion on Mitigation Measures and Its Implementation

Based on the magnitude of damage occurred immediate, short term and long-term mitigation measures shall be suggested to address the problem caused due to ash pond/ ash dyke, and cost of its restoration shall be worked out.

PTPS shall be expected to adopt the mitigation measures in time bound manner, and effectiveness of implementation of mitigation measures shall be further assessed to resolve the issue.

2.2.8 Field Data Collection (during Winter & Summer)

Looking into the complexity of the problem/issue with to change in seasons, i.e. different meteorological conditions, cropping pattern and level of ash handling activities and other activities in the region, it is necessary to capture the real information/ representative primary data during the Winter (December – February) and Summer (April-May) months.

3.0 Inputs required from PTPS

- Identify a nodal person from PTPS to coordinate with the NEERI study team and provide relevant information related to study
- Relevant data, maps/ reports etc.
- Past data on environmental compliance reports and EIA report of the PTPS
- Details of Industries located in the study area, and their EC Compliance data for past one year.
- For smooth conduct of study, arrange for lodging & boarding facility for the study team and local transport during the study period.

4.0 Timeline and Deliverables

Study Duration: 12 months (after receipt of work order with Ist installment)

Interim report based on one season data analysis will be submitted within 6 months and Final Study Report in 12 months.

5.0 Budget Estimate

Total Study Cost: **Rs. 72.0 Lakhs** plus GST (as applicable)

Schedule of Payment

- First installment: 70% of the Total project cost along with work order to initiate the study
- Second & final installment: 30% of the project cost on submission of final report.

GST shall be payable with each of the instalments.

Bank Details

All the payments to be made through RTGS, the details are given in the below table:

Name of the Account holder	DIRECTOR NEERI, NAGPUR
Bank Account No.	30266513766
Account type	Saving Bank Account
Bank Name	STATE BANK OF INDIA
Branch	NEERI Branch
11 digit IFS Code	SBIN0004224
11 digit NEFT Code	SBIN0004224
Tax Registration Numbers	
Income Tax PAN*	AAATC2716R
GST No.	27AAATC 27162ZE
Service Tax Category	Scientific & Technical Consultancy Services

6.0 Contact

Dr. S.K. Goyal Chief Scientist & Head Email: sk_goyal@neeri.res.in Mob: 09423400470	**Dr. Sunil Gulia** Sr. Scientist Email: s_gulia@neeri.res.in Mob: 08447505460
CSIR-NEERI Delhi Zonal Centre **A 93-94, Naraina Industrial Area, Phase I, New Delhi 110028**	

----- Forwarded Message -----
From: "JIT SINGH" <xencmdp2.ptps@hpgcl.org.in>
To: "Narender Sharma" <narendersharma.cpcb@gov.in>
Cc: hspcbropr@gmail.com, "S K mittal" <secivil.ptps@hpgcl.org.in>
Sent: Wednesday, October 6, 2021 12:19:31 PM
Subject: Re: OA no. 581/2019 titled as Residents of Gram Panchayat Jatal, District Panipat Versus State of Haryana before Hon'ble NGT, New Delhi

Respected Sir,

Please refer to the trailing mails, as directed vide HSPCB letter no. HSPCB/PR/2020/2320 dated 18.08.2021 the matter was pursued with the institutions mentioned by you. An offer has been received from NEERI,New Delhi for carrying out the assessment of damage caused to Environment, Agriculture, Ground Water and public health. It is requested to kindly examine the offer of NEERI, New Delhi, so that further action can be taken by PTPS in the matter.

Thanks & Regards
Jit singh
Executive Engineer/CMDP-II
Panipat Thermal Power Station, HPGCL
(A Govt. of Haryana Undertaking)
Panipat, Haryana, 132105 India
M: +91822023777.

----- Original Message -----
From: "Narender Sharma" <narendersharma.cpcb@gov.in>
To: "JIT SINGH" <xencmdp2.ptps@hpgcl.org.in>
Cc: hspcbropr@gmail.com, "S K mittal" <secivil.ptps@hpgcl.org.in>
Sent: Friday, September 10, 2021 5:27:02 PM
Subject: Re: OA no. 581/2019 titled as Residents of Gram Panchayat Jatal, District Panipat Versus State of Haryana before Hon'ble NGT, New Delhi

The scope is clearly defined in the letter issued by HSPCB. Reproducing below for reference:

i) Assessment of damage caused to ambient air environment

ii) Assessment of damage caused to agriculture

iii) Assessment of damage caused to ground water.

iv) Assessment of damage caused to public health.

Thanks.

Narender

----- Original Message -----
From: JIT SINGH <xencmdp2.ptps@hpgcl.org.in>
To: Narender Sharma <narendersharma.cpcb@gov.in>
Cc: hspcbropr@gmail.com, S K mittal <secivil.ptps@hpgcl.org.in>
Sent: Fri, 10 Sep 2021 16:36:04 +0530 (IST)
Subject: Re: OA no. 581/2019 titled as Residents of Gram Panchayat Jatal, District Panipat Versus State of Haryana before Hon'ble NGT, New Delhi

Gentle Reminder

Respected Sir,

Please refer to the trailing mail, you are again requested to kindly provide us the scope of work or a copy of any other similar assessment for reference.

Thanks & Regards
Jit singh
Executive Engineer/CMDP-II
Panipat Thermal Power Station, HPGCL
(A Govt. of Haryana Undertaking)
Panipat, Haryana, 132105 India
M: +91822023777.

From: "JIT SINGH" <xencmdp2.ptps@hpgcl.org.in>
To: "Narender Sharma" <narendersharma.cpcb@gov.in>
Cc: "hspcbropr" <hspcbropr@gmail.com>, "S K mittal" <secivil.ptps@hpgcl.org.in>
Sent: Friday, September 3, 2021 5:39:24 PM
Subject: OA no. 581/2019 titled as Residents of Gram Panchayat Jatal, District Panipat Versus State of Haryana before Hon'ble NGT, New Delhi

Respected Sir,

Please refer to HSPCB letter no. HSPCB/PR/2020/2320 dated 18.08.2021 on the subject cited matter. You have directed us to engage an institute of repute such as NEERI, National Institute Of Occupational Health, Ahmedabad, IIT or such other institutions for assessment of damage caused to Environment, Agriculture, Ground Water and public health and submit the report within 15 days.

It is submitted that PTPS pursued this matter with the institutions mentioned by you. IIT Roorke has asked to define the scope of study as 'Environment' is a broad term. So, you are requested to provide us the scope of work or a copy of any other similar assessment for reference. NEERI has scheduled a meeting on 06.09.2021 for discussion on scope of work

Further, the case for carrying out this assessment needs to be finalized through e-NIT process which needs 1-2 months time. Time required to carry out this assessment will be 3-4 months. So, the total time required to submit the report is 4-6 months.

Thanks & Regards
Jit singh
Executive Engineer/CMDP-II
Panipat Thermal Power Station, HPGCL
(A Govt. of Haryana Undertaking)
Panipat, Haryana, 132105 India
M: +91822023777.

प्रेषक

सिविल सर्जन
पानीपत।

प्रेषित

क्षेत्रिय अधिकारी,
हरियाणा राज्य प्रदुषण नियंत्रण बोर्ड, पानीपत।

क्रमांकः-/PNP/Health/2021/551 दिनांकः- 30-11-2021

विषयः- Regarding Health Data from Primary Health Centres around panipat thermal power station.

Village Assan Kalan, Khukhrana, Jattal,Untla, Sutana, Panipat.

उपरोक्त विषय के संदर्भ में।

आपके कार्यालय के पत्र क्रमांक HSPCB/BR/4278 दिनांक 10.11.2021 के अनुसार मांगी गई रिपोर्ट निर्धारित प्रोफॉर्मा अनुसार आगामी आवश्यक कार्यवाही हेतु प्रेषित है।

Sr. no.	Name fo village	Year	Skin Disease	Eye Disease	Respiratory Tract infection	Cancer Disease	GIT Disease	Hyper tension	Cardiace Disease	Death due to cancer
1	Khukhrana	2016-17	3	4	10	1	3	8	2	0
		2017-18	4	2	7	1	2	6	2	1
		2018-19	8	9	8	1	3	9	3	1
		2019-20	5	2	10	1	1	4	2	1
		2020-21	2	3	7	2	0	10	3	2
	Total		22	20	42	6	9	37	12	5
2	Sutana	2016-17	2	2	0	0	0	3	2	0
		2017-18	3	3	0	2	0	1	4	0
		2018-19	3	3	0	0	0	3	6	0
		2019-20	2	2	0	1	0	1	0	1
		2020-21	1	1	0	0	0	0	0	0
	Total		11	11	0	3	0	8	12	1
3	Untla	2016-17	2	3	11	0	0	7	0	0
		2017-18	0	0	4	0	0	5	0	0
		2018-19	3	5	3	0	0	4	0	0
		2019-20	0	2	4	0	0	5	0	0
		2020-21	1	1	4	0	0	4	0	1
	Total		6	11	26	0	0	25	0	1
4	Assan kalan	2016-17	0	0	1	3	0	2	1	0
		2017-18	1	0	2	4	0	3	0	0
		2018-19	0	0	3	4	0	3	0	0
		2019-20	3	0	4	3	0	4	2	0
		2020-21	1	0	1	1	0	5	0	0
	Total		5	0	11	15	0	17	3	0
5	Jattal	2016-17	0	0	0	2	0	0	0	0
		2017-18	0	0	0	1	0	0	1	0
		2018-19	0	0	1	1	0	0	1	0
		2019-20	0	0	0	1	0	0	1	0
		2020-21	0	0	11	3	0	0	5	0
	Total		0	0	12	8	0	0	8	0
	Grand Total		44	42	91	32	9	87	35	7

सलंग्नः- बैक्ट्रीयोलॉजिक्ल व वाटर सैम्पल रिपोर्ट

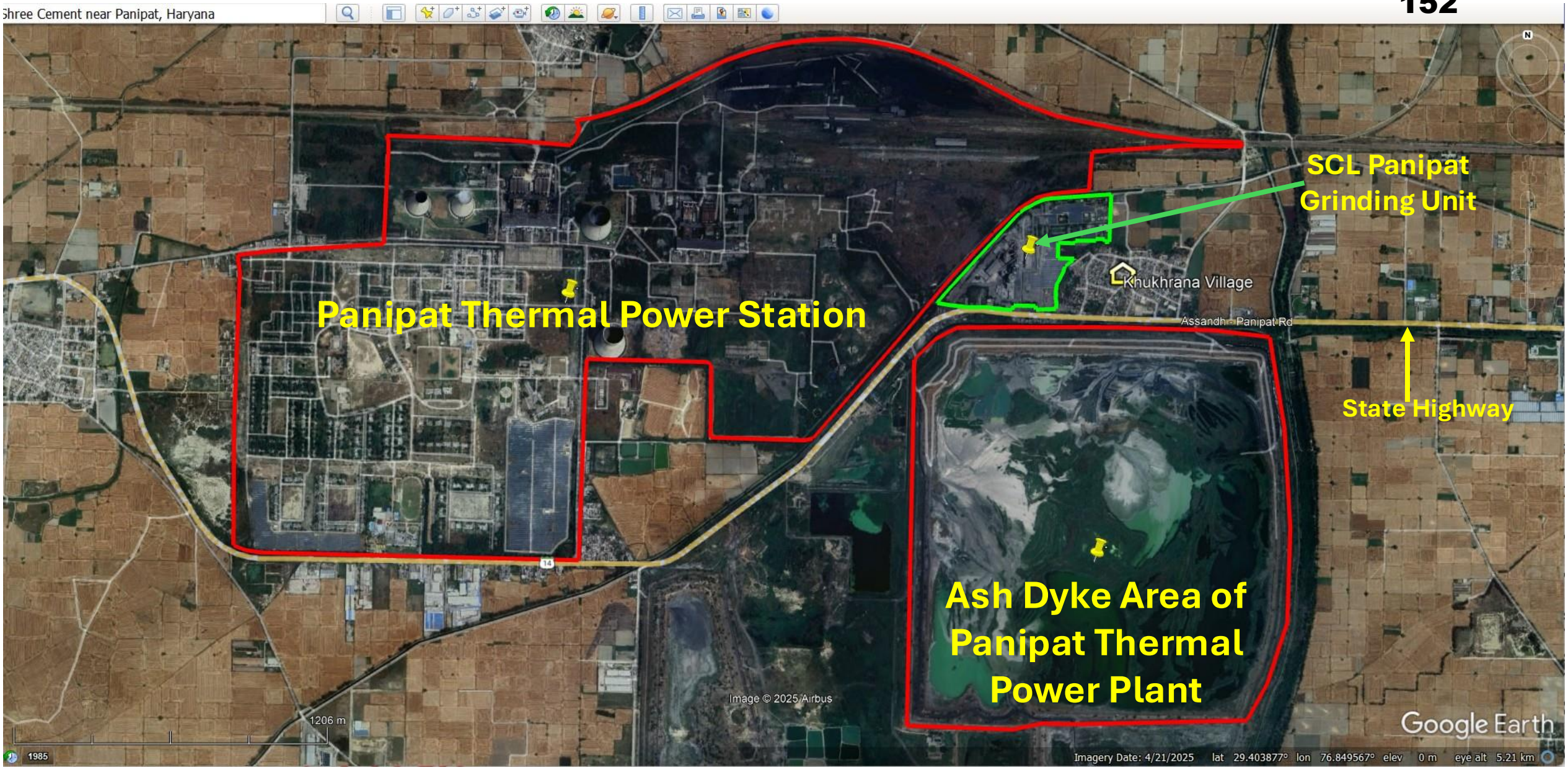
30/11/2021

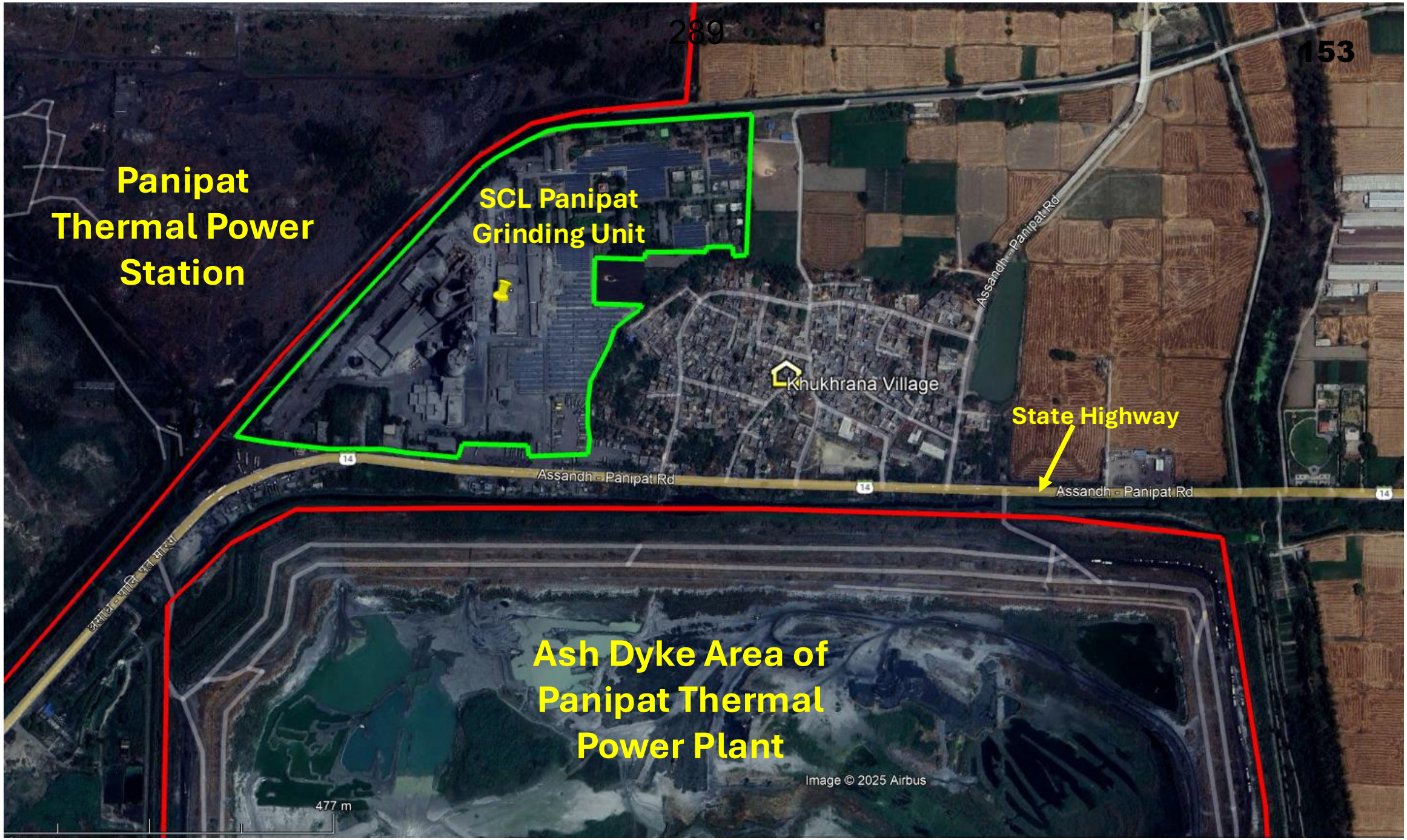
उप सिविल सर्जन (हैल्थ)
पानीपत।

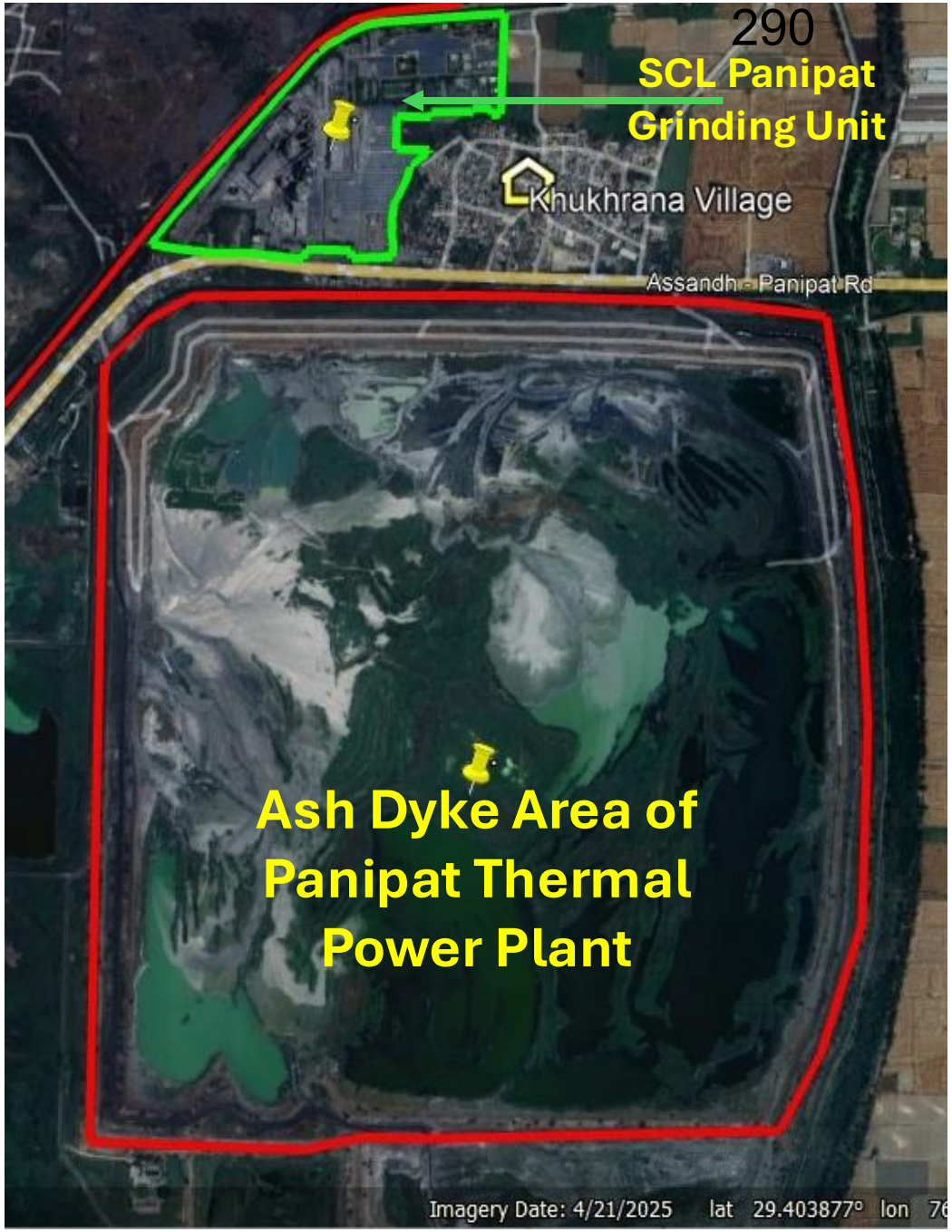
150

287

151


Shree Cement near Panipat, Haryana
SCL Panipat
Grinding Unit
Khukhrana Village
Assandh - Panipat Rd
Panipat Thermal Power Station
State Highway
Ash Dyke Area of
Panipat Thermal
Power Plant
Image © 2025 Airbus
1206 m
1985
Google Earth
Imagery Date: 4/21/2025 lat 29.403877° lon 76.849567° elev 0 m eye alt 5.21 km


Panipat Thermal Power Station
SCL Panipat Grinding Unit
Khukhrana Village
Assandh - Panipat Rd
State Highway
Assandh - Panipat Rd
Assandh - Panipat Rd
Ash Dyke Area of Panipat Thermal Power Plant
Image © 2025 Airbus
477 m


290
SCL Panipat
Grinding Unit
Khukhrana Village
Assandh - Panipat Rd
Ash Dyke Area of
Panipat Thermal
Power Plant
Imagery Date: 4/21/2025 lat 29.403877° lon


STOP
GPS Map Camera
Khukhrana, Haryana, India
9vvr+w9g, Khukhrana, Haryana 132105, India
Lat 29.395397° Long 76.890761°
11/07/25 12:25 PM GMT +05:30
Google

158

GPS Map Camera

Khukhrana, Haryana, India

9vvr+w9g, Khukhrana, Haryana 132105, India

Lat 29.395433° Long 76.890747°

11/07/25 12:27 PM GMT +05:30

Google


159

Gmail

Proof of Service **159**

Ashok kumar bedi <ashokkumarbedi400@gmail.com>

Sunil Kashyap Versus State of Haryana & Ors I NGT Delhi I Reply On Behalf Of Respondent No. 4

1 message

Ayushi Pandey <ayushi.pandey@dsklegal.com> Thu, Sep 4, 2025 at 2:55 PM
To: "aroras16@gmail.com" <aroras16@gmail.com>
Cc: Mahip Singh <Mahip.Singh@dsklegal.com>, "ashokkumarbedi400@gmail.com" <ashokkumarbedi400@gmail.com>

Dear Ma'am,

We write on behalf of our Client, M/s Shree Cement Limited, Respondent no. 4 in Original Application no. 1293/2024 titled as *Sunil Kashyap Versus State of Haryana & Ors*.

Please find below the link to access the copy of Reply to the Supplementary and Factual Report filed by Joint Committee dated 28.05.2025.

Link.

Kindly treat this as a service of the Reply as per the governing rules of service.

This is for your kind information and record.

Thanks & Regards,

Ayushi Pandey

Associate

+91 91153 71379