

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
WESTERN ZONE, PUNE
OA NO. 70/2021**

In the matter of:

Brackish Water Research Centre

... Applicant

Versus

Gujarat Pollution Control Board and Ors.

... Respondents

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1. Gujarat Pollution Control Board (R-1/GPCB)
2. State of Gujarat, through Addl. CS, Forest & Env. Deptt. (R-2/Govt. of Gujarat)
3. Principal Chief Conservator of Forests, Gujarat (R-3/PCCF Gujarat)
4. Asst. Conservator of Forests, Bharuch, Gujarat (R-4/ACF Bharuch)
5. Gujarat Coast Zone Management Authority (R-5/GCZMA)
6. Central Pollution Control Board (R-6/CPCB)
7. Ministry of Env. Forests & Climate Change, Govt. of India (R-7/MOEFCC)
8. Hindalco Industries Limited, Unit: Birla Copper (R-8/HIL)

... Respondents

WRITTEN SUBMISSIONS FILED ON BEHALF OF RESPONDENT NO. 8

HINDALCO INDUSTRIES LIMITED ("R-8/HIL")

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I. INTRODUCTION:

1. The instant written submissions are filed on behalf of Hindalco Industries Limited (“**R-8/HIL**”) for placing on record responses to:
 - (i) observations, findings and assessments made by the Joint Committee as recorded in the Joint Committee Report submitted before this Hon’ble Tribunal in May 2022 [*Joint Committee Report - Vol. IX @ pg. 1425-1713*].
 - (ii) averments made in the Applicant’s written submissions / objections (“**Applicant’s WS / Objections**”) to the Joint Committee Report filed before this Hon’ble Tribunal on 14.05.2023 [*Applicant’s WS - Vol. X @ pg. 1714-2197*].

2. The instant Original Application (**OA**) has been filed by the Applicant alleging contravention of environmental norms and regulations on the part of R-8/HIL in the operation of Unit: Birla Copper located at Dahej, Bharuch District, Gujarat [*OA - Vol. I & II @ pg. 1-800; Prayers – Vol. I @ pg. 104*]. The averments made in the reply filed on behalf of R-8/HIL on 17.11.2021 [*R-8/HIL Reply - Vol. III & IV @ pg. 819-1176*] disputing and denying the allegations in the instant OA as being misconceived, without basis and untenable, and the short note on arguments filed on behalf of R-8/HIL on 16.05.2023 [*R-8/HIL Note - Vol. XI @ pg. 2198-2205*] are reiterated in their entirety. Except to the extent specifically admitted hereinafter, all the averments made in the Applicant’s WS dated 14.05.2023 [*Vol. X @ pg. 1714-2197*] are denied *in toto* as being misconceived, without basis, misleading and untenable. Nothing contained in the Applicant’s WS shall be deemed to be admitted by R-8/HIL for want of specific traverse.

3. R-8/HIL established the Unit: Birla Copper in 1995 at Dahej, Bharuch District, Gujarat (“**Dahej Unit**”) at the Petroleum, Chemicals and Petrochemicals Investment Region (“**PCPIR**”) managed by the Gujarat Industrial Development Corporation (“**GIDC**”). R-8/HIL commenced operations at Dahej Unit in 1998 after obtaining all requisite statutory approvals and clearances, including Environment Clearance granted by R-7/MOEFCC and consents and authorizations granted by R-1/GPCB under the Water (Prevention & Control of Pollution) Act, 1974 (“**Water Act**”), the Air (Prevention & Control of Pollution)

Act, 1981 (“**Air Act**”), Environment Protection Act, 1986 (“**EPA 1986**”) and rules made thereunder. R-8/HIL has also obtained requisite statutory approvals and clearances for expansion, capacity augmentation as well as requisite renewals from time to time as per applicable laws. Since commencement of operations in 1998 till date, operations at Dahej Unit have been undertaken by R-8/HIL under valid and subsisting statutory approvals and clearances. As on date, Dahej Unit is one amongst at least 30 major industries operating at PCPIR, Dahej [R-8/HIL Reply - Vol. III @ pg. 910-911].

4. As on date, Dahej Unit is one of the largest single location custom copper smelters in the world. Dahej Unit comprises integrated and interdependent plants in one complex which are further segregated into industry segments and technologies, and includes two copper smelters, two refineries, two rod plants, a captive power plant, a captive oxygen plant, phosphoric acid plant (**PAP**) and di-ammonium phosphate plant (**DAP**), a precious metals recovery plant, captive jetty and other utilities. Since April 2020, the PAP and DAP have been shut down voluntarily by R-8/HIL to reduce environmental impact of operations.
5. Dahej Unit is the largest producer of refined copper in the country as on date and meets approx. 43% of the total copper requirement of the country. Refined copper is recognized as a strategic metal of the 21st century and is widely used in critical sectors of the economy such as Power, Automotive, Electronics & Telecommunication, Railways, Construction, Electric Vehicle, Renewables, clean energy platforms and Defence.
6. Dahej Unit employs 378 management grade employees, 1110 operational grade and local management staff from nearby villages including Lakhigram and Dahej and 3500 contract manpower. In addition, Dahej Unit generates ancillary business opportunities for approx. 114 contractors and thousands of contract workers.
7. Dahej Unit also contributes significant revenues to the State in the form of taxes and other statutory dues. During FY 2016-21, Dahej Unit has deposited INR 12,706 Crores in taxes and statutory dues. Further, Dahej Unit has deposited

INR 4,862 Crores and INR 6,145 Crores in taxes and statutory dues during FY 2021-22 and FY 2022-23 respectively.

8. Further, being conscious of Environmental, Social and Governance obligations as a responsible corporate citizen, R-8/HIL has, ever since commencement of operations in 1998, sought to identify and invest in upgradation of technology and processes so as to mitigate the environmental impact and ensure sustainable operations at Dahej Unit to the best extent possible. R-8/HIL has undertaken several projects pertaining to air quality improvement, water quality improvement, hazardous waste & solid waste improvement, and other sustainability measures as part of an ongoing process since commencement of operations in 1998 till date. As detailed *infra*, during the period 2014-2023, R-8/HIL has undertaken several environmental quality improvement and upgradation projects at an expenditure of approximately INR 450 Crores. Further, R-8/HIL has committed to a further expenditure of approximately INR 500 Crores for environment quality improvement and upgradation projects vide MOU dated 20.12.2023 signed with the Government of Gujarat.

II. BRIEF BACKGROUND AND PROCEDURAL HISTORY:

9. Vide Order dated 05.01.2022, NGT constituted a 7-member Joint Committee headed by Justice B.C Patel (retd.) and relevant excerpts of the Order dated 05.01.2022 are reproduced hereunder for ease of reference:

"19. We have given due consideration to the matter. Though the PP claims to have remedied the violations, except for removing the slag from reserved forest, it is necessary to have independent verification of such claim in view of stand of the applicant and the GPCB to the contrary. It is difficult to accept justification for not removing slag from reserved forest. Having illegally dumped such waste in forest, convenient plea that forest is not permitting clearance to continue such violations is untenable. It is not shown what remedies, if any, were taken for denial of such permission so as to ensure compliance with law and to remedy the blatant illegality committed by the PP. There is no justification for failure of the statutory regulators in taking action under polluter pays principle or otherwise against violations. Even if there is now compliance, as

claimed by the PP, accountability needs to be fixed for the past violations in the matter of leachate management, slag management, TSDF management, air, water (surface and ground) and soil pollution, damage to the forest and mangroves and compliance of the consent and EC conditions, after verification of facts for five years prior to filing of the application i.e. 17.09.2021 and continuing violations, if still found. Apart from remediation and restoration plan, the compensation has to be assessed on principle of restoration with element of deterrence, having regard to the financial capacity of the PP in the light of law laid down inter-alia in Sterlite Industries (India) Ltd. v. Union of India, (2013) 4 SCC 575 and Goel Ganga Developers India Pvt. Ltd. v UOI, (2018) 18 SCC 257.

20. In the light of above, we consider it appropriate to constitute a seven-member joint Committee headed by Justice B.C. Patel, former Judge of Gujarat High Court and former Chief Justice of J&K and Delhi High Courts with representatives of MoEF&CC, CPCB, GPCB, SEIAA, Gujarat, PCCF (HoFF) Gujarat and Gujarat Coastal Zone Management Authority as members. The CPCB and State PCB will be the nodal agency for coordination and compliance. Meeting of the Committee may be convened preferably within three weeks. The Committee or such of its members as may be decided by the Chairman may undertake visit to the site and interact with stakeholders. The Committee will be free to co-opt any other expert/institution for its assistance and conduct proceedings online, if necessary. ...”

(emphasis added)

10. The Joint Committee invited expert members from IIT Gandhinagar and NEERI Nagpur to render further technical assistance to the Joint Committee [JC Report – Vol. IX @ pg. 1517]. The Joint Committee conducted thorough on-ground assessment, evaluation, monitoring and comprehensive environmental audit of Dahej Unit over the course of **two inspections** (conducted on 18-19.02.2022 & 30-31.03.2022) and undertook in-depth examination of relevant records over the course of **four Joint Committee Meetings** held on 21.01.2022, 01.02.2022, 15.02.2022 and 14.03.2022. [Minutes of Meetings of Joint Committee – Vol. IX – 1st Meeting @ pg. 1516-1517; 2nd Meeting @ pg. 1518-1519; 3rd Meeting @ pg. 1520-1521; 4th Meeting @ pg. 1522-1524]
11. The comprehensive assessment and evaluation exercise undertaken by Joint Committee in respect of Dahej Unit is summarized hereunder:

A. Assessment of impact of copper slag in reserve forest area:

12. Joint Committee examined contemporaneous records including inspection reports of the Forest Department and evaluated the reasons for presence of copper slag in reserve forest area beyond the northern boundary of Dahej Unit, concluding that the same was on account of water-run off incident due to heavy rainfall in 2009 [*JC Report – Vol. IX @ pg. 1444-1445*] and that R-8/HIL has “...shown intention to remove slag and remediate the affected area, if needed, at their own expense...” [*@ pg. 1446*]

13. Joint Committee undertook a comprehensive assessment and scientific evaluation exercise to ascertain the impact of presence of copper slag on various environmental aspects in reserve forest area:
 - (i) To ascertain the **impact on vegetation density and character of reserve forest area**, Joint Committee evaluated land-use land-cover (“**LU/LC**”) maps and satellite imagery of the affected reserve forest area and mangroves since 2002 till date, which were obtained through the Forest Department, Govt. of Gujarat from the remote sensing agency BISAG [i.e., Bhaskaracharya National Institute for Space Applications and Geo-informatics (“**BISAG**”), Ministry of Electronics and Information Technology, Government of India - based in Gandhinagar, Gujarat]. After assessment and evaluation, Joint Committee concluded that the presence of copper slag had significantly less impact on health of vegetation in reserve forest area and that the actual impact on vegetation was on account of accumulation of rainwater in low lying reserve forest area after monsoons [*JC Report – Vol. IX @ pg. 1522-1524; 1518-1519; 1520-1521*]
 - (ii) **Assessment of potential soil contamination in reserve forest area** - Joint Committee undertook two sets of soil sampling and analysis exercises during the inspections conducted on 18-19.02.2022 and 30-31.03.2022 [*Inspection-cum-Monitoring Report – Vol. IX @ pg. 1667-1672; JC Report – Vol. IX @ pg. 1449-1451*]
 - (iii) **Assessment of potential water contamination in reserve forest area** - Joint Committee undertook water sampling and analysis during the

inspection conducted on 18-19.02.2022. After evaluation and assessment, Joint Committee concluded that there was no contamination of water which accumulates in low lying reserve forest area after monsoons [*Inspection-cum-Monitoring Report – Vol. IX @ pg. 1664-1667; Minutes of 2nd JC Meeting – Vol. IX @ pg. 1518-1519*]

14. On the basis of the aforesaid evaluation exercise, the assessment of Environment Damage Compensation on account of soil pollution due to presence of copper slag in reserve forest area was undertaken by the domain expert NEERI, which was adopted by the Joint Committee. [*JC Report – Vol. IX @ pg. 1491-1496; 1589-1593*]

B. Assessment of past non-compliances:

15. Joint Committee undertook detailed assessment and evaluation of past non-compliances in relation to conduct of operations at Dahej Unit for a period of 5 years during September 2016 – September 2021 as directed by NGT vide Order dated 05.01.2022, inter-alia examining the following information and records: [*Minutes of JC Meetings – Vol. IX @ pg. 1516-1524; Inspection-cum-Monitoring Report – Vol. IX @ pg. 1625-1685*]
 - (i) Compliance with CCA conditions: Year-wise annual consumption and generation data mapped against CCA limits for the period 2016 till 2021 – raw material, water, fuel, products, by-products, effluents, hazardous wastes; Mass/material balance data of end-to-end manufacturing activity, consisting of raw material input to product / by-product / waste (solid, liquid, gaseous) output; CCA compliance status for 2016-2021.
 - (ii) Environmental audit reports submitted by R-8/HIL to R-1/GPCB in prescribed Form V as per Rule 14 of the EP Rules 1986 during 2016-2021.
 - (iii) Reports of Schedule I environmental audits of Dahej Unit conducted by third party agency appointed by R-1/GPCB for the period 2016-2021 along with compliance status of recommendations and observations.

- (iv) Compliance with EC conditions: EC compliance status for 2016-2021; Environmental management plan compliances in terms of CCA and EC conditions; comparison between 2009 EC and 2017 EC
- (v) Compliance of observations made by regulatory authorities during inspections for the period 2016-2021: Compliance status vis-à-vis all inspection reports of GPCB, CPCB and Forest Department, including Show Cause Notices, Notice of Directions, Closure Directions issued by R-1/GPCB and R-6/CPCB during 2016 – 2021.
- (vi) Action Taken Report was submitted by R-8/HIL to Joint Committee detailing compliance status against all GPCB Inspection Reports during 2016-2021 and details of action taken in respect of observations and recommendations made by R-1/GPCB and R-6/CPCB during each inspection along with details of supporting documentation furnished contemporaneously.
- (vii) Hazardous waste and other waste management processes: Details regarding hazardous waste and other waste generation, management, and disposal during 2016-2021. Details regarding hazardous waste generation per unit of product output.
- (viii) Details of third-party agencies to whom hazardous waste or other waste has been disposed and the relevant permissions for such disposal under Rule 9 of HWM Rules 2016.
- (ix) Details of all 8 SLF sites along with capacity and closure details, export permissions.
- (x) Details regarding phosphogypsum and copper slag management – generation, handling, management, disposal, sale and sector-wise sale, as applicable.
- (xi) Air quality and water quality management processes: Details of air quality improvement projects – RCC roads, upgradation of infrastructure at coal handling area, road sweeping machines etc.
- (xii) Details regarding water consumption, wastewater generation and treated wastewater disposal (KL/day). Details regarding water consumption and wastewater generation per unit of product output.

- (xiii) Details regarding wastewater treatment and sludge composition and generation from various sources, including quantity generated, collection, treatment, storage, handling, disposal and management.
16. R-8/HIL furnished the aforesaid information and records as per the directions of Joint Committee, vide HIL's correspondences dated 28.01.2022, 07.02.2022, 08.02.2022, 09.02.2022, 24.02.2022, 03.03.2022, 12.03.2022 and 13.03.2022. The aforesaid information and records were examined, evaluated and deliberated by the Joint Committee over the course of four Meetings held on 21.01.2022, 01.02.2022, 15.02.2022 and 14.03.2022 and two inspections held on 18-19.02.2022 and 30-31.03.2022.
17. In addition to the above, the environment audit of Birla Copper conducted by Joint Committee during the inspections on 18-19.02.2022 and 30-31.03.2022 included assessment, verification and monitoring of the following:
- (i) Status of mangroves [@ pg. 1446-1448; 1451-1453; 1454-1455; 1672-1674]
 - (ii) On-ground inspection of all areas / units of interest in and around Dahej Unit, including SLF sites, phosphogypsum storage yard, coal yard, Tertiary Water Recycling Unit, Fertilizer Plant, Sulphuric Acid Plant-1, Refinery-1 Plant, Smelter-1 and Smelter-3 Plants, Precious metal recovery plant, CRZ areas, reserve forest area, captive jetty, copper slag management and disposal [@ pg. 1446-1476]
 - (iii) Monitoring of Ambient Air Quality, source emissions of stacks, ETP, groundwater at SLF sites, leachate management [Inspection-cum-Monitoring Report – Vol. IX @ pg. 1651-1663]
 - (iv) Verification of operational status and compliances undertaken by R-8/HIL vis-à-vis 31 allegations made in the OA [@ pg. 1633-1638]
 - (v) Photographic comparison of operational status & compliances undertaken vis-à-vis observations and recommendations made by R-1/GPCB during inspection conducted on 18.03.2021 [@ pg. 1639-1641]
 - (vi) Audit of Environment Management Systems, including wastewater management, air pollution management, hazardous and other waste

- management, including details of SLFs, storage facilities for wastes, CHWTSDF arrangements, export permissions [@ pg. 1642-1651]
- (vii) Verification of measures undertaken by R-8/HIL to improve AAQ standards by ensuring reduction of particulate matter and fugitive emissions, including provision for concrete internal roads, RCC roads with end-to-end carpeting, barricades, fencing, deployment of 3 high volume truck mounted road sweeper machines and 9 portable mechanized road & floor sweeping machines [@ pg. 1674-1676; 1681]
- (viii) Verification of coal handling measures undertaken by R-8/HIL to reduce fugitive emissions, including establishment of covered conveyor belts for coal and other bulk materials from jetty to the pant, covered containment wall and high raised wind screens around coal yard, dust suppression using mobile mist cannons, provisions for garland drains, 34 nos. of peripheral sprinklers, dry fogger machine in coal yard [@ pg. 1676-1679]
18. After undertaking comprehensive on-ground inspection, monitoring and environmental audit of Dahej Unit and taking into consideration relevant records and information, the Joint Committee concluded that:
- (i) Operations at Dahej Unit are currently compliant with the prescribed environmental norms and parameters and there are no contraventions / violations on the part of R-8/HIL in respect of 31 allegations raised in the OA [@ pg. 1437-1442].
- (ii) R-8/HIL is compliant with all conditions and parameters specified under the CCA dated 30.05.2020 granted by R-1/GPCB to R-8/HIL [@ pg. 1477-1490]
19. A detailed list of dates and sequence of events is annexed herewith as **Annexure R8/33**.

III. EDC ASSESSMENT BY JOINT COMMITTEE:

20. The Joint Committee determined that Environment Damage Compensation (“EDC”) of INR 5,53,79,292/- ought to be imposed on Dahej Unit under the following heads:
- A. EDC for **soil pollution** in reserve forest area on account of copper slag run-off incident in 2009 - INR 2,47,79,292/- [@ pg. 1491-1496]. The assessment of impacted area (7061 m²) and EDC assessment for soil pollution was undertaken by NEERI [NEERI Report @ pg. 1589-1593]
 - B. EDC for air pollution, water pollution and other non-compliances observed during 2016-2021 – INR 3,06,00,000/- [@ pg. 1496-1500]. The said EDC for non-compliances was computed as per the Methodology for Assessing Environmental Compensation issued by CPCB in 2019 (“**CPCB Methodology**”).
21. As further detailed *infra*, the EDC assessment has been undertaken by the Joint Committee by applying well-established and judicially recognized principles for determination of EDC to the factual matrix of the instant case, including the polluter pays principle and the principle of ensuring restoration with element of deterrence [JC Report – Vol. IX @ pg. 1433, 1516].
22. Responses of R-8/HIL to the above EDC assessment undertaken by the Joint Committee as well as Applicant’s objections thereto are set out hereunder:
- A. **EDC Assessment for soil pollution in reserve forest area:** [JC Report @ pg. 1443-1446; pg. 1449-1451; pg. 1491-1496]
23. At the outset, it is respectfully submitted that the Joint Committee has undertaken a comprehensive and scientific evaluation exercise to ascertain the environmental impact of presence of copper slag in the reserve forest area situated outside the north boundary of Dahej Unit.

24. The evaluation and assessment exercise undertaken by the Joint Committee is summarized hereunder for ease of reference:
- (i) **Evaluation of reasons for presence of copper slag in reserve forest area:**
25. During the inspection conducted on 30-31.03.2022, the Joint Committee examined relevant records (including contemporaneous inspections conducted by the Forest Department) and concluded that: [@ pg. 1444-1445]
- (a) the presence of copper slag in the low-lying catchment area of the reserve forest area situated at the northern boundary of Dahej Unit was on account of a water run-off incident that occurred in 2009 due to heavy rainfall.
- (b) during that time, the northern boundary of Dahej Unit was not demarcated with a solid boundary wall and only security fencing was in place, as the proposal for diversion of 16 Ha. reserve forest area submitted by R-8/HIL in 2006 was pending consideration with the Forest Department.
- (c) In 2013, R-8/HIL deposited an amount of INR 94.2 lakhs towards penal compensatory afforestation over 50 Ha. area (i.e., more than double the 16 Ha. forest area to be diverted in favour of R-8/HIL).
- (d) Pursuant to grant of requisite approvals by the Forest Department in 2015-16, R-8/HIL cleaned up the copper slag lying in the 16 Ha. diverted area and constructed a solid boundary wall to the north of the said 16 Ha. diverted area.
- (e) During the inspection on 30-31.03.2022, Joint Committee inspected the reserve forest area in question and observed that copper slag was spread in reserve forest area beyond the boundary wall over the length of approx. 100m and width varying from 5m to 10m [@ pg. 1445].
26. It is clear from the above factual findings recorded by the Joint Committee that this is not a case where R-8/HIL has deliberately or intentionally “dumped” copper slag in reserve forest area with ulterior objectives of evading obligations for disposal of copper slag as per applicable regulations. The presence of copper slag in reserve forest area was on account of accidental water run-off incident

due to heavy rainfall in 2009, and R-8/HIL has consistently and transparently acknowledged accountability towards remediation and restoration at its own costs as per the polluter pays principle and has been requesting the Forest Department to grant requisite permissions for removal of copper slag from reserve forest area since August 2021. The Joint Committee also recorded that R-8/HIL has "...shown intention to remove slag and remediate the affected area, if needed, at their own expense..." [@ pg. 1446].

27. It is submitted that the non-deliberate and unintentional nature of presence of copper slag in reserve forest area due to accidental run off incident from Dahej Unit during heavy rainfall in 2009, the non-hazardous nature of copper slag, and the subsequent transparent conduct of R-8/HIL acknowledging accountability for restoration and remediation of impacted area at own cost are relevant factors which have been duly taken into consideration by the Joint Committee for EDC assessment.
28. Further, the Joint Committee has undertaken comprehensive assessment and evaluation of the impact of presence of copper slag on various environmental aspects in the reserve forest area, such as - (a) impact on vegetation density and character of forest area; (ii) impact on soil; (iii) impact on water which accumulates in the low-lying forest area during monsoon. The aforesaid assessment and evaluation undertaken by Joint Committee is briefly summarized hereunder:

(ii) Assessment of impact on vegetation density in reserve forest area:

29. In order to assess the impact of copper slag on vegetation density and character of forests in reserve forest area, the Joint Committee during the 2nd Meeting held on 01.02.2022 [JC Report – Vol. IX @ pg. 1518-1519] decided to obtain land-use land-cover pattern maps and satellite imagery of the reserve forest area in question from the reputed remote sensing agency BISAG [i.e., Bhaskaracharya National Institute for Space Applications and Geo-informatics ("BISAG"), Ministry of Electronics and Information Technology, Government of India - based in Gandhinagar, Gujarat].

30. During the 3rd Meeting held on 15.02.2022 [*JC Report – Vol. IX @ pg. 1518-1519*], the land-use land-cover pattern map details were discussed by the Joint Committee, and it was decided to expedite the process of obtaining satellite imagery of the forest land in question, i.e., compartment no. 596 of village Dahej, Tahsil Vagra, District Bharuch from BISAG.
31. This aspect was further deliberated during the 4th Meeting of Joint Committee held on 14.03.2022 [*JC Report – Vol. IX @ pg. 1522-1524*] and the relevant portions from the said 4th Minutes of Meeting are reproduced hereunder:

*“During presentation Dr. Yogesh Kumar, Scientist ‘C’ from MOEFCC has informed that **BISAG has submitted the Satellite map (LISS IV and Sentinel) as per the area of interest (AOI) provided by the forest department. The false colour composite (FCC) image since 2004 up to 2021 has inferred that the dumping of copper slag in the reserve forest has significantly less impact on the health of surrounding vegetation.** The area near the boundary was found low lying area which results in ponding of water thus a scarce vegetation was found.”*

(emphasis added)

32. Further, during the inspection on 30-31.03.2022, the Joint Committee after conducting on-ground inspection observed that the reserve forest area in question is a “...low lying area and acts as a natural catchment from surrounding area and doesn’t have any further drainage for monsoon accumulation. Forest Department mentioned that the water stagnates for almost 6 months post monsoon.” [*JC Report – Vol. IX @ pg. 1445-1446*]
33. It is clear from the above that the Joint Committee, after examining satellite imagery obtained from the reputed remote sensing agency BISAG for the period 2004 till 2021 has concluded that the **presence of copper slag in reserve forest area has had “significantly less impact on the health of surrounding vegetation”**. The Joint Committee has also found that the **scarce vegetation found in the said low-lying reserve forest area is on account of prolonged**

ponding / stagnation of rainwater which accumulates post monsoon as there is no drainage for monsoon accumulation in the said reserve forest area.

(iii) Assessment of potential water contamination in reserve forest area:

34. In order to assess and evaluate the potential contamination of water in reserve forest area, the Joint Inspection Team (comprising representatives of R-1/GPCB and R-6/CPCB) undertook water sampling and analysis during the inspection conducted on 18-19.02.2022 [Inspection-cum-Monitoring Report – Vol. IX @ pg. 1664-1667]:
- a) Two water samples were collected by the Joint Inspection Team in the presence of officials of Forest Department, Govt. of Gujarat from two shallow water ponding locations in reserve forest area – one sample adjacent to the boundary wall of Dahej Unit and second sample about 100m away from the boundary wall [@ pg. 1664].
 - b) The water samples were sent to an environmental laboratory approved by R-6/CPCB as per Section 12 of EPA 1986 [@ pg. 1665].
 - c) Even though the Joint Inspection Team found that the “source of shall water ponding in the reserve forest area is mainly rainwater...”, the analysis results of water samples were compared against the “General Standards for discharge of environmental pollutants (effluents) in Inland surface water, land for irrigation and marine coastal areas” prescribed by R-6/CPCB under Schedule VI of EP Rules 1986 [@ pg. 1665-1666].
 - d) After the aforesaid evaluation and analysis, the Joint Inspection Team concluded that “...most of the monitored parameters are meeting the said standards” [@ pg. 1667]. Further, concentrations of contaminants / heavy metals such as Arsenic, Chromium, Lead, Molybdenum, Mercury, Sulphide, Antimony, Cobalt and Cyanide in both water samples was found to be Below Detection Limit (BDL) [@ pg. 1667].
 - e) Further, Joint Inspection Team concluded that the higher concentrations of BOD (Biochemical Oxygen Demand) and COD (Chemical Oxygen Demand) in the water samples “...may be due to decay of plants and

vegetation around the water ponding and also due to the excreta of wild animals in that area which was observed during the visit." [@ pg. 1667]

- f) Furthermore, Joint Inspection Team concluded that the presence of high TDS in the water samples "... may be due to the salinity of the area because of coastal effect." [@ pg. 1667]
35. It is clear from the above that the Joint Committee, after evaluating the analysis results of water samples collected from shallow rainwater ponding observed in February 2022 in the low-lying reserve forest area, concluded that there is no water contamination in reserve forest area on account of presence of copper slag or operations at Dahej Unit.
36. Further during the inspection on 30-31.03.2022, the Joint Committee observed that the low-lying forest area acts as a natural catchment for surface water run-off from surrounding area during monsoons and does not have any further drainage for monsoon accumulation [@ pg. 1445]. The Joint Committee observed that the low-lying forest area was completely dry by March 2022 upon evaporation of monsoon accumulation [@ pg. 1445-1446].
37. It is thus clear above the comprehensive and scientific evaluation undertaken by the Joint Committee that presence of copper slag or operations of Dahej Unit have not resulted in water contamination in reserve forest area.

(iv) Assessment of potential soil contamination in reserve forest area:

38. In order to assess and evaluate the potential contamination of soil in reserve forest area, the Joint Committee undertook two sets of soil sampling and analysis exercises during the inspections conducted on 18-19.02.2022 and 30-31.03.2022. The evaluation and assessment exercise undertaken by Joint Committee is briefly set out hereunder:
39. The **first soil sampling and analysis exercise** was undertaken during the inspection by the Joint Inspection Team (comprising representatives of R-

1/GPCB and R-6/CPCB) on 18-19.02.2022 [Inspection-cum-Monitoring Report – Vol. IX @ pg. 1667-1672]:

- a) Soil samples were collected from a total of eight locations - seven locations in reserve forest area and 1 location within factory premises. Two sets of samples were collected from each location – one sample from a depth of 0.5m and the other sample from a depth of 1.5m [@ pg. 1667].
- b) The soil samples were collected in the presence of officials of Forest Department, Govt. of Gujarat and as per the sampling protocol prescribed under Guidelines for Identification, Inspection and Assessment of Contaminated Sites prepared by R-6/CPCB in June 2020, based on the Guidance document for assessment and remediation of contaminated sites issued by R-7/MOEFCC [@ pg. 1667].
- c) The soil samples were sent to an environmental laboratory approved by R-6/CPCB as per Section 12 of EPA 1986 [@ pg. 1669].
- d) In order to draw a conclusion as to whether the affected area should be regarded as a contaminated site, the analysis results of soil samples [@ pg. 1669-1672] were compared with widely used and internationally recognized screening / response level standards (i.e., Dutch Intervention Standards 2009 and Canadian Soil Quality Guidelines) for heavy metals and contaminants, such as Arsenic, Antimony, Chromium, Copper, Cobalt, Cadmium, Iron, Lead, Manganese, Molybdenum, Mercury, Nickel, Zinc [@ pg. 1670-1671].
- e) After the aforesaid evaluation and analysis, it was found that concentrations of heavy metals in all the soil samples were within the intervention value of Dutch Standards [@ pg. 1671]. **The aforesaid scientific evaluation establishes that the soil in the affected area cannot be deemed to suffer from contamination on account of heavy metals.**
- f) Concentrations of copper in few samples were found to be exceeding the Canadian Soil Quality Standards and it was recommended that copper slag in reserve forest area should be removed on priority [@ pg. 1671-1672]. It is a matter of record that R-8/HIL has transparently acknowledged accountability for remediation and restoration and has been requesting permission from the Forest Department, Govt. of Gujarat for evacuation of

copper slag from reserve forest area and had also submitted an action plan which is pending approval since 2021 [R-8/HIL Addl. Docs – Vol. VIII @ pg. 1346-1347; 1332-1333].

40. The **second soil sampling and analysis exercise** was undertaken during the inspection by Joint Committee on 30-31.03.2022 [JC Report – Vol. IX @ pg. 1449-1451]:
- a) Representatives of R-6/CPCB, R-1/GPCB, R-7/MOEFCC, NEERI and R-3/Forest Department, Govt. of Gujarat undertook soil sampling at 10 different locations in the reserve forest area to evaluate presence of metals and for chemical species determination of soil. Two soil samples were collected from each of the 10 locations, one sample from ground level and one sample from a depth of 0.5m [@ pg. 1449-1450].
 - b) Nine sets of samples were collected from the impacted low lying reserve forest area and one set of samples of native soil were collected from a far-away location in reserve forest area (near Bhootnath temple) to establish control site and for comparison [@ pg. 1449-1450]
41. Upon evaluation of analysis results, it was found that while concentrations of heavy metals / contaminants in soil samples were within the Dutch intervention standards, the concentrations of heavy metals in soil samples collected from the impacted area were higher than the concentrations in native soil samples. Accordingly, the Joint Committee deputed NEERI to undertake EDC assessment for soil pollution in reserve forest area.
- (v) EDC Assessment by NEERI for soil pollution in reserve forest area:**
42. On the basis of the soil sampling and analysis exercises undertaken by the Joint Committee, EDC assessment for soil pollution in reserve forest area was undertaken by the domain expert, NEERI [JC Report – Vol. IX @ pg. 1491-1496; 1589-1593]

43. NEERI adopted the Impact Pathway Analysis (IPA) Approach to determine the external costs of soil pollution in reserve forest area due to the copper slag run-off incident. The methodology for EDC assessment adopted by NEERI is briefly set out hereunder:
44. NEERI undertook **identification of impacted area** on the basis of thorough on-ground physical inspections, evaluation of topography of reserve forest area, analysis of soil samples and evaluation of other relevant records such as satellite imagery of reserve forest area obtained from BISAG. The relevant excerpts from Joint Committee Report regarding identification of impacted area are reproduced hereunder for ease of reference: [@ pg. 1491-1492]

"10.1.1 Methodology

...

*In this study, the land environment damages are taken in account by the **impact pathway analysis**. For this, the soil sampling for different chemical species was carried out in the dumping area where the copper slag was dumped. **During field survey it is realized that the area where slag was dumped, is a low lying area and the surface run-off during rain accumulates in this region. In a first look, the clean-up measure would be to remove the top soil and create a depression that would allow rain water to accumulate, which can be used by the local fauna in the vicinity. As per the records, the area along the boundary wall for a distance of about 150 m and a width of 100 m was used for slag dumping. However, as a precautionary measure, the area from boundary wall up to the dry patch, where water is accumulated during rain is considered impacted. If the identified patch is cleaned, the area can be considered to be fully cleared of old dump and its impact. The identified area is marked on Google map and given below:***



Fig.: Likely impacted area near the boundary wall of plant marked on Google map

...”

(emphasis added)

45. On the basis of the above assessment, the impacted area has been estimated by NEERI as 7061 m² [*@ pg. 1494*].
46. After identification of impacted area, NEERI undertook **Environmental Externalities Valuation**, and the methodology adopted by NEERI is briefly summarized hereunder:
 - a) The concentration of heavy metals / contaminants (Arsenic, Copper, Chromium, Cadmium, Nickel, Zinc, Lead, Molybdenum, Manganese) in soil samples collected from impacted area were compared against the concentrations found in native soil samples, and the impacts were quantified by measuring the difference in metal concentrations between soil in impacted area and native soil [*@ pg. 1492-1493*]
 - b) To be on the safer side, the minimum concentration of metals / contaminants out of two native soil samples were considered as representative of native soil [*@ pg. 1494*].
 - c) Out of the 9 sampling locations in impacted area (i.e., 18 samples and analysis results), the maximum value of each metal / contaminant was

taken as representative of the entire impacted area and compared with native soil values for EDC assessment [[@ pg. 1494](#)].

47. In other words, NEERI has considered the highest concentration of metals / contaminants out of 18 soil samples collected from impacted area and compared the said values against the minimum concentration of metals / contaminants out of the two native soil samples [[@ pg. 1493-1494](#)].
48. Thereafter, NEERI carried out **Damage Cost Estimation** by adopting the control cost methodology [[@ pg. 1493-1494](#)], which is briefly summarized hereunder:
- (a) The impacted area 7061 m² was considered to be cleaned up-to a depth of 1m, and therefore the total volume of soil to be removed is calculated at 7061 m³. The density of soil is considered as 1602.80 kg/m³. On this basis, NEERI estimated the total weight of soil to be removed at 11317370.80 kg. (i.e., 11,317.3708 MT) [[@ pg. 1494](#)].
 - (b) The contaminants in soil were assigned the cost of per pollutant damage as per the benefits (or costs) transfer valuation method [[@ pg. 1493](#)].
 - (c) The environmental cost for each element was determined as per environmental pricing for pollutants as available for Netherlands (in Euro per kg.). The central value was considered in order to account for variation in concentration over the impacted area of 7061 m².
 - (d) The environmental costs of pollutants determined as per Dutch reference in Euro/kg. were converted to Indian Rupees by applying appropriate exchange rates as of 2015 (as the said Dutch reference estimates were prepared in 2015 by CE Delft as per Environment Price Handbook 2017). The said environmental cost was thereafter adjusted for inflation as of 2022.
49. On this basis, NEERI computed EDC for soil pollution in reserve forest area at **INR 2,47,79,292/-** [[@ pg. 1494-1495](#)] and the Joint Committee recommended that the said EDC amount should be paid by R-8/HIL [[@ pg. 1501](#)].

(vi) Remediation and Restoration Plan recommended by Joint Committee:

50. In addition to the above EDC assessment, the Joint Committee also proposed a Remediation and Restoration Plan [*JC Report – Vol. IX @ pg. 1500-1501*], recommending that approx. 11,317.38 MT soil should be removed from 7061 m² impacted area of reserve forest and disposed of by R-8/HIL in accordance with the provisions of HWM Rules 2016 after obtaining prior permission from the Forest Department, Govt. of Gujarat and under intimation to R-1/GPCB. The Joint Committee further recommended that an equivalent volume of fresh soil to suit the local condition should be refilled in the excavated area by R-8/HIL.

(vii) Concluding submissions on EDC assessment for soil pollution in reserve forest area:

51. It is respectfully submitted that NEERI and the Joint Committee have undertaken a comprehensive and scientific evaluation exercise for assessment of EDC for soil pollution in reserve forest area. The Joint Committee has concluded after thorough on-ground inspection, scientific evaluation, and examination of satellite imagery during 2004-2021 from remote sensing agency BISAG that presence of copper slag in reserve forest area has had negligible / significantly less impact on the health of vegetation in the reserve forest area. The Joint Committee has undertaken water sampling and analysis in reserve forest area and concluded on the basis of analysis results that the water accumulation in the low-lying reserve forest area due to monsoons does not suffer from contamination. Further, the EDC assessment for soil pollution undertaken by NEERI and the Joint Committee and the Remediation and Restoration Plan recommended by the Joint Committee is based on scientific rationale, evaluation and assessment and is in accordance with the judicially recognized principles for EDC assessment, including the polluter pays principle, the principle of ensuring restoration with element of deterrence, the principle of sustainable development and the doctrine of proportionality.
52. In light of the above, R-8/HIL undertakes to deposit **INR 2,47,79,292/-** assessed as EDC for soil pollution in reserve forest area by Joint Committee with R-1/GPCB or R-3/Forest Department as may be directed by this Hon'ble Tribunal.

Further, R-8/HIL also undertakes to implement the Remediation and Restoration Plan as recommended by the Joint Committee at its own costs and expenses, and under the directions and supervision of regulatory authorities, including R-1/GPCB and R-3/Forest Department, Govt. of Gujarat or as may be directed. R-8/HIL has undertaken an internal cost estimation for implementation of the Remediation and Restoration Plan recommended by the Joint Committee, and the break-up of the internal cost estimation is as under:

S No	Details of Activity	Estimated Cost (INR lakhs)
1.	Removal of soil from impacted area in reserve forest	21.18
2.	Cost of new Soil	56.5
3.	Filling cost of new Soil in evacuated area	5.0
4.	Landfill cost at 3rd Party TSDF	127
	Total	209.68 (INR 2.0968 Crores)

53. Subject to grant of requisite approvals by R-3/Forest Department and directions of this Hon'ble Tribunal or regulatory authorities in this regard, R-8/HIL is committed to implement the Remediation and Restoration Plan recommended by the Joint Committee and is willing to earmark funds as per the aforesaid estimation or as directed.
54. As recommended by the Joint Committee [@ pg. 1501], R-3/Forest Department, Govt. of Gujarat may be directed to permit R-8/HIL to implement the Restoration and Remediation Plan in the reserve forest area.

B. EDC Assessment for air pollution, water pollution and past non-compliances observed during 2016-2021: [JC Report - Vol. IX @ pg. 1496-1500]

55. It is relevant to reiterate at the outset that the Joint Committee, after conducting thorough on-ground assessment, monitoring and comprehensive environmental audit of Dahej Unit over the course of two inspections (conducted on 18-19.02.2022 & 30-31.03.2022) and upon detailed examination of relevant records and information and deliberation over the course of 4 Meetings, has concluded that:
- (i) Operations at Dahej Unit undertaken by R-8/HIL are currently compliant with CCA conditions imposed under Air Act, Water Act, and Hazardous Waste Management Rules as per CCA dated 30.09.2020 [CCA Compliance Status – Vol. IX @ pg. 1477-1490]
 - (ii) With respect to 31 allegations raised by Applicant in the instant OA, the operations at Dahej Unit are currently compliant with environmental norms and regulations [JC Report Vol. IX @ pg. 1437-1442]
56. It is thus clear from the above that non-compliances observed in the operations of Dahej Unit in the past (during 2016-2021) have been addressed and closed as of 2021 and R-8/HIL has been found compliant with environmental norms and regulations after comprehensive environmental audit conducted by the Joint Committee during February and March 2022.
57. The Joint Committee has carried out EDC assessment for air pollution, water pollution and past non-compliances during 2016-2021 on the basis of the “Methodology for Assessing Environmental Compensation and Action Plan to Utilized the Fund” issued by R-6/CPCB in 2019 (“**CPCB EDC Methodology**”). A copy of the CPCB EDC Methodology is annexed herewith as **Annexure R8/34**.
58. The CPCB EDC Methodology has been developed by R-6/CPCB pursuant to directions issued by NGT in several cases regarding the need for objective criteria for determination of EDC, and in consultation with expert institutions such

as The Energy and Resources Institute (TERI), Centre for Science and Environment-India (CSE-India), Institute for Economic Growth, etc. The CPCB Methodology has been developed by R-6/CPCB based on the Polluter Pays principle, the principle of sustainable development and doctrine of proportionality. The CPCB EDC Methodology identifies 6 categories of cases for levy of EDC and prescribes separate formulae for the said categories.

59. The Joint Committee, after conducting comprehensive technical assessment and evaluation of past non-compliances observed during 2016-2021 and review of compliance / closure status, concluded that the past non-compliances observed in the operations of Dahej Unit during 2016-2021 fall into the following 3 categories identified in the CPCB EDC Methodology: [JC Report – Vol. IX @ pg. 1497]:
- (a) *“Discharges in violation of consent conditions, mainly prescribed standards / consent limits.*
 - (b) *Not complying with the directions issued, such as direction for closure due to non-installation of OCEMS, non-adherence to the action plans submitted etc.*
 - (c) *Intentional avoidance of data submission or data manipulation by tampering the Online Continuous Emission / Effluent Monitoring systems.”*
60. The formula for EDC assessment for the aforesaid categories of cases / non-compliances as per the CPCB EDC Methodology is based on the Pollution Index (PI). The relevant excerpts from the CPCB EDC Methodology are reproduced hereunder for ease of reference:

“1.3.1 In the instances as mentioned at a, b and c above, Pollution Index may be used as a basis to levy the Environmental Compensation. CPCB has published guidelines for categorization of industries into Red, Orange, Green and White based on concept of Pollution Index (PI). The Pollution Index is arrived after considering quantity & quality of emissions/ effluents generated, types of hazardous wastes generated and consumption of resources. Pollution

Index of an industrial sector is a numerical number in the range of 0 to 100 and can be represented as follows:

$PI = f$ (Water Pollution Score, Air Pollution Score & HW Generation Score)

Pollution Index is a number from 0 to 100 and increasing value of PI denotes the increasing degree of pollution hazard from the industrial sector.

CPCB has issued directions to all SPCBs/PCCs on 07.03.2016 to adopt the methodology and follow guidelines prepared by CPCB for categorization of industrial sectors into Red, Orange, Green and White.

The concept of Pollution Index, which was deliberated widely with all stakeholders and agreed, shall be used for calculating Environmental Compensation. This may help in implementation of such provision throughout the country, a successful initiative in vital field of industrial pollution control.

After considering various factors including the policy implementation issues, **Committee has come up with following formula for levying the Environmental Compensation in instances as mentioned at a, b and c including non-compliance of the environmental standards / violation of directions.**

The Environmental Compensation shall be based on the following formula:

$$EC = PI * N * R * S * LF$$

Where:

EC is Environmental Compensation in ₹

PI = Pollution Index of industrial sector

N = Number of days of violation took place

R = Factor in Rupees (₹) for EC

S = Factor for scale of operation

LF = Location factor

The formula incorporates the anticipated severity of environmental pollution in terms of Pollution Index, duration of violation in terms of number of days, scale of operation in terms of micro & small/medium/large industry and location in terms of proximity to the large habitations.

(emphasis added)

61. The Joint Committee has determined that the aforesaid formula prescribed under the CPCB EDC Methodology based on Pollution Index is appropriate for EDC assessment considering the nature of past non-compliances and the facts and circumstances of the instant case, based on the following rationale: [JC Report – Vol. IX @ pg. 1497-1498]

“Pollution Index (PI) is based on the CPCB guidelines on Revised Classification of Industrial Sectors under Red, Orange, Green and White Categories (2016). It is derived as a function of **emissions (air pollutants), effluents (water pollutants), hazardous wastes generated and consumption of resources.**

For each component e.g. for air pollution, emissions are taken into account for the parameters namely PM, CO, NO_x, SO_x, Heavy Metals, Benzene, Ammonia and other toxic parameters relevant to the industry.

For water pollution, effluent discharge in terms of the parameters namely pH, TSS, NH₃-N, BOD, Phenol and other toxic pollutants relevant to the industry are considered to compute the score.

For hazardous wastes (land fillable, incinerable, recyclable) as generated by the industry is considered.

This suggests that all the components relevant to the industry are considered in the DCA method based on pollution index. The method is inclusive of the chemical contamination in various media.”

(emphasis added)

62. Accordingly, the Joint Committee has undertaken EDC estimation as per the formula prescribed under CPCB EDC Methodology as follows: [@ pg. 1498-1500]:

$$EC = PI * N * R * S * LF$$

Parameter	Value taken by JC	Remarks of R-8/HIL
PI - Pollution Index	80	As per the CPCB EDC Methodology, PI is a number between 0-100 to be applied as per classification of industry as Red, Orange or Green as per CPCB Classification Guidelines issued in 2016; CPCB has suggested PI to be taken as 80 for Red category industries. Joint Committee has considered PI as 80 in this case, as Dahej Unit is classified as a Red category industry as per CPCB Classification Guidelines 2016 [<u>R-8/HIL Reply – Vol. III @ pg. 851-909</u>]
N – Number of days violation took place	1020	As per the CPCB EDC Methodology, N is the number of days between the day on which violation is observed / due date of direction's compliance and the day of compliance verified by CPCB/SPCB/PCC. As detailed <i>infra</i> , the factual and technical assessment for considering N as 1020 days has been undertaken by the Joint Committee comprising domain experts after thorough examination and evaluation of relevant records and does not warrant interference.
R – factor in Rupees for EDC	250	As per the CPCB EDC Methodology, R is suggested as minimum 100 and maximum 500; further, R is suggested to be considered as 250 in cases of violations of standards.

		Joint Committee has considered R as INR 250 as suggested in the CPCB EDC Methodology.
S – factor for scale of operations	1.5	As per the CPCB EDC Methodology, S is suggested to be taken as 0.5 for micro; 1 for small and 1.5 for large scale industrial units. Joint Committee has taken S as 1.5 as Dahej Unit is a large-scale industrial unit.
LF – location factor	1	As per the CPCB EDC Methodology, LF may vary between 1 to 2 on the basis of proximity of industrial unit to nearby populated areas. Joint Committee has taken LF as 1 as per the CPCB EDC Methodology as Dahej Unit is situated >10 km. from municipal boundary of the town.
EDC = PI (80) * N (1020) * R (250) * S (1.5) * LF (1) = INR 3,06,00,000 [i.e., INR 3.06 Crores]		

63. Pertinently, the Joint Committee has undertaken a comprehensive examination and evaluation of relevant records and information to assess and evaluate past non-compliances observed during 2016-2021 and compliance / closure status with respect to said non-compliances. The records and information examined by the Joint Committee are briefly set out hereunder:

a) Details pertaining to compliance status with CCA conditions:

- (i) Year-wise annual consumption and generation data mapped against CCA limits for the period 2016 till 2021 – raw material, water, fuel, products, by-products, effluents, hazardous wastes.
- (ii) Mass/material balance data of end-to-end manufacturing activity, consisting of raw material input to product / by-product / waste (solid, liquid, gaseous) output.
- (iii) CCA compliance status for 2016-2021.
- (iv) Environmental audit reports submitted by R-8/HIL to R-1/GPCB in prescribed Form V as per Rule 14 of the EP Rules 1986 during 2016-2021.

- (v) Reports of Schedule I environmental audits of Dahej Unit conducted by third party agency appointed by R-1/GPCB for the period 2016-2021 along with compliance status of recommendations and observations.
 - (vi) Details regarding fuel consumption, including data pertaining to fuel consumption per unit of product output.
 - (vii) Details of OCEMS data and calibration details.
- b) Details pertaining to compliance status with EC conditions:
- (viii) EC compliance status for 2016-2021.
 - (ix) Environmental management plan compliances in terms of CCA and EC conditions.
- c) Details pertaining to compliance status with observations and inspections by regulatory authorities during 2016-2021:
- (x) Compliance status vis-à-vis all inspection reports of GPCB, CPCB and Forest Department, including Show Cause Notices, Notice of Directions, Closure Directions issued by R-1/GPCB and R-6/CPCB during 2016 – 2021.
 - (xi) Action Taken Report submitted by R-8/HIL detailing compliance status against all GPCB Inspection Reports during 2016-2021 and details of action taken in respect of observations and recommendations made by R-1/GPCB and R-6/CPCB during each inspection along with details of supporting documentation furnished contemporaneously.
- d) Details of hazardous waste and other waste management processes:
- (xii) Details regarding hazardous waste and other waste generation, management and disposal during 2016-2021. Details regarding hazardous waste generation per unit of product output.
 - (xiii) Details of third-party agencies to whom hazardous waste or other waste has been disposed and the relevant permissions for such disposal under Rule 9 of HWM Rules 2016.
 - (xiv) Details of all 8 SLF sites along with capacity and closure details, export permissions.

- (xv) Details regarding phosphogypsum and copper slag management – generation, handling, management, disposal, sale and sector-wise sale, as applicable.
- e) Details of air quality and water quality management processes:
- (xvi) Details of air quality improvement projects – RCC roads, upgradation of infrastructure at coal handling area, road sweeping machines etc.
 - (xvii) Details regarding water consumption, wastewater generation and treated wastewater disposal (KL/day). Details regarding water consumption and wastewater generation per unit of product output.
 - (xviii) Details regarding wastewater treatment and sludge composition and generation from various sources, including quantity generated, collection, treatment, storage, handling, disposal and management.
 - (xix) ETP & STP details and flow diagrams, details of tertiary water recycling unit etc.
 - (xx) Details regarding water consumption, effluent generation, domestic effluents etc. along with dates of amendment in CCA quantity.
64. Further, it is a matter of record that:
- (i) the aforesaid records and information have been furnished by R-8/HIL to R-1/GPCB and R-6/CPCB as per the directions of the Joint Committee through R-8/HIL's correspondences dated 28.01.2022, 07.02.2022, 08.02.2022, 09.02.2022, 24.02.2022, 03.03.2022, 12.03.2022 and 13.03.2022. A chart tabulating the records and information submitted by R-8/HIL to the Joint Committee is annexed herewith as **Annexure R8/35**.
 - (ii) the aforesaid records and information have been extensively deliberated, verified, evaluated, and examined by the Joint Committee over the course of 4 Meetings held on 21.01.2022, 01.02.2022, 15.02.2022 and 14.03.2022 and 2 inspections held on 18-19.02.2022 and 30-31.02.2022.
65. It is reiterated that the aforesaid records, documents and information furnished by R-8/HIL pertaining to compliance status and action taken by R-6/HIL with respect to observations and inspections during 2016-2021 were verified by the Joint Inspection Team (comprising representatives of R-1/GPCB and R-6/CPCB)

during the inspection conducted on 18-19.02.2022. Thereafter, during the 4th Meeting of Joint Committee held on 14.03.2022, R-6/CPCB made a detailed presentation to the Joint Committee on the compliance status and action taken by R-8/HIL with respect to past non-compliances observed during inspections conducted between 2016-2021. Thereafter, the Joint Committee conducted the inspection on 30-31.03.2022 to undertake further environmental audit and *inter alia* confirmed the compliance / closure status with respect to past non-compliances observed during 2016-2021.

66. Regarding EDC assessment for past non-compliances, it is also relevant to reiterate that as per the directions of the Joint Committee, R-8/HIL had furnished compliance / closure status with respect of observations in all GPCB inspection reports, SCNs, NODs, CDs issued during 2016-2021 in the form of an Action Taken Report to R-1/GPCB and R-6/CPCB on 09.02.2022 and 03.03.2022. The said Action Taken Report sets out the compliance / closure status with respect to each observation made in each GPCB inspection report issued during 2016-2021. The compliance / closure status of past non-compliances has been duly verified by the Joint Inspection Team (comprising representatives of R-1/GPCB and R-6/CPCB) during the inspection conducted on 18-19.02.2022 and by the Joint Committee during the inspection conducted on 30-31.03.2022.

67. While assessing the total number of days for which non-compliances persisted during 2016-2021 as 1020 days, the Joint Committee comprising regulatory authorities such as R-1/GPCB, R-6/CPCB, R-3/Forest Department (which made the observations during inspections) as well as domain experts from NEERI Nagpur and IIT Gandhinagar has undertaken a technical and elaborate exercise with due application of mind and after taking into account relevant considerations. In this context, it is relevant to note that the observations recorded in GPCB inspection reports can be classified into the following three categories:
 - (i) Non-compliances / violations of CCA conditions and environmental standards (for eg., fugitive emissions or effluent discharge higher than prescribed limits; instances of waste management contrary to prescribed

standards). Such non-compliances / violations of CCA conditions were rectified and evidence of compliance has been contemporaneously furnished by R-8/HIL to R-1/GPCB in respect of each non-compliance / violation.

- (ii) Operational inefficiencies observed during inspections (for eg., minor leakages, dusting due to operations, ponding of wastewater, water logging etc.) which are addressed / closed immediately on the same day after taking requisite corrective steps.
 - (iii) Recommendations / suggestions by R-1/GPCB (for eg., improve stone pitching on SLF embankment, improve housekeeping, improve air pollution control mechanisms in coal handling area, improve stormwater drainage system etc.) – these recommendations / suggestions may be directed to be implemented over the short-term, medium term or long-term and are not in the nature of non-compliances / violations of CCA conditions or environmental standards.
68. Every inspection report may contain observations comprising of non-compliances / violations; operational inefficiencies; and recommendations. The Joint Committee after comprehensive evaluation and due application of mind has taken into consideration non-compliances / violations for EDC assessment, as operational inefficiencies / recommendations / suggestions noted by R-1/GPCB are not amenable to classification as non-compliances / violations and are not liable to be considered for EDC assessment.
69. In this context, it is also relevant to reiterate that in consultation with regulatory authorities, R-6/CPCB vide Directions dated 07.03.2016 has categorized industries into red, orange, green and white category based on the relative pollution potential of the industrial sectors and grouping based on use of raw materials, manufacturing process and pollutants likely to be generated. The copper industry has been categorized under the red category in the said CPCB Directions. It is submitted that the purpose of categorization is not to isolate red category industries for closure but to prompt industrial sectors to adopt cleaner technologies ultimately resulting in generation of fewer pollutants. The categorization seeks to strike a balance between economic development and

environmental concerns as per the principles of sustainable development, permitting red category industries to operate under a stricter regulatory framework in acknowledgement of the contribution of such industries to economic development, employment generation as well as revenue augmentation for the State. Routine inspections of red category industries by R-1/GPCB (once every three months) are built into the regulatory framework in acknowledgement of the potential impact of these industries on the environment, with the objective being not to close such industries, but to make sustained efforts to monitor and regulate the emissions from such industries. The alarmist tone of the Applicant by contending that all observations in all Inspection Reports issued by R-1/GPCB report non-compliances / contraventions in this case completely ignores the fact that such inspections are conducted regularly, and the regulatory authorities in discharge of their statutory functions make observations during such routine inspections, not all of which are amenable to categorization as non-compliances or violations of environmental norms.

70. The Joint Committee has duly verified and evaluated the compliance / closure status in respect of the past non-compliances / violations during 2016-2021. In this context, it is relevant to note the following:
- (i) It is a matter of record that R-8/HIL contemporaneously submitted replies to all GPCB Inspection Reports, SCNs and Closure Directions, addressing the observations and furnishing compliance status along with evidence of compliance / closure of observations.
 - (ii) As per the internal processes of R-1/GPCB, observations during inspections are made by regional officials and compliance status as furnished by R-8/HIL are verified by the said regional officials. However, the SCNs, NODs, Closure Directions are issued by the Member Secretary of R-1/GPCB subsequently as per internal protocols, and in some instances even after duly verifying compliance / closure status. The issuance of SCNs, NODs, Closure Directions by R-1/GPCB in respect of some observations by itself does not constitute evidence of continuing non-compliances.

71. In light of the above, the Joint Committee after comprehensive evaluation and due application of mind has in some instances considered the Compliance Date as the date on which evidence of compliance has been furnished by R-8/HIL through replies and verified by regional officers of R-1/GPCB. Whereas in some other instances, the Joint Committee has rejected R-8/HIL's submissions regarding compliance on a particular date and instead considered the Compliance Date as the date on which observations were closed in the records of R-1/GPCB upon issuance of SCNs, NODs, Closure Directions etc. The relevant observations of the Joint Committee in this regard are reproduced hereunder for ease of reference: [*JC Report @ pg. 1498-1499*]:

*"N, number of days for which violation took place is the period between the day of violation observed and the day of compliance verified by GPCB. As per the data provided by GPCB on the violations observed through inspection and complaints raised by the residents and NGOs, the **number of violations are considered from the dat[e] of issue till the date of compliance or till the effective date of closure of the unit.***

The violations of the industry observed by GPCB and the date of action taken/ compliance of the violations for the period from November 2016 till November 2021 are considered for calculation of N (Number of days). The details of the same is given in Annexure-12 for reference. The abstract from the details containing the violations observed date and the compliance date and the calculation for the number of days for which violation took place (N) are summarized and given in table below for ready reference:

Table: Calculation for number of days of violations

Violations observed on date as per the record of GPCB	Compliance Date	No. of days of noncompliance
08/11/2016	11/11/2016	4
07/02/2017	10/02/2017	4
11/02/2017	17/07/2017	157
18/02/2017	22/02/2017	5
27/02/2017	02/03/2017	4
01/04/2017	12/05/2017	42
13/06/2018	29/09/2018	82
30/07/2019	31/08/2019	32

10/08/2019	31/08/2019	22
19/09/2019	24/01/2020	128
09/10/2019	24/01/2020	108
08/11/2019	03/02/2020	88
24/06/2020	05/10/2020	104
18/02/2021	20/03/2021	31
18/03/2021	04/09/2021	-- *
19/03/2021	04/09/2021	170
05/08/2021	04/09/2021	31
08/11/2021	16/11/2021	8
Total number of days		1020

* The damage cost assessment for the soil pollution caused due to the dumping of copper slag by the industry in the forest area is calculated separately and given in section 10.1 above and hence not considered in this section to avoid duplication of the cost assessment.”

(emphasis added)

72. It is submitted that the EDC assessment for past non-compliances observed during 2016-2021 have been computed by the Joint Committee on the basis of the CPCB EDC Methodology which is the appropriate methodology for EDC assessment in the facts and circumstances of this case, and is in accordance with judicially recognized principles and criteria for EDC assessment, including the Polluter Pays principle, the principle of restoration with element of deterrence, the principle of sustainable development and the doctrine of proportionality.

IV. RESPONSES TO APPLICANT'S WRITTEN SUBMISSIONS / OBJECTIONS TO THE JOINT COMMITTEE REPORT:

73. Except to the extent specifically admitted hereinafter, all the averments and allegations made in the Applicant's WS / Objections to the Joint Committee Report are denied *in toto* as being misconceived, untenable and unsustainable. Nothing contained in the Applicant's WS / Objections shall be deemed to be admitted by R-8/HIL for want of specific traverse. The averments made in the reply dated 17.11.2021 filed by R-8/HIL and the short note on arguments filed on 16.05.2023 are reiterated in their entirety and may be read as part and parcel of the instant written submissions.

74. R-8/HIL craves leave to submit an issue-wise response to the averments made in the Applicant's WS / Objections as under:

A. Responses to Applicant's Objections regarding EDC assessment undertaken by Joint Committee:

75. The Applicant's contention [@ para 2, pg. 1717 of Applicant's WS] that the EDC assessment by the Joint Committee is contrary to directions passed by NGT vide Order dated 05.01.2022 are denied as being incorrect and contrary to the record. It is submitted that the Joint Committee has discharged functions as directed by NGT vide Order dated 05.01.2022 and undertaken EDC assessment in a rational and scientific manner after thorough on-ground inspections, monitoring and comprehensive environmental audit of Dahej Unit and examination of relevant records. Pertinently, the Joint Committee has expressly recorded that the EDC assessment has been undertaken "...on principle of restoration with element of deterrence..." and by taking into consideration "...the deterrent factor of cost of environment damage." [JC Report – Vol. IX @ pg. 1433; 1516]
76. Detailed submissions made *supra* regarding the rational, scientific, and comprehensive evaluation exercise undertaken by the Joint Committee for EDC assessment after inspections, monitoring and environmental audit of Dahej Unit are reiterated in their entirety and are not being repeated herein for the sake of brevity. It is however reiterated at the cost of repetition that the EDC assessment undertaken by the Joint Committee for soil pollution in reserve forest area as well as for past non-compliances is based on scientific and rational criteria and is in accordance with judicially recognized principles and criteria for EDC assessment, including the Polluter Pays principle, the principle of restoration with element of deterrence, principle of sustainable development and doctrine of proportionality.
77. It is submitted EDC assessment by Joint Committee constitutes a sufficient deterrent factor in the facts and circumstances of the instant case. As substantiated *supra*, R-8/HIL is a responsible corporate citizen and has been

- committed to implement a robust Environment, Social and Governance to ensure that operations at Dahej Unit are conducted in an environmentally sustainable manner. It is respectfully submitted that the factum of imposition EDC on Dahej Unit is in itself a deterrent factor for R-8/HIL irrespective of the quantum of such EDC imposition.
78. Being conscious of Environmental, Social and Governance obligations as a responsible corporate citizen, R-8/HIL has, ever since commencement of operations at Dahej Unit in 1998, sought to identify and invest in upgradation of technology and processes so as to mitigate the environmental impact and ensure sustainable operations at Dahej Unit to the best extent possible. R-8/HIL has undertaken several projects pertaining to air quality improvement, water quality improvement, hazardous waste & solid waste improvement, and other sustainability measures as part of an ongoing process since commencement of operations in 1998 till date. As detailed *infra*, during the period 2014-2023, R-8/HIL has undertaken several environmental quality improvement and upgradation projects at an expenditure of approximately INR 450 Crores. Further, R-8/HIL has committed to a further expenditure of approximately INR 500 Crores for environment quality improvement and upgradation projects vide MOU dated 20.12.2023 signed with the Government of Gujarat. A copy of the MOU dated 20.12.2023 signed between R-8/HIL and Government of Gujarat is annexed herewith as **Annexure R-8/36**.
79. Pertinently, since April 2020, R-8/HIL has voluntarily shut down the Phosphoric Acid Plant (**PAP**) and Di-Ammonium Phosphate Plant (**DAP**) to reduce the environmental impact of operations at Dahej Unit. The closure of PAP and DAP have permanently addressed several past observations raised by R-1/GPCB in relation to fugitive emissions and spillages from cooling tower of PAP and DAP. The permanent closure of PAP and DAP have also resulted in a complete stoppage of phosphogypsum generation and spent acid generation. The permanent closure of PAP and DAP has been verified by the Joint Inspection Team during the inspection on 18-19.02.2022 [@ pg. 1682; 1680] as well as by the Joint Committee during the inspection on 30-31.03.2022 [@ pg. 1465; 1459; 1438-1440]. The regulatory authorities including R-6/CPCB have acknowledged

that closure of PAP and DAP have resulted in addressing the issue of spillages from cooling tower of PAP and reduction of emissions [@ pg. 1523].

80. Details of the environmental improvement and upgradation projects undertaken by R-8/HIL at Dahej Unit during the period 2014 till date segregated into air quality / water quality / waste management / sustainability projects are as under:

A. Air Quality Improvement Projects

S N	Description	Expenditure (INR Crores)
1.	Installation of Tail Gas Scrubber for Sulphuric Acid plant commissioned during 2019: World class technology from Dupont, USA. High efficiency caustic based three stage scrubber system with reverse jet technology. Resulting in efficient SO ₂ capturing.	34
2.	Installation of High Frequency Transformer (HFTR) for ESPs in Captive Power Plant commissioned in 2022: Resulting in improved collection efficiency at ESPs	9
3.	Automated Limestone feeding system in CPP commissioned in 2021: Manual Limestone feeding system to an automated one. Improved control of SO ₂	1
4.	Wind Breaking wall around coal storage area constructed during 2021: Total running length of 1.1 km. Prevents fugitive dust	11
5.	Ventilation Bag filters for Transfer Tower and crusher in the coal handling area of captive power plant installed during 2021: Dust will be auto transferred back into coal feeding system. Control the fugitive emissions due to coal handling and transportation.	7
6.	Sprinkler system at all the sides of coal yard (34 Nos) and at tripper conveyor system to ensure no fugitive emission. Commissioned in 2021.	1.5
7.	Mist Canon system for coal discharge installed during 2020: To ensure no fugitive emission	
8.	Coal yard garland drains constructed during 2021: to ensure complete handling of coal runoff water	
9.	Improvement in fly-ash loading system commissioned during 2021: In Fly Ash Loading Stations retractable chute has been installed to eliminate dust while loading in Bulklers for transportation	0.75

10.	Dust Free Lime Dosing system installed during 2019: Installed a pneumatic system for lime handling instead of lime bags at ETP Plant. Eliminated the manual lime handling practice thereby greatly mitigating fugitive emission and reduction of dusty spillages	3
11.	Upgradation of Conveyor system across the Dahej Unit commissioned during 2022: Upgradation of more than 20 Nos of scrapping systems of conveyors with latest technologies for better efficiency	14.75
12.	ESP Upgradation in Smelter-1 commissioned during 2023: ESPs have been upgraded from Mild Steel to Stainless Steel to ensure better efficiency and reliability	17.5
13.	ESP Upgradation in Smelter-3 commissioned during 2021: ESPs have been upgraded from Mild Steel to Stainless Steel to ensure better efficiency and reliability	20
14.	Scrubber upgradation in Smelter-1 commissioned during 2023 to ensure better efficiency and reliability	11
15.	<p>To meet global best standards of stack emissions at smelters at Dahej Unit, R-8/HIL has engaged M/s GCT LLC which is a USA based company providing engineering solutions for designing a system which will ensure that Dahej Unit establishes the global benchmark best standard for dust, fugitive and off-gas management. Due diligence has been completed in 2022. Basic engineering is under progress.</p> <p>This project for Smelter-1 is divided into three phases – Phase I and Phase II with proposed capital expenditure of INR 415 Crores is targeted to be completed by 2025. Phase III is proposed to be completed by 2026 with further proposed capital expenditure of INR 49 crores.</p> <p>Similar due diligence study is in process for Smelter-3 with proposed capital expenditure of INR 3 Crores proposed to be completed by end of 2023.</p>	<p>2 Cr. incurred for due diligence study.</p> <p>5 Cr. incurred for basic engineering as on date, with further expenditure of 9 Cr. planned for basic engineering.</p> <p>Total proposed capital expenditure to be incurred for this project over three phases by 2026 – INR 464 Crores</p>

B. Water Quality Improvement Projects:

S N	Description	Expenditure (INR Crores)
1.	Reverse Osmosis Plant commissioned during 2014: Dahej Unit is the first Copper Smelter in the world to recycle 100% effluent.	23
2.	Tertiary Water Recycling Unit commissioned during 2023: Dahej Unit is in the process of commissioning Sea Water RO and MVR evaporator. After that Dahej Unit will be the 1 st copper smelter in the world to install a reject evaporation system.	51
3.	Membrane Bio-reactor plant commissioned during 2015: Dahej Unit uses the world's most sustainable and advanced membrane bioreactor technology in the STP which converts Sewage water into potable water	4.4
4.	Desalination plant installed and commissioned by GIDC with investments from various industries wherein R-8/HIL is a major stakeholder. R-8/HIL has started procuring desalinated water from said plant in 2022 and this has reduced the fresh water consumption by 10,000 m ³ /day	114
5.	Revamping and improvement of Storm Water Drains and Process Water Drains undertaken from 2019 onwards: Multiple projects implemented for revamping of storm and process water drains inside and on the peripheral premises. More than 18km length of drains are revamped.	15 Cr. Incurred till date. Further expenditure provisioned on yearly basis.
6.	Improved Water Management – Upgradation of Sumps and Pumps undertaken from 2019 onwards to ensure total containment of contaminated water and no intermixing with storm water	
7.	In the process engineering and executing water treatment plant that will result in recycling of blowdown water as well as sewage water as soft water. This will further reduce dependency of fresh water. Engineering phase ongoing. Total proposal capital expenditure for these projects is INR 42 Crores. Targeted to be completed by 2025.	42 Cr. [estimated – project proposed to be completed by 2025]

C. Solid waste & hazardous waste management improvement projects:

S N	Description	Expenditure (INR Crores)
1.	Gypsum Yard Covering Phosphogypsum yard covered with impermeable HDPE liner over an area of 2.4 Hectare from 2020 onwards before every monsoon to ensure contamination free environment management.	Approx. INR 5 Crores per year Already incurred INR 15 Crores since 2020 till date.
2.	SLF covering with HDPE liner over an area of 2.3 Hectare from 2020 onwards before every monsoon to ensure contamination free environment management.	INR 15 lakhs per year Already incurred INR 45 lakhs since 2020 till date.
3.	Gypsum yard closure and redevelopment: The entire stock of phosphogypsum is targeted to be evacuated within 2 years. Further, NEERI has been approached for providing an action plan for entire yard closure and redevelopment. Order has been placed and NEERI team has already visited the site once.	Work Order for INR 55 lakhs issued to NEERI for conducting pre-feasibility study

D. Other sustainability measures and projects:

S N	Description	Expenditure (INR Crores)
1.	R-8/HIL has entered into arrangements for contracted capacity of 20 MW hybrid solar plant. R-8/HIL has commenced procuring solar energy from 2023 to reduce the in-house power generation to greener grid power and solar power.	15
2.	Oxyfuel burners installed in system in 2023 to eliminate Furnace Oil and to increase the use of greener fuel	15
3.	Compliant with 33% green belt development. Out of total 327 Hectare area, 117 Hectare area is green belt. In	0.25

	addition to this plantation is being undertaken over an additional 7 Hectare area, comprising of 11000 trees. 3500 trees have already been planted	
4.	<p>Signed MoUs with authorized recyclers in 2023 for co-processing hazardous waste other than ETP gypsum which is currently disposed into own SLFs. GPCB has granted requisite statutory approvals for disposal of ETP gypsum to cement manufacturing.</p> <p>As per the co-processing arrangement executed by R-8/HIL with a cement manufacturing plant based in Jamnagar, whereby hazardous waste including ETP gypsum generated at Dahej Unit will be utilized as raw material for cement manufacturing.</p> <p>This will ensure that dependency on captive SLFs will reduce to a minimum, as ETP gypsum constitutes approx. 99.8% of the total hazardous waste currently being disposed of in own SLF. Going forward, Dahej Unit will eliminate the disposal of waste into SLF, which is one of the identified sustainability targets scheduled to commence by October 2023.</p>	

81. It is clear from the above that R-8/HIL has voluntarily undertaken considerable measures to mitigate the environmental impact of operations at Dahej Unit and to ensure environmentally sustainable operations. The EDC assessed by the Joint Committee constitutes a sufficient deterrent factor as R-8/HIL has demonstrated commitment and taken concrete and verifiable measures to mitigate environmental impact of operations, to ensure that past non-compliances observed during 2016-2021 do not recur, and to ensure that operations at Dahej Unit not only comply with statutory norms but set best-in-industry benchmarks.

B. This is not a fit case for imposition of EDC on the basis of turnover:

82. The Applicant's contention [@ para 4, pg. 1722 of Applicant's WS] that EDC in this case "...is required to be reassessed based upon a percentage of the annual turnover..." of Dahej Unit is denied as being entirely misconceived, untenable and unsustainable. The purported "financial documents" allegedly obtained by the Applicant from the website of R-8/HIL and placed on record as Annexure A/5

[Vol. X @ pg. 2195-2197] along with Applicant's WS are denied. The said purported "financial documents" do not pertain to the Dahej Unit of R-8/HIL.

83. It is respectfully submitted that the Courts and Tribunals have devised various principles and criteria over the years for imposition of EDC on industries, taking into consideration several factors including the nature of violations / non-compliances, conduct of project proponents, damage caused to environment, element of restoration / remediation, the polluter pays principle, the principle of absolute / strict liability, the principle of sustainable development and the doctrine of proportionality. Imposition of EDC on the basis of turnover / project cost has been undertaken in cases where project proponents have conducted operations without valid statutory approvals and clearances or in cases of egregious violations of environmental regulations where it has been found that project proponents have exhibited "totally intransigent and unapologetic behaviour" and wanton disregard for environmental norms. None of the judicially recognized criteria for imposition of EDC on the basis of turnover are satisfied in this case.
84. Since commencement of operations in 1998, R-8/HIL has undertaken operations at Dahej Unit after obtaining requisite statutory approvals and clearances, including EC granted by R-7/MOEFCC and consents and authorizations granted by R-1/GPCB under Air Act, Water Act, EPA 1986 and hazardous waste management rules made thereunder. R-8/HIL has also obtained requisite statutory approvals for expansion and capacity augmentation from time to time. The said statutory approvals and clearances have also been renewed from time to time by regulatory authorities as per applicable laws and continue to remain valid and subsisting as on date. The details of statutory approvals and compliance with conditions specified thereat have been duly verified by the Joint Committee [@ pg. 1631-1632; 1477-1490].
85. Thus, operations at Dahej Unit have been undertaken by R-8/HIL since 1998 till date under valid and subsisting statutory approvals and clearances. It is respectfully submitted that the primary criterion for imposition of EDC on the basis of turnover, i.e., conduct of operations without valid statutory approvals and clearances, is not attracted in the instant case. It is thus respectfully submitted

that this is not a fit case for imposition of EDC upon R-8/HIL on the basis of turnover of Dahej Unit.

86. The judgments relied upon by the Applicant in support of its contention regarding imposition of EDC on the basis of turnover are distinguishable and not applicable to the facts and circumstances of the instant case. The Supreme Court decisions in *Sterlite Industries (India) Ltd. v. Union of India* (2013) 4 SCC 575 and *Goel Ganga Developers India Pvt. Ltd. v. Union of India* (2018) 18 SCC 257 relied upon by the Applicant [@ para 2-4 of Applicant's WS] are distinguishable and not applicable to the instant case, as evident from the following:

Judgment relied upon by Applicant	Factual matrix in case of Dahej Unit
<p><i>Sterlite Industries (India) Ltd. v. Union of India</i> (2013) 4 SCC 575:</p> <p>(i) In <i>Sterlite</i>, the project proponent was found to have operated without valid consents, approvals and renewals under Air Act and Water Act for a "fairly long period" during 1997-2012 [<u>@ para 45</u>].</p> <p>(ii) Expert agencies such as NEERI and TNPCB had found extensive environmental damage on account of operations of Sterlite unit [<u>@ para 42-45</u>].</p>	<p>(i) Since commencement of operations in 1998 till date, operations at Dahej Unit have been undertaken only after obtaining requisite statutory approvals and clearances, including EC and consents and authorizations under Air Act, Water Act, EPA 1986 and hazardous waste management rules made thereunder. R-8/HIL has also obtained requisite statutory approvals and clearances for expansion and capacity augmentation. The said statutory approvals and clearances have also been renewed from time to time as per applicable laws and continue to remain valid and subsisting as on date.</p> <p>(ii) Expert agencies such as NEERI and R-1/GPCB and R-6/CPCB have over the course of two inspections</p>
<p><i>Goel Ganga Developers India Pvt. Ltd. v. Union of India</i> (2018) 18 SCC 257:</p> <p>The project proponent was found to have raised construction in violation of the Environmental Clearance granted for the project and also in violation of the various municipal laws. The project proponent was found to have raised</p>	

<p>construction over an area of 1,00,002.25 sq. mts. against the built-up area of 57,658.42 sq. mts. permitted under the EC dated 04.04.2008 [<u>@ para 11, 25, 27</u>].</p> <p>Instead of 12 buildings permitted under the EC, project proponent had constructed 18; instead of 552 flats permitted under EC, 807 flats were constructed and two more buildings having 454 flats were proposed under expansion plans [<u>@ para 64</u>].</p> <p>The conduct of project proponent was found to be totally intransigent and unapologetic [<u>@ para 64, 66</u>].</p>	<p>and comprehensive environmental audits conducted during February and March 2022 found that operations at Dahej Unit are compliant with CCA conditions and environmental regulations.</p> <p>(iii) Regarding past non-compliances, R-8/HIL has taken credible and verifiable corrective measures and addressed all non-compliances observed during 2016-2021. R-8/HIL has voluntarily shut down the PAP and DAP since April 2020 onwards and also undertaken several improvement / upgradation projects to reduce environmental impact of operations.</p> <p>(iv) R-8/HIL has transparently acknowledged accountability for remediation and restoration of the soil in the reserve forest area due to accidental copper slag run-off incident and has undertaken to deposit EDC as determined by Joint Committee and implement the remediation and restoration plan at own costs.</p>
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Copies of Supreme Court Judgments in *Sterlite Industries (India) Ltd. v. Union of India* (2013) 4 SCC 575 and *Goel Ganga Developers India Pvt. Ltd. v. Union of India* (2018) 18 SCC 257 are annexed herewith as Annexure R8/37 and Annexure R8/38 respectively.

87. In light of the above, the Applicant's contention regarding determination and imposition of EDC on the basis of turnover of Dahej Unit are misconceived and liable to be rejected. It is reiterated that the EDC assessment undertaken by the Joint Committee in this case – (i) for soil pollution in reserve forest area as determined by NEERI and (ii) for past non-compliances as determined in terms of the CPCB EDC Methodology – has been undertaken after comprehensive scientific evaluation by the Joint Committee comprising regulatory authorities (R-1/GPCB, R-6/CPCB, R-7/MOEFCC, R-3/Forest Department, Govt. of Gujarat) as well as domain experts (NEERI Nagpur and IIT Gandhinagar). The EDC assessment by Joint Committee is in accordance with judicially recognized principles and criteria, including polluter pays principle, the principle of restoration with element of deterrence, the principles of sustainable development and the doctrine of proportionality. In addition to the EDC assessment, the Restoration and Remediation Plan recommended by the Joint Committee further makes provision for remediation and restoration of reserve forest area to be undertaken by R-8/HIL at its own costs and expenses, and under the supervision of regulatory authorities.
88. The Applicant's objections [@ para 2, pg. 1719 of Applicant's WS] to the adoption of the CPCB EDC Methodology by the Joint Committee for EDC assessment with respect to past non-compliances are denied as being misconceived and untenable. The Applicant's reliance on the Judgment dated 24.01.2022 passed by NGT in OA No. 64/2016 titled *Akhil Bhartiya Mengela Samaj Parishad & Ors. v. Maharashtra Pollution Control Board & Ors.* ("**ABMSP Judgment**") [Applicant's WS - Vol. X @ pg. 1790-2119] is misconceived and untenable. The Applicant has suppressed the fact that in several civil appeals preferred against the said ABMSP Judgment, the Supreme Court has granted stay on the said ABMSP judgment as well as directions regarding determination and deposit of EDC, including vide Orders dated 27.04.2022, 03.06.2022, 15.07.2022, 29.07.2022, 05.09.2022, 12.09.2022, 04.11.2022, 18.11.2022, 16.12.2022 and 08.05.2023. The Applicant's reliance on the observations made by NGT in ABMSP Judgment are thus untenable. Copies of Orders dated 27.04.2022, 03.06.2022, 15.07.2022, 29.07.2022, 05.09.2022, 12.09.2022, 04.11.2022,

18.11.2022, 16.12.2022 and 08.05.2023 passed by Supreme Court are annexed herewith as **Annexure R8/39 (Colly.)**.

89. In any event and without prejudice to the above, the NGT in aforesaid ABSMP case was concerned with a factual matrix which is distinguishable from the instant case. In ABMSP case, several industries situated in the Tarapur Industrial Area set up by Maharashtra Industrial Development Corporation (“**Tarapur MIDC**”) were found to have discharged polluted industrial effluents in the Arabian sea at Navapur and other waterbodies as well as mangroves in the area continuously for over two decades [@ para 189-190]. Further, it was found that the Common Effluent Treatment Plant (CETP) at Tarapur MIDC had capacity of only 25 MLD whereas industrial effluent discharge was more than 33 MLD. It was found that the industrial units had “persistently damaged” the environment and caused land degradation, contamination of groundwater, surface water and waterbodies in an already critically polluted area [@ para 815]. Even in such a grave factual matrix where environmental damage through discharge of untreated polluted effluents was found to have been caused persistently over decades, **NGT did not apply turnover / project cost as the criterion for EDC assessment**, holding that EDC on the basis of turnover would be excessive and place a “...very heavy burden” upon industries [@ para 817]. NGT instead directed that the EDC determined by the Committee in ABMSP case (on the basis of CPCB EDC Methodology with additional features @ para 430, 451-472) would be enhanced depending on the number of violations observed [@ para 848, 851-852]. Consequently, the ABMSP Judgment relied upon by the Applicant does not support the Applicant’s contention that EDC ought to be imposed in this case on the basis of turnover of Dahej Unit.
90. The CPCB EDC Methodology has been adopted, accepted and approved by NGT in several cases, including the following:
- (i) *Hanuman Ram v. State of Rajasthan & Ors.*, **2021 SCC Online NGT 4038** – NGT CZ Bhopal - Judgment dt. 09.08.2021: A bleaching and dyeing textile industry in Dist. Jalore, Rajasthan was found to have discharged untreated effluents resulting in groundwater contamination and had

extracted groundwater without NOC from Central Ground Water Authority (CGWA) [@ para 1, 3]. The Committee constituted by NGT determined EDC on the basis of CPCB EDC Methodology [@ para 3]. NGT held that:

- (a) A settled line of precedents by Courts in India has recognized the following principles as cornerstones of environmental jurisprudence – the precautionary principle, the polluter pays principle and sustainable development [@ para 12].
- (b) While applying the principle of sustainable development, the principle of proportionality has to be kept in mind [@ para 15].
- (c) NGT confirmed the EDC assessment undertaken by Joint Committee on the basis of CPCB EDC Methodology [@ para 16].

(ii) *Protection of Environment and Public Service Committee v. Union of India & Ors.*, **MANU/GT/0294/2022** – NGT WZ Pune – Judgment dt. 14.11.2022: 14 industries in Gir-Somnath & Junagadh districts in Gujarat were found to have carried out illegal and unauthorized mining of limestone on a large scale without prior Environment Clearance [para 1, 3, 44]. The Joint Committees and Expert Committee constituted by NGT computed EDC by three different modes [@ para 45]: (a) as per the CPCB EDC Methodology; (ii) as per Guidelines issued by SEAC-SEIAA for assessment of ecological damage in cases where prior EC was not obtained; (iii) as per resolution passed by Industries & Mines Department, Govt. of Gujarat for EDC assessment in cases of illegal mining, storage and transportation. Thereafter the matter was referred to IIT Gandhinagar for reassessment of environmental impact and EDC. The Expert Committee recommended that the average of the aforesaid three modes of computation be taken for EDC. NGT determined final EDC as the average of the aforesaid three modes (including CPCB EDC Methodology) and computed EDC for the period 2016-17 to 2018-19 [@ para 47-48].

(iii) *Shailesh Singh v. State of UP & Ors.* **2021 SCC Online NGT 1104** – NGT PB Delhi – Judgment dt. 18.03.2021: Activities by several industrial units in Rampur District, Uttar Pradesh were found to have polluted Kosi river and adjoining areas [@ para 1-2]. Allegations pertained to illegal extraction of

groundwater, effluent discharge with treatment at ETP, improper disposal of solid waste. Committees constituted by NGT computed EDC as per the CPCB EDC Methodology [@ pg. 14, 20]. NGT accepted the Committee Reports and directed regulatory authorities to recover EDC from industries in question [para 13-14, pg. 42]. Vide Order dated 29.06.2021, Supreme Court dismissed the civil appeal (CA No. 1784/2021) filed against the said NGT Judgment.

- (iv) *Srinath Mishra v. State of Odisha & Ors.* **2021 SCC Online NGT 644** – NGT PB Delhi – Judgment dt. 04.01.2021: Project proponent of a road widening project in Odisha (NH-16) was found to have illegally extracted minor minerals including soil from nearby villages and forest areas without obtaining EC [@ para 1-2]. The Committee constituted by NGT determined EDC on the basis of Orissa Minor Mineral Concession Rules, 2016 and the CPCB EDC Methodology. NGT accepted the Committee Report and directed regulatory authorities to recover EDC from project proponent [@ para 6-7].
- (v) *Syed Arshad Nasar v. Union of India & Ors.* **MANU/GT/0316/2022** – NGT PB Delhi – Judgment dt. 30.11.2022: Stone crushing and chip processing units operating in Sahebganj District, Jharkhand were found to be operating without requisite emission control systems, without environment impact assessment, and it was found that unregulated mining and stone crusher activities had resulted in unchecked environmental pollution [@ para 2-3, 10]. NGT directed JSPCB to assess EDC for non-compliant operations of stone crusher as per the CPCB EDC Methodology and also for illegal stone mining as per prescribed [@ pg. 4-5, 8]. NGT accepted the observations and recommendations in the Committee reports and directed statutory authorities to proceed against the industries for past violations [@ para 12].

Copies of NGT Judgments in *Hanuman Ram v. State of Rajasthan & Ors.*, **2021 SCC Online NGT 4038**, *Protection of Environment and Public Service Committee v. Union of India & Ors.*, **MANU/GT/0294/2022**, *Shailesh Singh v. State of UP & Ors.* **2021 SCC Online NGT 1104**, *Srinath Mishra v. State of*

Odisha & Ors. 2021 SCC Online NGT 644, Syed Arshad Nasar v. Union of India & Ors. MANU/GT/0316/2022 are annexed herewith as Annexure R8/40, Annexure R8/41, Annexure R8/42, Annexure R8/43, Annexure R8/44 respectively.

91. It is evident from the above that the CPCB EDC Methodology has been accepted by NGT in several cases and the adoption thereof by the Joint Committee in the facts and circumstances of the instant case is based on judicially recognized principles and criteria.
92. The Applicant's reliance [@ para 3, pg. 1720 of Applicant's WS] on the EDC assessment based on turnover undertaken by the Committee constituted by NGT vide Order dated 18.01.2022 in OA No. 5/2022 titled *Brackish Water Research Centre v. GPCB & Ors. ("Hikal case")* is entirely misplaced and misconceived. It is submitted that excerpts of the Joint Committee Report filed before NGT (and accepted by NGT vide Order dated 24.03.2023) in Hikal case has been placed on record by the Applicant as Annexure A/3 to the Applicant's WS [@ pg. 2120-2181] solely to cause prejudice. As evident from the Hikal Joint Committee Report, the facts and circumstances of the Hikal case are entirely distinguishable from the instant case:
 - (i) In the Hikal case, an industrial unit (Hikal Ltd.) was found to have illegally, deliberately and repeatedly disposed of hazardous waste (sodium hydro sulphide) through unauthorized contractors in a natural drain in GIDC Sachin, Gujarat with the ulterior objectives of saving costs of scientific disposal of such hazardous waste (through incineration). Such illegal disposal of hazardous waste (sodium hydro sulphide) in the natural drain resulted in release of poisonous gas through chemical reaction, on account of which 6 innocent people died and 23 others were injured.
 - (ii) The Hikal Joint Committee considered the "Guidelines on Implementing Liabilities for Environmental Damages due to Handling & Disposal of Hazardous Waste and Penalty" issued by CPCB in 2016 and the Enforcement Framework for Effective Implementation of HWM Rules 2016 issued by CPCB in July 2019 ("**2019 EDC framework for**

hazardous waste”) and found that EDC as per the said 2019 Framework was inappropriate in the facts and circumstances of the said case, as the same was lower even than the cost of incineration (approx. INR 1 crores) sought to be illegally saved by Hikal Ltd. through such illegal disposal of hazardous waste.

- (iii) Considering the gravity of the violations and illegal activities in Hikal case, the Joint Committee recommended imposition of EDC on the basis of turnover.

93. Since the Applicant has quoted para 122 & 123 of the Hikal Joint Committee Report out of context in the Applicant’s WS [@ para 3, pg. 1720-1721], R-8/HIL craves leave to refer and rely upon relevant excerpts from the Hikal Joint Committee Report as reproduced hereunder, which clearly establishes that the Hikal case is distinguishable from the facts and circumstances of the instant case:

“VIII. Summary of the Report: [@ pg. 2130]

...

*From the report received from the MPCB it is clear that **Hikal Ltd, supplied 5 tankers on different dates of the sodium hydro sulphide.** The last tanker sent on 31st December, 2021, was detained by Sangam Enviro private limited and thereafter as detailed in the report, the Sangam transferred the chemical from the tanker number GJ-06-BT-6421 in a tanker number GJ-06-ZZ 6221. The part played by the persons in transferring the said hazardous waste is discussed in detail in the report. It will be noted that even police seized some video footage indicating the entry and departure of the tankers and entry of the persons on the vehicle.*

In all on different 5 dates and through different vehicles/takers, sodium hydro sulphide was supplied to Sangam Enviro private limited.

...

[pg. 2131-2132]

It is interesting to note that the communication between the high officials of Hikal Ltd itself indicates that they wanted to dispose of the material, namely sodium hydrosulphide collected at the earliest, and the cost indicated by the company engaged in incineration at the rate of Rs. 71,000/- per ton was found very heavy. Therefore, a suggestion was made to contact Sangam Enviro Private limited. If the company was required to incinerate the generation of sodium hydrosulphide, it was required to pay more than

Rs.1,50,00,000 (One crore Fifty lakhs only). This aspect is discussed in detail. It is very clear that to save the high cost, the Sodium Hydro Sulphide was given for disposal in violation of the provisions contained in the environmental laws.

...

[pg. 2137]

106. In the trip when the carrier disposed of such **hazardous liquid NaHS in the open drain in Sachin GIDC. Due to some reactions with the existing acidic condition in the Sachin GIDC Drain which resulted in generation of poisonous gase/s which took the life of 6 innocent persons and caused injury to many as said earlier. In view of this, the police investigated and found active involvement of the Hikal Ltd, and its officers and the carrier and others.** In detail it has been pointed out as to how and at what places hazardous liquid the NaHS was disposed of. Thus, this is a deliberate and engineered act in conspiracy to save huge money. ...

107. Therefore, in a case like this how the amount of compensation and environmental damages should be assessed?

108. The easiest mode to calculate in a matter like this where it is clear from the correspondence of the officers amongst themselves that the sum of Rs.71,000/- per MT will be the cost of the incineration it is easy to calculate what amount has been saved by the generator. 141.550 MT (total disposal through Sangam) X Rs. 71,000 will come to Rs,1,00,50,050/- (Rs. One Crore fifty thousand fifty only). The generator, Hikal Ltd has saved this amount of Rs.100,50,050/-. This amount is illegally retained by it which it was not entitled to retain.

...

[pg. 2139]

113. When a polluter is noticed to have acted systematically or in an organised manner the amount determined in fixed quotients and in rupees etc, is very lenient. In the instant case on account of throwing the hazardous waste through a flexible hose pipe, a cloud of poisonous gas generated and the wind moved that strong poisonous cloud towards the nearby factory which affected a number of persons. Six died and 23 sustained injuries and were hospitalised for a couple of days and even after discharge from the hospital all injured could not join the duty. The hazardous waste which was liquid, Sodium Hydro Sulphide entering the natural drain on account of other effluent reacted and that generated poisonous gas and, in the drain, caused damage to the water of the drain, soil, and other than human lives in the water and caused pollution. In different tankers on different dates and different places the hazardous waste was discharged, which aspect has been discussed earlier must be kept in mind.

...

[pg. 2142]

118. **When the industry is found disposing of the hazardous waste illegally and systematically to earn wrongful gain, how the compensation is to be arrived at? For the complete year the industry has disposed of the hazardous waste illegally. About the earlier years the Committee has no figures.** However, as pointed out by the Tribunal in paragraph 496” Here, Respondents Proponents have been crossing limits/standards and releasing polluted effluents just for their commercial interests and thereby compromising ecological sustenance and health of society. Determination of compensation, this must correlate the level of industrial/commercial activities of such Pollutants i.e., volume of business.”
(emphasis added)

94. It is in the aforesaid context that the Hikal Joint Committee determined EDC at INR 15.05 Crores (i.e., 5% of the turnover of Taloja unit of Hikal Ltd.) at para 122 and 123 of the Hikal Joint Committee Report quoted out of context by the Applicant [@ para 3 of Applicant's WS]. It is respectfully submitted that the EDC assessment in Hikal case cannot be made applicable in the facts and circumstances of the instant case. Hikal Ltd. was found to have illegally, systematically, deliberately engineered illegal disposal of hazardous waste for commercial interest, for wrongful gain and with the objective of saving costs of scientific disposal of such hazardous waste. This is not so in the case of Dahej Unit. The past non-compliances observed during 2016-2021 or the accidental run-off of copper slag in reserve forest area due to heavy monsoons in 2009 were not “deliberately engineered” for commercial interests and had occasioned on account of exigencies arising due to the complex nature of operations. None of the past non-compliances observed during 2016-2021 in respect of Dahej Unit or copper slag run-off incident of 2009 can be categorized as having been “engineered” with the objective of gaining any sort of economic benefit. In fact, as detailed infra, R-8/HIL has voluntarily undertaken significant upgradation / improvements projects at an expenditure of over INR 450 Crores to reduce environmental impact of operations at Dahej Unit during 2014 till date and further expenditure of approximately INR 500 Crores is planned to be undertaken in the next five years under the MOU dated 20.12.2023 signed between R-8/HIL and Government of Gujarat. The CPCB EDC Methodology adopted for EDC

assessment in respect of past non-compliances observed during 2016-2021 in this case was also not under consideration in the Hikal case.

95. In light of the above, determination and imposition of EDC on the basis of turnover of Dahej Unit as sought by the Applicant in the instant case would be highly excessive, arbitrary, irrational, unreasonable and contrary to the doctrine of proportionality and principles of sustainable development which form part of the environmental jurisprudence.
96. Further, the Applicant's reliance [@ para 4, pg. 1721-1722 of Applicant's WS] on NGT Judgment dt. 23.11.2022 in OA No. 137/2021 titled *Aarti Sharma v. State of Jammu & Kashmir ("Aarti Sharma case")* is also misplaced and misconceived. The Applicant has suppressed the fact that Hon'ble Supreme Court vide Order dated 15.12.2022 in CA No. 9112/2022 has granted stay on the direction to deposit EDC passed by NGT in *Aarti Sharma* case. A copy of the Order dated 15.12.2022 is annexed herewith as **Annexure R8/45**.
97. In any event and without prejudice to the above, the *Aarti Sharma* case pertained to illegal operation of stone crushers in Rajouri District, J&K [@ para 1]. It was found that stone crusher units had undertaken illegal mining on riverbanks of Tavi River and illegal groundwater extraction, causing air pollution, water pollution, lowering of groundwater level, land degradation, loss of flora and fauna etc. [@ para 4, 7]. The District Magistrate had already imposed penalty of INR 7 Crores on one of the units for illegal operations and also recovered penalty for illegal mining [@ para 5]. The Monitoring Committee submitted a report recommending reassessment of EDC. However, NGT after considering the gravity of environmental damage caused due to illegal mining assessed "interim compensation" at INR 7 Crores for two units (already determined by District Magistrate for one unit). The said direction to deposit EDC has been stayed by Supreme Court vide Order dated 15.11.2022 as stated above. Evidently, the NGT judgment in *Aarti Sharma* is distinguishable and not applicable to the facts and circumstances of the instant case. Methodology for EDC assessment in cases of illegal mining cannot be made applicable to this case, as the same would be arbitrary, irrational and unreasonable.

98. In this context, it is also relevant to note that imposition of EDC on the basis of turnover would have severely adverse consequences not only on the operations and viability of Dahej Unit, but also on the economy and livelihoods, inter alia on account of the following reasons:

- (i) Dahej Unit is the largest producer of refined copper in the country and meets 43% of the total copper requirement of the country. Refined copper is recognized as a strategic metal of the 21st century and is widely used in critical sectors such as Power, Automotive, Electronics & Telecommunication, Railways, Construction, Electric Vehicle, Renewables, clean energy platforms and Defence. Operations at Dahej Unit contribute significantly to several strategic sectors which have a significant bearing on the state of the economy.
- (ii) Dahej Unit employs 378 Management Grade Employees, 1110 Operational Grade and Local Management Staff from nearby villages including Lakhigram and Dahej and 3500 Contract Manpower. In addition, the Dahej Unit generates ancillary business opportunities for approximately 114 contractors and thousands of contract workers.
- (iii) Dahej Unit also contributes significant revenues to the State in the form of taxes and other statutory dues. During 2016-21, the Dahej Unit has deposited **INR 12,706 Crores** in taxes and statutory dues. Further, the Dahej Unit has deposited **INR 4,862 Crores** and **INR 6,145 Crores** in taxes and statutory dues during FY 2021-22 and FY 2022-23 respectively. The year-wise breakup of the contribution of Dahej Unit to economy in the form of taxes and statutory dues is as under: [*R-8/HIL Reply – Vol. III @ pg. 828*]:

Year	Contribution to economy (INR Crores)
2016-17	1,909
2017-18	1,909
2018-19	3,025
2019-20	2,852
2020-21	3,011
2021-22	4,862
2022-23	6,145
Total	23,713

99. Dahej Unit has also contributed to upgradation of local infrastructure and facilities and community development through CSR activities. Details regarding CSR expenditure incurred by R-8/HIL since 2016 onwards were also furnished to the Joint Committee on 04.01.2022 and 09.02.2022. As detailed in R-8/HIL Reply [Vol. III @ pg. 829], during 2016-21, R-8/HIL has undertaken the following CSR activities:

- (i) Under Infrastructure Initiatives, R-8/HIL has constructed 123 houses for below poverty line families at Dahej & Lakhigam villages, a community hall at Lakhigam, a computer training centre for the students of primary school at Dahej and a total investment of around INR 203 lakhs.
- (ii) Under health infrastructure, R-8/HIL has constructed 241 toilet blocks at Dahej & Lakhigam at an investment of approx. INR 31.75 lakhs.
- (iii) R-8/HIL has constructed drainage system at Lakhigam village at an investment of approx. INR 150 lakhs.
- (iv) R-8/HIL provides 24*7 ambulance service and emergency medical services for the villagers.
- (v) R-8/HIL also provides drinking water facilities through pipeline for the villagers of Lakhigam.
- (vi) R-8/HIL has been organizing primary health checkup camps in every 15 days at Lakhigam and Dahej & multi-speciality health checkup camps every year. Eye screening & Cataract operation camps have been organized by Respondent No. 8 for the people of both villages every year.
- (vii) Under Education initiative, the Respondent No. 8 has provided education material support to the 3,000 students of Lakhigam & Dahej. To promote digital literacy in the area Respondent No. 8 has started the Tablab project targeting around 600 students at Government primary school of Lakhigam and Dahej.
- (viii) Under sustainable livelihood initiative, the Respondent No. 8 has provided skill trainings in sewing to 400 women and beauty parlour training to 100 women of Lakhigam & Dahej. Additionally around 06 Self Help Groups have been formed consisting of 72 women of Lakhigam and Dahej.

100. Further, HIL already has plans in place to undertake several sustainability projects in the villages around the Dahej Unit, including establishment of waste water treatment plant at Lakhigam village, integrated system for sustainable management of biodegradable and plastic waste at Lakhigam village, installation of solar energy systems at educational institutes in Lakhigam and Dahej villages, renovation of Lakhabawa Temple at Lakhigam village and construction of a community hall with kitchen and sanitation facilities at Dahej village as per proposals annexed herewith as Annexure R8/46.
101. In light of the facts and circumstances stated above, it is respectfully submitted that this is not a fit case for imposition of EDC on the basis of turnover or for closure of Dahej Unit as prayed for by the Applicant.

C. Responses to Applicant's objections regarding EDC assessment for soil pollution in reserve forest area:

102. The Applicant's objections at para 5 of Applicant's WS [@ pg. 1722-1724] regarding the determination of impacted area as 7061 m² in the reserve forest by the Joint Committee and NEERI are categorically denied as being entirely baseless and without any merit whatsoever. Detailed submissions supra with respect to EDC assessment for soil pollution undertaken by the Joint Committee are reiterated in their entirety and are not being repeated herein for the sake of brevity.
103. According to the Applicant, "...in actual the area for the damage due to the release of the wastewater is 26,200 m²." In support of the said objection, Applicant relies upon Google Images from 2004 onwards [OA @ pg. 386] to contend that: [para 5, pg. 1722-1723 of Applicant's WS]

*"...NEERI has failed to take into account the **Google Images** annexed to the OA for the years 2004 onwards (Page 386), consistently show the increase in the degraded area that is affected by the dumping of Copper Slag and wastewater from the unit. the comparison of degraded land on google earth with the NEERI image is showing clearly polluted area. It*

has come on record that the affected/impacted area is low lying area and that is why the accumulation of wastewater is there in the area and as such on account of the topography the accumulated wastewater has over the years spread over an area of 26,200 m2 of Reserved Forest and the same is evident from the Google Images. The spread of these metals pollution due to ground water and rain is always there. Thus, taking into account the impacted area of 26,200 m2 the compensation amount will be Rs 9,19,44,122.7 Approx. The NEERI in its report has failed to see this spread of poisonous metals in soil and presence of it within 7061 m2 area and has itself said "likely impacted area". The site has to be monitored until it's within the safe range as the native soil, though there is no such recommendation in the report. ..."

(emphasis added)

104. It is respectfully submitted that each and every limb of the aforesaid narrative sought to be peddled by the Applicant is *ex facie* contrary to the record, entirely baseless and without any merit whatsoever. R-8/HIL craves leave to reiterate the comprehensive evaluation and assessment exercise undertaken by the Joint Committee and NEERI to determine the environmental impact of copper slag in the reserve forest area.
105. As detailed supra, in order to assess the **impact of copper slag on vegetation density and character of forests** in reserve forest area, the Joint Committee during the 2nd Meeting held on 01.02.2022 [JC Report – Vol. IX @ pg. 1518-1519] decided to obtain land-use land-cover ("LU / LC") pattern maps and satellite imagery of the reserve forest area in question from the reputed remote sensing agency BISAG [i.e., Bhaskaracharya National Institute for Space Applications and Geo-informatics ("BISAG"), Ministry of Electronics and Information Technology, Government of India - based in Gandhinagar, Gujarat].
106. During the 3rd Meeting held on 15.02.2022 [JC Report – Vol. IX @ pg. 1518-1519], the land-use land-cover pattern map details were discussed by the Joint Committee and it was decided to expedite the process of obtaining satellite

imagery of the forest land in question, i.e., compartment no. 596 of village Dahej, Tahsil Vagra, District Bharuch from BISAG.

107. This aspect was further deliberated during the 4th Meeting of Joint Committee held on 14.03.2022 [*JC Report – Vol. IX @ pg. 1522-1524*] and the relevant portions from the said 4th Minutes of Meeting are reproduced hereunder:

*“During presentation Dr. Yogesh Kumar, Scientist ‘C’ from MOEFCC has informed that **BISAG has submitted the Satellite map (LISS IV and Sentinel) as per the area of interest (AOI) provided by the forest department. The false colour composite (FCC) image since 2004 up to 2021 has inferred that the dumping of copper slag in the reserve forest has significantly less impact on the health of surrounding vegetation.** The area near the boundary was found low lying area which results in ponding of water thus a scarce vegetation was found.”*

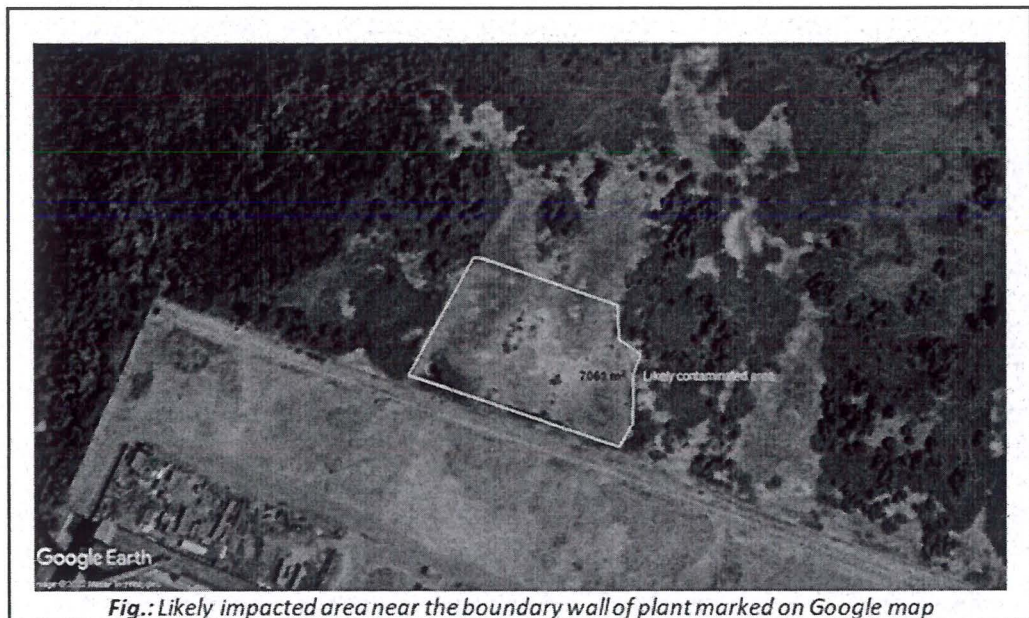
(emphasis added)

108. Further, during the inspection on 30-31.03.2022, the Joint Committee after conducting on-ground inspection *inter alia* observed that the reserve forest area in question is a “...low lying area and acts as a natural catchment from surrounding area and doesn't have any further drainage for monsoon accumulation. Forest Department mentioned that the water stagnates for almost 6 months post monsoon.” [*JC Report – Vol. IX @ pg. 1445-1446*]
109. It is clear from the above that the Joint Committee, after examining satellite imagery obtained from the reputed remote sensing agency BISAG for the period 2004 till 2021 has concluded that the **presence of copper slag in reserve forest area has had “significantly less impact on the health of surrounding vegetation”**. The Joint Committee has also found that **the scarce vegetation found in the said low-lying reserve forest area is on account of prolonged ponding / stagnation of rainwater which accumulates post monsoon as there is no drainage for monsoon accumulation in the said reserve forest area.**

110. Further, in order to assess the **impact of copper slag on water quality** in reserve forest area, the Joint Inspection Team (comprising representatives of R-1/GPCB and R-6/CPCB) collected water samples from two locations in reserve forest area during the inspection on 18-19.02.2022. The Joint Inspection Team expressly observed that the “source of shall water ponding in the reserve forest area is mainly rainwater...”. The analysis results of water samples were compared against the standards prescribed by R-6/CPCB under Schedule VI of EP Rules 1986 [[@ pg. 1665-1666](#)] and it was concluded that “...most of the monitored parameters are meeting the said standards” [[@ pg. 1667](#)]. Further, concentrations of contaminants / heavy metals such as Arsenic, Chromium, Lead, Molybdenum, Mercury, Sulphide, Antimony, Cobalt and Cyanide in both water samples was found to be Below Detection Limit (BDL) [[@ pg. 1667](#)].
111. Further, in order to assess the **impact of copper slag on soil quality** in reserve forest area, soil sampling exercises were carried out during the inspection conducted by Joint Inspection Team on 18-19.02.2022 as well as during the inspection conducted by Joint Committee on 30-31.03.2022. After analysis of results, it was concluded that the soil in the reserve forest area could not be considered contaminated as the concentrations of metals were within the intervention values prescribed under widely used and internationally recognized screening / response standards (the Dutch standards). Concentrations of copper were found exceeding the Canadian Soil Quality parameters in some samples, and hence it was recommended to remove the copper slag on priority.
112. After undertaking the aforesaid comprehensive assessment and evaluation, the Joint Committee deputed the domain expert agency NEERI to undertake EDC assessment for soil pollution in reserve forest area. NEERI determined EDC by taking the highest concentration of metals / contaminants out of 18 soil samples collected from impacted area and compared the said values against the minimum concentration of metals / contaminants out of the two native soil samples [[@ pg. 1493-1494](#)]. Thereafter, NEERI conducted Environmental Externalities Valuation and Damage Cost Estimation based on rational and scientific parameters and criteria, which assessment and evaluation was adopted by the Joint Committee.

113. It is evident from the above that on the one hand, the Joint Committee has undertaken comprehensive on-ground inspections of the reserve forest area (twice), analysed the water samples and soil samples collected from reserve forest area (twice), and examined satellite imagery data obtained from the reputed remote sensing agency BISAG to determine the impacted area and assessed the impact of copper slag on vegetation, water as well as soil quality parameters. On the other hand, the Applicant seeks to make wild and baseless allegations and insinuations regarding the “polluted area” in reserve forest by relying upon unauthenticated Google Images and unilateral, uncorroborated Google Earth calculations which have no scientific or rational basis whatsoever and purports to object to the aforesaid comprehensive assessment and evaluation exercise undertaken by the Joint Committee on such flimsy and irrational grounds.

114. According to the Joint Committee, the impacted area as assessed by the expert agency NEERI after comprehensive and scientific evaluation of authentic and validated analysis reports, data, information and records is 7061 m²:



115. Whereas the Applicant's assessment of the impacted area allegedly as 26,200 m² is solely based on unauthenticated Google Images, unilateral, unverified,

uncorroborated calculations through Google Earth software and the Applicant's whims and fancies:



116. Contrary to the Applicant's allegations, the Joint Committee after conducting thorough on-ground inspections and scientific evaluation of authentic and validated analysis reports, data, information and records has found that:

- (i) Scarcity of vegetation in the reserve forest area in question is on account of prolonged ponding / stagnation of rainwater post monsoon. There is no impact of copper slag on the vegetation in the reserve forest area.
- (ii) There is no discharge of wastewater by Dahej Unit into the reserve forest area. A solid boundary wall constructed during 2015-16 separates the reserve forest area from the plant premises.
- (iii) There is absolutely no question of "accumulated wastewater" spreading over an area of 26,200 m² as blithely alleged by the Applicant. During the inspection conducted on 18-19.02.2022, the Joint Inspection Team (comprising representatives of R-1/GPCB and R-6/CPCB) expressly observed that the shallow water ponding observed in the reserve forest area was **rainwater** (and not wastewater as wrongly alleged by the Applicant). During the inspection conducted on 30-31.03.2022, the Joint

Committee observed that the entire reserve forest area was dry upon evaporation of monsoon accumulation of rainwater.

- (iv) The concentration of heavy metals in the soil and water samples analysed by the Joint Inspection Team were within the intervention values of widely used screening / response standards for identification of contaminated sites and / or within prescribed standards. Hence, the soil or water in the reserve forest area cannot be considered contaminated on account of "poisonous metals" as wrongly alleged by the Applicant.
- (v) The Joint Committee has in fact recommended removal of 11317.38 MT from 7061 m² impacted area and refilling the said excavated area with fresh soil. The Joint Committee has clearly observed that **"...if the identified patch is cleaned, the area can be considered to be fully cleared on old dump and its impact."** [*@ pg. 1492*]
- (vi) In case the Applicant's objections were to be accepted, restoration and remediation would entail flattening the entire 26,200 m² reserve forest area, cutting all trees / natural formations standing thereon, and thereafter removal of soil to the depth of 1m from the entire 26,200 m² reserve forest area. It is respectfully submitted that instead of aiding restoration / remediation of reserve forest area, implementation of the Applicant's suggestions would result in severely adverse environmental impacts on the reserve forest area.

117. In light of the above, the Applicant's computation of EDC for soil pollution at INR 9,19,44,127 on the misconceived and baseless premise that the extent of impacted area is allegedly 26,200m² and Applicant's objections regarding EDC for soil pollution as assessed by the Joint Committee are without any rational basis, untenable, unsustainable and are hence liable to be rejected.

D. Responses to Applicant's objections regarding EDC assessment for past non-compliances:

118. The Applicant's objections at para 7 of Applicant's WS [*@ pg. 1725-1726*] with respect to the EDC assessment undertaken by Joint Committee regarding past non-compliances observed during 2016-2021 are denied as being misconceived

and untenable. Detailed submissions *supra* with respect to the comprehensive assessment and evaluation exercise undertaken by the Joint Committee in this regard are reiterated in their entirety and are not being repeated herein for the sake of brevity.

119. The Applicant's objections with respect to EDC assessment for past non-compliances undertaken by the Joint Committee and issue-wises responses of R-8/HIL are tabulated hereunder for ease of reference:

S N	Applicant's objections	Response of R-8/HIL
1.	From the tabular depiction it is not clear as to what is the basis for computation of the date of non-compliance.	<p>This averment is contrary to the record. The Joint Committee Report clearly sets out the basis for computation and the number of days for which violations / non-compliances have been considered for EDC: <u>[JC Report - Vol. IX @ pg. 1498-1499]</u>:</p> <p><i>"N, number of days for which violation took place is the <u>period between the day of violation observed and the day of compliance verified by GPCB. As per the data provided by GPCB on the violations observed through inspection and complaints raised by the residents and NGOs, the number of violations are considered from the dat[e] of issue till the date of compliance or till the effective date of closure of the unit.</u></i></p> <p><i>The <u>violations of the industry observed by GPCB and the date of action taken/ compliance of the violations for the period from November 2016 till November 2021 are considered for calculation of N (Number of days)"</u></i></p> <p>It is thus clear that the Joint Committee, after comprehensive technical evaluation and due</p>

		<p>application of mind, has in some instances considered the Compliance Date as the date on which evidence of compliance has been furnished by R-8/HIL through replies and verified by regional officers of R-1/GPCB. Whereas in some other instances, the Joint Committee has rejected R-8/HIL's submissions regarding compliance on a particular date and instead considered the Compliance Date as the date on which observations were closed in the records of R-1/GPCB upon issuance of SCNs, NODs, Closure Directions etc. Detailed submissions made supra in this regard are reiterated in their entirety and are not being repeated herein for the sake of brevity.</p>
2.	<p>It can be perused that a combination of violations are taken together as against a specific inspection and one consolidated number of days is arrived at for non-compliance.</p> <p>For e.g., for inspection conducted on 08.11.2016, there are violations listed out and number of days that is taken is 4 days, presumably it is calculated from the date</p>	<p>This averment is misconceived and untenable.</p> <p>As detailed <i>supra</i>, not all observations made by R-1/GPCB in each inspection report are violations / non-compliances. The Inspection Reports may contain observations comprising of non-compliances / violations; operational inefficiencies; and recommendations / suggestions. The Joint Committee after comprehensive evaluation and due application of mind has taken into consideration non-compliances / violations for EDC assessment, as operational inefficiencies / recommendations / suggestions noted by R-1/GPCB in Inspection Reports are not amenable to classification as non-compliances / violations and are not liable to be considered for EDC assessment.</p>

<p>of inspection to the date of submitting reply. It is submitted that it has to be first decided that whether one set of days can be taken against a list of violations or whether these have to be computed separately. A perusal of the inspection reports post this one shows the compliances against each instruction that is issued by GPCB, so it can't be that one set of days can be taken for a host of non-compliances.</p>	<p>Further, as detailed supra, in some instances the Joint Committee has taken the Compliance Date as the date on which evidence of compliance has been furnished by R-8/HIL through replies and verified by regional officers of R-1/GPCB. Whereas in some other instances, the Joint Committee has rejected R-8/HIL's submissions regarding compliance on a particular date and instead considered the Compliance Date as the date on which observations were closed in the records of R-1/GPCB upon issuance of SCNs, NODs, Closure Directions etc.</p> <p>For the Inspection Report dated 08.11.2016, the number of days of violations / non-compliances has been taken as 4 days, after due consideration that evidence of compliance was submitted by R-8/HIL vide Reply Letter dated 11.11.2016 and compliance was duly verified by R-1/GPCB. Further, several observations in the Inspection Report dated 08.11.2016 either pertain to operational inefficiencies / localized issues (for eg., acidic wastewater from PAP Plant accumulating in stormwater drain, fugitive dusting from top of fly ash silo) or suggestions (poor housekeeping in PAP Plant area) which were momentary in nature and corrective measures were taken immediately by R-8/HIL and evidence of compliance was furnished along with Reply Letter dated 11.11.2016.</p> <p>On the other hand, in several instances, Joint Committee after technical evaluation has rejected HIL's submission regarding compliance on a</p>
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		<p>particular date and considered Compliance Date as the date on which observations were closed in the records of R-1/GPCB upon issuance of SCNs, NODs, Closure Directions etc. (ref: <u>IR dt. 01.04.2017 @ pg. 1598; IR dt. 30.07.2019 @ pg. 1606; IR dt. 19.09.2019 @ pg. 1609; IR dt. 09.10.2019 @ pg. 1612; IR dt. 08.11.2019 @ pg. 1613; IR dt. 24.06.2020 @ pg. 1614; IR dt. 18-20.03.2021 @ pg. 1615; IR dt. 05.08.2021 @ pg. 1618</u>]</p>
3.	<p>It can be seen that only non-compliances of GPCB have been taken into account and not CPCB. It can be seen that CPCB issued directions under section 5 EPA to the unit (@ pg. 336) dated 24.05.2017 and then issued revocation vide order dated 14.06.2017 (@ pg. 345). This has not been considered by the committee in its assessment of the number of days and non-compliances by the unit.</p>	<p>This averment is misconceived, untenable and contrary to the record.</p> <p>Vide CPCB Letter dated 24.05.2017 (<u>OA- Vol. I @ pg. 336</u>), directions had been issued to R-8/HIL in relation to installation of Online Continuous Emissions Monitoring Systems (“OCEMS”) in all stacks and connection with CPCB servers. During the hearing on 30.05.2017 and 06.06.2017 as well as vide Reply dated 06.06.2017, R-8/HIL duly apprised CPCB that all stacks connected with concentrator and SO2 recovery units had been equipped with OCEMS and also connected with CPCB servers as on the date of issuance of the directions dated 24.05.2017 [<u>@ pg. 349-350</u>]. Consequently, after consideration of explanations furnished by R-8/HIL, CPCB revoked the directions vide Letter dated 14.06.2017 as there were no violations / non-compliances on the part of R-8/HIL as alleged in CPCB Letter dated 25.05.2017.</p>

		<p>The above substantiates the fact that Joint Committee has computed the non-compliances after due application of mind and that the Applicant's objections are entirely without merit and solely designed to cause prejudice.</p>
4.	<p>The calculation of number of days is problematic as for inspection done on 13.06.2018 (Page 1598) 82 days is taken, though pursuant to the inspection, NOD dated 29.09.2018 was issued by GPCB so even if one takes the days from date of inspection to issuance of NOD (Page 409) it is more than 82 days.</p>	<p>As evident from the submissions made by R-8/HIL before the Joint Committee in respect of Inspection Report dated 13.06.2018 and recorded at pg. 1598-1605 of Joint Committee Report, R-8/HIL had taken corrective measures in respect of non-compliances / violations latest by 20.06.2018 (i.e., 6-7 days). However, Joint Committee has considered 82 days in respect of IR dated 13.06.2018 which is already much higher than the actual period taken by R-8/HIL for compliances.</p> <p>In any event, assuming but not conceding to the Applicant's presumption that the Joint Committee intended to take the Compliance Date as the date on which observations in respect of IR dt. 13.06.2018 were closed in the records of R-1/GPCB upon issuance of NOD dated 29.09.2018 and that there is an arithmetic error in computing the number of days between 13.06.2018 and 29.09.2018 (106 days) as compared to 82 days taken by Joint Committee, such arithmetic error of around 24 days, that too only in respect of 1 Inspection Report dated 13.06.2018 (out of 17 Inspection Reports referred in Joint Committee Report) does not warrant an exercise for reassessment of EDC as sought by the Applicant and this Hon'ble Tribunal is empowered to rectify</p>

		such arithmetic errors, if any in the number of days to be considered for EDC assessment.
5.	<p>The committee has not taken into account various inspection reports of GPCB wherein violations and non-compliances are outlined and as such these have not been taken for computing non-compliance days and as such the environment compensation.</p> <p>(i) IR dt. 14.08.2018 (pg. 425)</p> <p>(ii) IR dt. 05.10.2018 (pg. 445, 466-467)</p> <p>(iii) IR dt. 18.01.2019 (pg. 480)</p> <p>(iv) IR dt. 31.01.2019</p> <p>(v) IR dt. 14.02.2019 (pg. 524)</p> <p>(vi) IR dt. 05.03.2019 (pg. 534)</p> <p>(vii) IR dt. 13.03.2019 (@ pg. 539, 544, 545)</p> <p>(viii) IR dt. 08.05.2019 (pg. 551, 554)</p>	<p>This averment is misconceived and designed solely to cause prejudice. The Joint Committee included representatives of regulatory authorities such as R-1/GPCB, R-6/CPCB, R-7/MOEFCC, R-3/State Forest Department (which had made observations during inspections) as well as representatives from expert agencies such as NEERI and IIT Gandhinagar. As detailed supra, the Joint Committee comprising regulatory authorities and domain experts has undertaken a comprehensive evaluation and assessment exercise in relation to EDC assessment for past non-compliances after detailed examination of relevant records and information and after due application of mind. Pertinently, R-8/HIL had submitted an Action Taken Report in respect of all observations in each Inspection Report during the period under consideration (2016-2021), which has also been taken into consideration by Joint Committee for EDC assessment. The averment that domain experts and regulatory authorities forming part of Joint Committee have not taken into consideration non-compliances / violations observed by the very same regulatory authorities during inspections is categorically denied as being entirely without merit.</p> <p>(i) With respect to IR dt. 14.08.2018, HIL's Reply dt. 25.08.2018 is already on record (<u>R-8/HIL Reply - Vol. IV @ pg. 1040-1043</u>). The said inspection was in relation to the</p>

<p>(ix) IR dt. 05.09.2019 (pg. 586)</p> <p>(x) IR dt. 07.09.2019 (pg. 609)</p> <p>(xi) IR dt. 27.11.2019 (pg. 649)</p> <p>(xii) IR dt. 06.02.2020 (pg. 658)</p> <p>(xiii) IR dt. 19.08.2020 (pg. 685)</p> <p>(xiv) IR dt. 24.01.2020 (pg. 728)</p> <p>(xv) NOD dt. 23.02.2020</p>	<p>application submitted by R-8/HIL for amendment in CTE for SLF-8. There are no violations / non-compliances in the said Inspection Report. Recommendations / suggestions made by R-1/GPCB during the said inspection were implemented by R-8/HIL. The said CTE amendment was granted in favour of R-8/HIL by R-1/GPCB in accordance with applicable laws as verified by Joint Committee.</p> <p>(ii) With respect to IR dt. 05.10.2018, there are no non-compliances / violations in the said Inspection Report (OA – Vol. II @ pg. 445, 466-467), and only details of TSDFs and SLFs are recorded – which have been operated by R-8/HIL in accordance with applicable laws as verified by Joint Committee.</p> <p>(iii) With respect to IR dt. 18.01.2019 as mentioned by Applicant (actual date 08.01.2019), the said inspection was in relation to the application submitted by R-8/HIL for CCA Amendment. There are no non-compliances / violations in the said Inspection Report. In fact, after the said inspection, R-1/GPCB recommended that the CCA Amendment “may be granted” (<u>OA – Vol. II @ pg. 483</u>).</p> <p>(iv) With respect to IR dt. 31.01.2019, there were no non-compliances / violations observed during the said inspection, as the Inspection Report itself records that the plants were under shut down for</p>
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		<p>maintenance and not in operation (<u>OA – Vol. II @ pg. 515, 517</u>).</p> <p>(v) With respect to IRs dt. 14.02.2019 & 05.03.2019, the said inspection was in relation to applications submitted by R-8/HIL for CCA Amendment. There are no non-compliances / violations in the said Inspection Report. In fact, after the said inspection, R-1/GPCB recommended that the CCA Amendment “may be granted” (<u>OA – Vol. II @ pg. 524, 527, 532-534</u>).</p> <p>(vi) With respect to IR dt. 13.03.2019, there are no non-compliances / violations in the said Inspection Report. The operational inefficiencies / suggestions made by R-1/GPCB were corrected / undertaken immediately (<u>OA – Vol. II @ pg. 539-540</u>).</p> <p>(vii) With respect to IR dt. 08.05.2019, the said inspection was in relation to the application submitted by R-8/HIL for amendment in CTE for ZLD system. There are no violations / non-compliances in the said Inspection Report. In fact, after the said inspection, R-1/GPCB recommended that the CTE Amendment “may be granted”. The operational inefficiencies / suggestions made by R-1/GPCB were corrected / undertaken immediately. (<u>OA – Vol. II @ pg. 551, 554</u>)</p> <p>(viii) With respect to IR dt. 05.09.2019 and IR dt. 07.09.2019, the operational inefficiencies observed during inspection on 05.09.2019 were immediately corrected, as recorded in</p>
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		<p>Inspection Report dated 07.09.2019 (<u>OA – Vol. II @ pg. 586, 594, 597, 602, 604, 609</u>)</p> <p>(ix) With respect to IR dt. 27.11.2019, the operational inefficiencies / suggestions observed during inspection were immediately corrected / undertaken (<u>OA – Vol. II @ pg. 649, 656</u>)</p> <p>(x) With respect to IR dt. 06.02.2020, the said inspection was in relation to the application submitted by R-8/HIL for CCA renewal. There are no non-compliances / violations in the said Inspection Report. In fact, after the said inspection, R-1/GPCB recommended that the CCA Amendment “may be granted”. The operational inefficiencies / suggestions made during said inspection were immediately corrected / undertaken. (<u>OA – Vol. II @ pg. 658, 661</u>)</p> <p>(xi) With respect to IR dt. 19.08.2020, the said inspection was in relation to submission of quarterly report by R-1/GPCB to R-7/MOEFCC and R-6/CPCB. There are no non-compliances / violations in the said Inspection Report. The clarifications sought by R-1/GPCB regarding TSD management were immediately provided (<u>OA – Vol. II @ pg. 678, 680, 685</u>)</p> <p>(xii) With respect to IR dt. 24.01.2020, the SCN dt. 24.01.2020 issued by R-1/GPCB and HIL’s Letters dated 23.09.2019, 11.10.2019 and 18.11.2019 are already on record along with R-8/HIL’s Reply, which establish that there were no non-compliances / violations</p>
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		<p>during the said inspection and the operational inefficiencies observed were immediately corrected [<u>Vol. IV @ pg. 1064-1075</u>]</p> <p>(xiii) With respect to NOD dt. 23.02.2020 as mentioned by Applicant (actual date 03.02.2020), the said NOD dated 03.02.2020 as well as HIL's Reply dated 06.02.2020 are already on record along with R-8/HIL's Reply, which establish that there were no non-compliances / violations during the said inspection and the operational inefficiencies observed were immediately corrected [<u>Vol. IV @ pg. 1076-1082</u>]</p>
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V. MISCELLANEOUS SUBMISSIONS:

A. Responses to Applicant's allegations pertaining to CRZ areas:

120. The Applicant's objections at para 6 of Applicant's WS [@ pg. 1724] that the Joint Committee allegedly "...has not done any assessment of environment damage to the CRZ area for the construction of the road, for dumping of copper slag and fly ash" are categorically denied as being blatantly and deliberately misleading, vexatious and untenable. R-8/HIL has neither constructed any road in CRZ area nor dumped copper slag or fly ash in CRZ area as maliciously sought to be insinuated by the Applicant in the paragraph under reply. Joint Committee undertook on-ground inspection of the CRZ areas during both inspections conducted on 18-19.02.2022 and 30-31.03.2022 and the relevant factual findings of the Joint Committee are reproduced hereunder for ease of reference:

- Findings in Joint Committee Report [Vol. IX @ pg. 1446-1448; 1451-1453]

“7.2 Visit to Sterling Jetty Area

At the coastal area of Bhootnath Mahadev temple, which is located to the north of HINDALCO plant, a rubble pitched road was part of complaint about disposal of copper slag at CRZ area. The said rubble pitched road and the coastline location were not approachable by vehicle and committee visited the said location through a narrow walkway passing through the forest for about 2 Kms from the Boothnath temple. The possibility mentioned was the approach road for sterling port. The approach road for proposed port was likely under construction in the year 2010-11 from Dahej GMB port area. Birla copper had mentioned that in the year 2010-11, around 79658 MT copper slag was sold to M/s. Sterling Port Ltd. for the construction activity and related sales documents were submitted to GPCB. It is understood that M/s. Sterling Port Ltd. has utilized the purchased copper slag for road construction for the proposed jetty in the past. Further onwards the unit has not supplied any copper slag to M/s. Sterling Port Ltd.

During the visit, it is observed that the road construction activity of the proposed jetty has been abandoned half-way and mangroves developed densely in either side of the said abandoned road and wild animals like Neelgai was also observed in that area. On the road, no traces of slag were found as the top layer of the road is already rubble pitched. Besides the under-construction road, heaps of rubble were found. Photographs taken during the visit showing the abandoned jetty road and the densely grown mangroves on either side of the said road are given in below. ...”

- Findings in Inspection-cum-Monitoring Report [Vol. IX @ pg. 1672-1674]

“6.0 Other Observations

As per detail furnished by the unit, they have supplied total 79658.95 MT of copper slag to M/s Sterling Port Ltd., Dahej during 2009-11. It is understood that M/s. Sterling Port Ltd. has utilized the purchased

copper slag for road construction for their proposed jetty in the past.
Further onwards the unit has not supplied any copper slag to M/s. Sterling Port Ltd.

During the present visit, it is observed that the road construction activity of the proposed jetty has been abandoned half-way and mangroves developed densely in either side of the said abandoned road. Photographs taken during the visit showing the abandoned jetty road and the densely grown mangroves on either side of the said road are given in below. ...

**...
The unit has a captive Jetty in the Gulf of Khambhat and an approach road has been constructed from the industry premises to the said Jetty. During the visit, dense mangrove vegetation was seen on either side of the Jetty road in the CRZ area. Photographs taken during the visit, showing densely grown mangroves on either side of the Jetty road is given below."**

(emphasis added)

121. It is evident from the above factual findings made by the Joint Committee after on-ground inspections and examination of relevant records that:

- (i) The construction of the road in question in the CRZ area was being undertaken during 2010-11 by a third-party company (M/s. Sterling Port Limited) for road construction to their proposed jetty.
- (ii) R-8/HIL supplied 79658 MT copper slag to M/s. Sterling Port Ltd. during 2010-11 for road construction to the proposed jetty of Sterling Port Ltd. and related sales documents were submitted to R-1/GPCB. R-8/HIL has not supplied any copper slag to Sterling Port Ltd. thereafter.
- (iii) Road construction activity of the proposed jetty of Sterling Port Ltd. was abandoned half-way and mangroves had developed densely on either side of the said abandoned road.

122. In light of the above, it is reiterated that R-8/HIL has neither constructed any road in CRZ area nor dumped copper slag or fly ash in CRZ area as maliciously sought

to be insinuated by the Applicant at para 6 of Applicant's WS. [Vol. X @ pg. 1724].

123. Further, the supply of copper slag by R-8/HIL to Sterling Port Ltd. for road construction is in accordance with directions issued by regulatory authorities including R-1/GPCB, R-6/CPCB and R-7/MOEFCC, which expressly envisage and permit use of copper slag for road construction without the requirement of obtaining approval for such supply from R-1/GPCB as copper slag is non-hazardous by-product. In fact, R-6/CPCB has issued draft "Guidelines on Management of Pyro-metallurgical Slags (Copper Smelters)" in May 2023, which expressly envisage and permit use of copper slag for road construction.
124. Consequently, the Applicant's averments at para 11-13 of Applicant's WS [Vol. X @ pg. 1728] that there was "...no permission on record for disposal..." of 79658 MT copper slag by R-8/HIL to Sterling Port Ltd. during 2010-11 is denied as being contrary to law. The EC and CCA granted in favour of HIL by R-7/MOEFCC and R-1/GPCB expressly permit and envisage use of copper slag for road construction without the requirement of obtaining approval / permission from R-1/GPCB or any other authority for sale of such non-hazardous by-products.
125. The Joint Committee's conclusion that "*it was apparent that copper slag has been utilized as per its intended use and practice*" is thus in accordance with applicable laws and any averment to the contrary in Applicant's WS is denied. Applicant's allegation at para 13 of Applicant's WS that the Joint Committee allegedly did not enquire "...as to the use of copper slag in road and other thing" is also denied as being *ex facie* contrary to the record. The observations and findings of the Joint Committee on "slag management" at Dahej Unit are expressly recorded under a separate Section 8.0 in the Joint Committee Report [Vol. IX @ pg. 1474-1476]. It is evident from a bare perusal of the said section that Joint Committee has *inter alia* assessed and recorded details of copper slag generation and sale undertaken by R-8/HIL since FY 2009-10 till FY 2020-21, and details of infrastructure for storage of copper slag in slag yard at Dahej Unit. Joint Committee has also assessed the end use of copper slag, expressly recording that R-8/HIL is "...selling the copper slag to cement industries as raw material,

read mix cement as aggregate, to road and construction activities and to abrasive industries” [Vol. IX @ pg. 1474]

126. Applicant’s further objections at para 11-13 of Applicant’s WS [Vol. X @ pg. 1728] that Joint Committee has purportedly not recorded any violation or computed EDC on R-8/HIL in relation to copper slag purportedly lying abandoned in CRZ area or “recommended measures for lifting and shifting of these materials” are denied as being entirely baseless, without merit and contrary to law. It is reiterated that the one-time supply of copper slag by R-8/HIL to Sterling Port Ltd. in relation to road construction for the proposed jetty of Sterling Port Ltd. in 2010-11 was in accordance with applicable laws and statutory approvals granted in favour of R-8/HIL and did not require approval / permission from R-1/GPCB or any other regulatory authority. R-8/HIL was not responsible for obtaining permission for construction of the said road in CRZ area, which, if mandated, was in any event required to be obtained by the entity constructing the said road (Sterling Port Ltd.) for accessing its own proposed jetty. R-8/HIL cannot be made responsible for copper slag or fly ash which may have been left abandoned in the CRZ area by unrelated third parties during road construction. The insinuation at para 12 of Applicant’s WS that there is no “fly ash management plan” with R-8/HIL and “...no approval of GPCB under Flyash Notification” is also denied. It is reiterated at the cost of repetition that all details regarding fly ash management were also provided to the Joint Committee by R-8/HIL and have been duly examined and evaluated by Joint Committee.
127. Applicant’s allegations at para 9 of Applicant’s WS [Vol. X @ pg. 1727] that there is “illegal construction of the silos in CRZ NDZ areas” that were allegedly not visited by the Joint Committee are denied as being baseless, without merit and designed solely to cause prejudice. There is no illegal construction of “silos” or any other structures in the CRZ NDZ areas and the Joint Committee visited all areas of interest / concern at Dahej Unit. The unauthenticated Google Image reproduced at para 9 of Applicant’s WS is specifically denied. The portions which the Applicant has unilaterally circled in red in the said Google Image and which the Applicant wrongly describes as “illegal construction in NDZ of CRZ” were conveyor and ancillary systems for the purposes of the accessing the captive

jetty of Dahej Unit, and R-8/HIL was permitted to construct such ancillary systems for accessing the jetty by GMB.

B. Responses to other miscellaneous allegations:

128. Applicant's allegations at para 10 of Applicant's WS [Vol. X @ pg. 1727] regarding Inorganic Acid (Spent Acids) are denied as being incomprehensible. As stated by the Applicant itself, the CCA prescribes the limit of 66,960 TPA of Inorganic Acid, which the Joint Committee has also verified [Vol. IX @ pg. 1489 – mentioned as "internal page 59" by Applicant in the paragraph under reply]. It is reiterated that R-8/HIL has furnished, and Joint Committee has examined and assessed, the entire mass/material balance data of end-to-end manufacturing activity, consisting of raw material input to product / by-product / waste (solid, liquid, gaseous) output for the period 2016-2021 in respect of Dahej unit. Any averment to the contrary is denied.
129. Applicant's allegations at para 6 of Applicant's WS [Vol. X @ pg. 1724] that "...it has come on record that production of the unit is more than CCA quantities but there is no damage compensation for violation of CCA conditions..." is denied as being without basis and untenable. Joint Committee after assessment of the CCA compliance status has expressly recorded that "...the products and by products have been produced as per consent order, which are within the limit mentioned in CCA. Form V shows production details within consented capacity" [Vol. IX @ pg. 1477].
130. Applicant's allegations at para 8 of Applicant's WS [Vol. X @ pg. 1726] regarding alleged contradictions in relation to arsenic disposal between the Joint Committee Report and Inspection Reports of GPCB are entirely baseless, vexatious, misleading and untenable. Joint Committee has conducted on-ground inspections (twice) and comprehensively assessed the relevant records and information in relation to arsenic disposal as well. The Joint Committee's conclusion as regards the Applicant's allegation in relation to "dumping of arsenic bearing sludge in captive TSDF site without encapsulation" are reproduced hereunder: [Vol. IX @ pg. 1438, 1634]:

“Arsenic Bearing residue (containing 10 to 15 % Arsenic) generated from the refinery plant is recycled in the smelting furnace and there is no disposal of this Arsenic bearing residue. ETP sludge generated contains 1.5 to 2 % of arsenic. It is informed that the arsenic content ETP sludge is in stable salt form and which doesn't leach. ETP sludge is disposed in own captive SLF. Samples of leachate from leachate collection sumps of operational SLF – 8A and 8B was collected to check the arsenic content in leachate of SLF.

The analysis results of the samples collected from the sump no.01 and sump no. 05 attached to SLF 8 reveals that the Arsenic concentrations are BDL and 0.4mg/L in sump no. 01 & 05 respectively.

The leachate being collected in the leachate collection sumps are further treated in the ETP of the unit.”

(emphasis added)

131. Applicant's allegations at para 14 & para 15 of Applicant's WS [Vol. X @ pg. 1728] insinuating that the "...Joint Committee did nothing..." in relation to concerns purportedly raised by Joint Committee members Shri Nishchal Joshi (GCZMA) and Dr VK Shrivastava (SEIAA) are entirely and deliberately misleading, baseless, and solely designed to cause prejudice. The observations cited in the paragraph under reply were made by the concerned members during the 1st Meeting of the Joint Committee held on 21.01.2022 [Vol. IX @ pg. 1516]. Thereafter, three Meetings of the Joint Committee were held, and two inspections of Dahej Unit were held by Joint Committee members, wherein all information and records sought by the concerned members were furnished by R-8/HIL, including in relation to the issues raised by the concerned members cited in the paragraph under reply. The concerned members were present during the inspection of Dahej Unit on 30-31.03.2023 and evaluated, assessed, deliberated all issues of concern, including in relation to assessment for soil pollution in reserve forest area and environment management plan and comprehensive environmental audit of Dahej Unit. All the members of the Joint Committee have signed the Joint Committee Report. Consequently, the Applicant's insinuation that the "Joint Committee did nothing" with respect to concerns purportedly

- raised by the said Joint Committee members amounts to ridiculing the comprehensive evaluation and assessment undertaken by the Joint Committee.
132. Applicant's allegations at para 16-18 of Applicant's WS [Vol. X @ pg. 1729] insinuating that the "...Joint Committee did nothing..." and that the Joint Committee "...has taken no action..." in relation to concerns purportedly raised by Joint Committee members Dr. Yogesh Kumar (MOEFCC), Dr Chinmay Ghoroi (IIT Gandhinagar) and Mr. Sonawane are entirely and deliberately misleading, baseless, and solely designed to cause prejudice. The observations cited in the paragraph under reply were made by the concerned members during the 2nd Meeting of the Joint Committee held on 01.02.2022 [1]. Thereafter, two Meetings of the Joint Committee were held, and two inspections of Dahej Unit were held by Joint Committee members, wherein all information and records sought by the concerned members were furnished by R-8/HIL, including in relation to the issues raised by the concerned members cited in the paragraph under reply. The concerned members were also present during the inspection of Dahej Unit on 30-31.03.2023 and evaluated, assessed, deliberated all issues of concern, including in relation to coal consumption and production. All the members of the Joint Committee have signed the Joint Committee Report. Consequently, the Applicant's insinuation that the "Joint Committee did nothing" with respect to concerns purportedly raised by the said Joint Committee members amounts to ridiculing the comprehensive evaluation and assessment undertaken by the Joint Committee.
133. Applicant's allegations at para 19 of Applicant's WS [Vol. X @ pg. 1729] insinuating that the Joint Committee did not make a recommendation on the suggestion of Hon'ble Chairman of the Joint Committee regarding surprise checks on deep sea discharges are entirely and deliberately misleading, baseless, and solely designed to cause prejudice. Regular inspections and monitoring of all units of Dahej Unit is already within the mandate of regulatory authorities and the Joint Committee is not obliged to issue directions to recommend that statutory authorities must discharge their statutory responsibilities. Such frivolous objections are nothing but a reprehensible attempt on the part of the Applicant to somehow find non-existent discrepancies in the Joint Committee Report and only establish that the findings, observations,

- and recommendations of the Joint Committee Report do not in fact warrant interference.
134. Applicant's allegations at para 20 of Applicant's WS [Vol. X @ pg. 1730] that the Joint Committee observed the quantity of phosphogypsum (PG) at phosphogypsum yard but "...did enquire as to its utilisation plan needed as per EC condition and approved by the CPCB..." is a matter of record, and hence admitted. Joint Committee visited the phosphogypsum yard during both the inspections and evaluated all relevant records in relation to its disposal [Vol. IX @ pg. 1458-1459; 1680]. Joint Committee also verified that upon closure of the Fertilizer Plant [comprising Phosphoric Acid Plant (PAP) and Di-ammonium Phosphate Plant (DAP) which generated PG sludge] since April 2020 by R-8/HIL, there is no generation of phosphogypsum and that the phosphogypsum yard is completely covered with HDPE liner. Joint Committee also verified that the old PG stock is sent to cement industries and for use as fertilizers. [Vol. IX @ pg. 1440, 1458-1459, 1465; R-8/HIL Reply – Vol. III @ para 24-29, 41-42]
135. Applicant's allegations at para 21 of Applicant's WS [Vol. X @ pg. 1730], that the Joint Committee allegedly gave "...unscientific and arbitrary advice..." to R-8/HIL regarding use of leachate and ETP treated effluent for dust suppression at SLF sites or that the "...Committee has not gone into characteristics of leachate from TSDF..." are categorically denied. The said suggestion made by the Joint Committee is one of the methods prescribed under the applicable guidelines for management of SLF sites. In any event, R-8/HIL does not use leachate or ETP treated effluent for dust suppression at SLF sites at Dahej Unit and hence Applicant's objections to the Joint Committee's suggestion in this regard are meaningless. Further, the Joint Committee has inspected, evaluated and verified all aspects pertaining to TSDF at Dahej Unit and any averment to the contrary is denied.
136. The Applicant's submissions at para 22 of Applicant's WS are denied.

VI. CONCLUSION:

In light of the facts and circumstances stated above, it is respectfully prayed that the recommendations made by the Joint Committee vide Joint Committee Report submitted before NGT in May 2022 do not warrant interference and the Applicant's objections to the Joint Committee Report are liable to be rejected. The Joint Committee Report may be adopted and necessary directions may be issued to the official Respondents to grant requisite approvals for implementation of the Remediation and Restoration Plan recommended by the Joint Committee.

RESPONDENT NO. 8**Through:****COUNSEL FOR RESPONDENT NO. 8**

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DATE: 05.01.2024**PLACE: NEW DELHI**

VII. DETAILED LIST OF DATES AND CHRONOLOGY OF EVENTS:

S N	Date	Description
1.	18.09.2021	<p>Applicant filed OA No. 70/2021 before NGT WZ Pune <i>inter alia</i> alleging contravention of environmental norms and regulations on the part of R-8/HIL in the operation of Dahej Unit, allegedly resulting in air, water (surface and ground), soil, land and noise pollution, destruction of Dahej reserve forest area and mangroves in CRZ 1A area and damage to environment. [ref: OA Vol. I & II @ pg. 1-800].</p> <p>Applicant cited Inspection Reports of R-1/GPCB and R-6/CPCB pertaining to inspections conducted during 2018-2021 and alleged that operations at Dahej Unit have been conducted by R-8/HIL allegedly in violation of environmental norms and allegedly in contravention of conditions specified under statutory approvals granted by regulatory authorities.</p> <p>Prayers: [ref: OA Vol. I @ pg. 104]</p> <ul style="list-style-type: none"> (i) cancellation of the Consolidated Consent & Authorization dated 30.05.2020 granted by R-1/GPCB to R-8/HIL. (ii) closure of Dahej Unit of R-8/HIL for "repeated environmental violations". (iii) setting up of an interdisciplinary technical expert committee to assess and investigate the impact on air, water (surface and groundwater), soil, flora and fauna within Dahej Reserve Forest and health of residents of nearby villages on account of operation of Dahej Unit of R-8/HIL at Dahej. (iv) directions for restoration of environment and ecology of impacted area in and around of the Dahej Unit of R-8/HIL and preparation of detailed plan for restitution of environment and ecology to be implemented at the cost of R-8/HIL. (v) directions for conducting complete performance assessment audit of Environment Management System of the copper smelter plant operated by R-8/HIL at Dahej Unit and recommend corrective measures. (vi) legal action against R-8/HIL for contravention of the Water (Prevention & Control of Pollution) Act, 1974 ("Water Act"), the Air (Prevention & Control of Pollution) Act, 1981 ("Air Act"), and the Environment Protection Act, 1986 ("EPA 1986").

		<p>(vii) directions to R-1/GPCB and R-6/CPCB for computation of environment compensation damage for violations of environmental laws by R-8/HIL while operating the Dahej Unit.</p> <p>(viii) directions for segregation of heavy metal bearing waste disposed without encapsulation in hazardous waste storage cells (Secure Land Fills – SLFs) by R-8/HIL, encapsulation of heavy metal bearing waste and preparation of restoration plan for all SLFs.</p>
2.	27.10.2021	<p>NGT passed Order admitting the OA and issued notice to Respondents.</p> <p>NGT observed that the first relief sought by Applicant, i.e., revocation of CCA dated 30.05.2020 granted by R-1/GPCB to R-8/HIL was <i>prima facie</i> barred by limitation. <u>[ref. para 4]</u></p>
3.	17.11.2021	<p>Reply filed on behalf of R-8/HIL before NGT disputing and denying the allegations made in the OA as being misconceived and untenable. <u>[ref. R-8 Reply Vol. III & IV @ pg. 819-1037; 1038-1176]</u></p>
4.	18.11.2021	<p>R-1/GPCB filed a compilation of documents before NGT, comprising reports of inspections conducted on 05.08.2021, 08.11.2021 and Notice of Directions dt. 16.11.2021 issued by R-1/GPCB to R-8/HIL. <u>[ref. Vol. V – GPCB Documents Compilation @ pg. 1177-1202]</u></p>
5.	18.11.2021	<p>NGT passed Order directing Respondent Nos. 1, 2, 6 and 7 to file replies and directing the Applicant to file rejoinder to reply filed by R-8/HIL before the next date of hearing, i.e., 05.01.2022.</p>
6.	04.01.2022	<p>Applicant filed Rejoinder to reply filed by R-8/HIL before NGT. <u>[ref. Vol. VI - Applicant's Rejoinder @ pg. 1203-1224]</u></p> <p>R-6/CPCB filed reply before NGT. <u>[ref. Vol. VII – R-6/CPCB Reply @ pg. 1225-1308]</u></p> <p>R-8/HIL filed Additional Documents before NGT. <u>[ref. Vol. VIII – R-8/HIL Additional Documents @ pg. 1309-1424]</u></p>
7.	05.01.2022	<p>Order passed by NGT directing constitution of a seven-member Joint Committee comprising the following: <u>[para 20]</u></p> <p>(i) Chairman - Justice B.C Patel (retd.) - former Chief Justice of J&K & Delhi High Courts and former Judge of Gujarat High Court.</p> <p>(ii) Members - Representatives of R-7/MOEFCC, R-6/CPCB, R-1/GPCB, SEIAA Gujarat, R-3/PCCF (HOFF) Forest Department, Govt. of Gujarat, and R-5/GCZMA.</p>

		<p>NGT assigned the following mandate to the Joint Committee: <u>[para 19, 20]</u></p> <p>(i) Conduct inspection of Dahej Unit;</p> <p>(ii) Undertake assessment regarding operational and compliance status vis-à-vis past non-compliances in relation to “...leachate management, slag management, TSDf management, air, water (surface and ground) and soil pollution, damage to the forest and mangroves and compliance of the consent and EC conditions, after verification of facts for five years prior to filing of the application i.e. 17.09.2021 and continuing violations if still found”;</p> <p>(iii) Suggest remediation and restoration plan; and</p> <p>(iv) Undertake assessment of compensation “...on principle of restoration with element of deterrence, having regard to the financial capacity of the PP [project proponent] in the light of law laid down inter-alia in <i>Sterlite Industries (India) Ltd. v. Union of India, (2013) 4 SCC 575</i> and <i>Goel Ganga Developers India Pvt. Ltd. v. UOI, (2018) 18 SCC 257.</i>”</p>
8.	21.01.2022	<p>1st Meeting held by Joint Committee, wherein the following decisions were taken: <u>[Minutes of 1st Meeting – Vol. IX @ pg. 1516-1517]</u></p> <p>(i) Expert members from IIT Gandhinagar and NEERI Nagpur were invited to render further technical assistance to the Joint Committee <u>[@ pg. 1517]</u>.</p> <p>(ii) Joint Committee called for information and records from R-8/HIL pertaining to “...raw material consumed, product/by-product manufactured, mass/material balance data, waste generated and disposed for the period of last 5 years from 17.09.2021...” <u>[@ pg. 1517]</u></p>
9.	28.01.2022	<p>R-8/HIL submitted the information and records relating to the 5-year period (September 2016 till September 2021) as directed by Joint Committee, including the following:</p> <p>(i) Product-wise details of production quantity, raw material consumption details for each product.</p> <p>(ii) Details for each by-product generation quantity.</p> <p>(iii) Manufacturing process for each product / by-product.</p> <p>(iv) Mass/material balance data of manufacturing activity, consisting of raw material input to product / by-product / waste (solid, liquid, gaseous) output.</p>

		<p>(v) Details regarding water consumption, wastewater generation and treated wastewater disposal (KL/day). Details regarding water consumption and wastewater generation per unit of product output were also furnished.</p> <p>(vi) Details regarding fuel consumption, including data pertaining to fuel consumption per unit of product output.</p> <p>(vii) Details regarding hazardous waste generation and management / disposal. Details regarding hazardous waste generation per unit of product output were also furnished.</p>
10.	01.02.2022	<p>2nd Meeting held by Joint Committee, wherein the following aspects were deliberated: [<i>Minutes of 2nd Meeting – Vol. IX @ pg. 1518-1519</i>]</p> <p><u>Assessment of impact of copper slag in reserve forest area:</u> In order to assess and evaluate the environmental impact of copper slag present in reserve forest area on the vegetation density and character of reserve forest area, it was decided to call for the following information / records:</p> <p>(i) A land-use land-cover (“LU/LC”) map of affected reserve forest area since 2002 till date shall be availed in consultation with the Forest Department from a reputed and prominent remote sensing agency such as BISAG [i.e., Bhaskaracharya National Institute for Space Applications and Geo-informatics, Ministry of Electronics and Information Technology, Government of India based in Gandhinagar, Gujarat (“BISAG”)]</p> <p>(ii) The land-use land-cover map to be availed from BISAG shall also cover the mangrove area.</p> <p>(iii) Water samples should be collected from around the slag storage area to determine whether there was any leachate of heavy metal from the slag.</p> <p><u>Assessment of past non-compliances:</u> In order to undertake proper evaluation and assessment, it was decided to call for further information and records from R-8/HIL, including the following:</p> <p>(i) Status of compliance with conditions stipulated under the Environment Clearances, Consolidated Consents and Authorizations, Directions issued by GPCB, CPCB and Forest Department.</p>

		<p>(ii) Environmental audit reports (“Environment Statements”) submitted by R-8/HIL to R-1/GPCB in prescribed Form V as per Rule 14 of the Environment (Protection) Rules, 1986 (“EP Rules”) during 2016-2021 – to assess compliance status with CCA conditions imposed under Air Act, Water Act and Hazardous Waste Management & Handling Rules.</p> <p>(iii) Overall environment management plan.</p> <p>(iv) Aspects relating to waste management and disposal – sludge composition, collection and disposal plans, wastewater treatment.</p> <p>(v) Comparison of EC granted in 2009 and 2017 – to ascertain the impact of change in effluent quantity due to expansion of production if any, and whether there was any change in effluent discharge mechanism in CRZ areas.</p> <p>R-1/GPCB was directed to compile details from 2016 till 2021 regarding production, raw material consumption, inspections carried out and action taken in terms of Show Cause Notices (SCNs), Notices of Directions (NODs), Closure Directions (CDs) as per non-compliances observed and furnish other details sought by Joint Committee members.</p> <p>Joint Committee also decided to avail the land-use land-cover pattern map of affected reserve forest area from BISAG.</p>
11.	07.02.2022 08.02.2022 09.02.2022	<p>R-8/HIL submitted information and records relating to the 5-year period (September 2016 till September 2021) as directed by Joint Committee, including the following:</p> <p>(i) Year-wise annual consumption and generation data mapped against CCA limits for 2016 till 2021 – raw material, water, fuel, products, by-products, effluents, hazardous wastes.</p> <p>(ii) CCA compliance status for 2016-2021.</p> <p>(iii) EC compliance status for 2016-2021.</p> <p>(iv) Environmental management plan compliances in terms of CCA and EC conditions under Air Act, Water Act and hazardous waste management rules.</p> <p>(v) Comparison of EC granted in 2009 and 2017 – details regarding change in effluent quantity due to expansion and effluent discharge mechanism in CRZ areas.</p> <p>(vi) Details regarding wastewater treatment and sludge composition and generation from various sources, including quantity generated, collection, treatment, storage, handling, disposal and management.</p>

		(vii) Compliance status vis-à-vis all inspection reports of GPCB, CPCB and Forest Department, including SCNs, NODs, CDs issued during September 2016 – September 2021.
12.	15.02.2022	<p>3rd Meeting held by Joint Committee, wherein the following aspects were deliberated: [<i>Minutes of 3rd Meeting – Vol. IX @ pg. 1520-1521</i>]</p> <p><u>Assessment of impact in reserve forest area:</u> The land-use land-cover details were discussed, and Joint Committee was apprised that APCCF (Land), Forest Department, Govt. of Gujarat had requested Director, BISAG Gandhinagar to provide satellite imagery of forest land, compartment no. 596 of village Dahej, Tehsil Vagra, District Bharuch and the process of obtaining satellite imagery of the area of interest from BISAG was being expedited.</p> <p><u>Assessment of past non-compliances:</u> It was decided that a joint team comprising representatives of R-1/GPCB, R-6/CPCB and R-7/MOEFCC (“Joint Inspection Team”) will inspect the Dahej Unit to conduct an environmental audit and assess the overall operational and compliance status at Dahej Unit and submit a report to the Joint Committee. The Joint Inspection Team was directed to:</p> <ul style="list-style-type: none"> (i) verify the compliance status of observations and recommendations made during previous inspections. (ii) collect samples of wastewater / treated wastewater from ETP/wastewater treatment plants and submit analysis reports. (iii) collect samples of any stagnant water in stormwater drains or premises, piezometric wells or borewells and submit analysis reports. (iv) observe stacks and OECMS status and conduct monitoring of few operational stacks on random basis on field conditions. (v) collect samples of soil and submit analysis reports. <p>Further, considering the bulky nature of records, R-1/GPCB was also directed to compile the compliance status of environmental audit reports of last 5 years and prepare excel sheets mapping the limits prescribed in the CCA against the details of raw materials consumed, production quantity, water consumption,</p>

		wastewater generation, fuel consumed, hazardous waste generation and disposal along with names of authorized agencies and their permissions.
13.	18.02.2022 19.02.2022	<p>An eight-member Joint Inspection Team comprising representatives of R-1/GPCB and R-6/CPCB conducted inspection of Dahej Unit and submitted the Inspection-cum-Monitoring Report to the Joint Committee ("Inspection-cum-Monitoring Report") [<i>Vol. IX @ pg. 1625-1685</i>].</p> <p>The Joint Inspection Team undertook comprehensive environmental monitoring of Dahej Unit <i>inter alia</i> under the following heads:</p> <ul style="list-style-type: none"> (i) Ambient Air Quality Monitoring (AAQM) [<i>@ pg. 1651-1654</i>] – undertaken for 24 hours at three locations to verify air quality parameters for PM10, SO2 and NOx, collection and analysis of samples by R-1/GPCB. <u>Results @ pg. 1654.</u> (ii) Source emission monitoring of stacks identified by Joint Inspection Team on the basis of criticality, collection and analysis of samples by R-6/CPCB [<i>@ pg. 1654-1656</i>] (iii) Verification of installation, functioning and calibration of CAAQM stations at four locations and OCEMS (Online Continuous Emissions Monitoring System) for emission stacks [<i>@ pg. 1679</i>]. (iv) Monitoring of ETP [<i>@ pg. 1656-1658</i>]– collection of samples of untreated wastewater from ETP-1, ETP-2 and from final outlet (RO reject) disposed into sea through pipeline and analysis by R-6/CPCB. <u>Results @ pg. 1658.</u> (v) Groundwater monitoring [<i>@ pg. 1658-1662</i>] – collection of samples from all 10 piezometric wells around SLF (Borewell No. 1 to Borewell No. 10) and analysis by R-6/CPCB. <u>Results @ pg. 1661-1662.</u> (vi) Leachate monitoring [<i>@ pg. 1662-1663</i>]– collection of samples from leachate collection sump no. 01 and 05 from active SLF Nos. 8A and 8B respectively and analysis by R-6/CPCB. <u>Results @ pg. 1663.</u> <p>To assess the potential contamination of reserve forest area on account of copper slag, the Joint Inspection Team undertook the following:</p>

	<p>(i) Water sampling and analysis - Collection and analysis of 2 samples of water from shallow ponding observed in reserve forest area [<u>@ pg. 1664-1667</u>]. Results @ pg. 1665-1667. The analysis results of water samples were compared against the "General Standards for discharge of environmental pollutants (effluents) in Inland surface water, land for irrigation and marine coastal areas" prescribed by R-6/CPCB under Schedule VI of EP Rules 1986 and it was found that "...most of the monitored parameters are meeting the said standards" [<u>@ pg. 1667</u>]. Further, concentrations of contaminants such as Arsenic, Chromium, Lead, Molybdenum, Mercury, Sulphide, Antimony, Cobalt and Cyanide in both samples was found to be Below Detection Limit (BDL) [<u>@ pg. 1667</u>].</p> <p>(ii) Soil sampling and analysis - Collection and analysis of soil samples from 7 locations in reserve forest area and 1 location within factory premises [<u>@ pg. 1667-1672</u>]. Results @ pg. 1669-1672. The analysis results of soil samples were compared with widely used screening / response level standards (i.e., Dutch Intervention Standards 2009 and Canadian Soil Quality Guidelines). It was found that concentrations of heavy metals were within the intervention value of Dutch Standards and hence there was no soil contamination on account of heavy metals. Concentrations of copper in few samples were found to be exceeding the Canadian Soil Quality Standards and it was recommended that copper slag in reserve forest area should be removed on priority [<u>@ pg. 1671-1672</u>].</p> <p>In addition to the above, Joint Inspection Team also undertook the following:</p> <p>(i) Verification of operational status and compliances undertaken by R-8/HIL vis-à-vis 31 allegations made in the OA [<u>@ pg. 1633-1638</u>]</p> <p>(ii) Photographic comparison of operational status and compliances undertaken vis-à-vis previous observations and recommendations made by R-1/GPCB during inspection conducted on 18.03.2021 [<u>@ pg. 1639-1641</u>]</p> <p>(iii) Audit of Environment Management System:</p> <p>(a) Wastewater management [<u>@ pg. 1642-1644</u>]</p> <p>(b) Air pollution management [<u>@ pg. 1644-1647</u>]</p> <p>(c) Hazardous & other waste management, including details of SLFs, storage facilities for other wastes,</p>
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		<p>CHWTSDF arrangement with M/s. BEIL Infrastructure Ltd., export permissions [@ pg. 1647-1651]</p> <p>Joint Inspection Team also observed and recorded dense mangrove growth in CRZ areas [@ pg. 1672-1674].</p> <p>Joint Inspection Team also verified measures undertaken by R-8/HIL to improve AAQ standards by ensuring reduction of particulate matter and fugitive emissions, including provision for concrete internal roads, RCC roads with end-to-end carpeting, barricades and fencing, deployment of 3 high volume truck mounted road sweeper machines and 9 portable mechanized road and floor sweeping machines [@ pg. 1674-1676; 1681]</p> <p>Joint Inspection Team also verified the coal handling measures undertaken by R-8/HIL to reduce fugitive emissions, including establishment of covered conveyor belts for coal and other bulk materials from jetty to the pant, covered containment wall and high raised wind screens around coal yard, dust suppression using mobile mist cannons, provisions for garland drains, 34 nos. of peripheral sprinklers, dry fogger machine in the coal yard [@ pg. 1676-1679]</p> <p>Joint Inspection Team also verified details of generation and disposal of copper slag and phosphogypsum [@ pg. 1680]</p> <p>Conclusions of Inspection-cum-Monitoring Report @ pg. 1682-1685.</p>
14.	24.02.2022	<p>R-8/HIL submitted information and records sought by R-1/GPCB pursuant to inspection-cum-monitoring by the Joint Inspection Team, including the following:</p> <ul style="list-style-type: none"> (i) Reports of Schedule I environmental audits of Dahej Unit conducted by third party agency appointed by R-1/GPCB for the period 2016-2021 along with compliance status of recommendations and observations. (ii) Details regarding hazardous and other waste generation, management and disposal during 2016-2021, including details of third-party agencies to whom such hazardous or other waste has been disposed and the relevant permissions for such disposal under Rule 9 of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 (“HWM Rules 2016”).
15.	03.03.2022 12.03.2022 13.03.2022	<p>R-8/HIL submitted information and records sought by R-6/CPCB pursuant to inspection by the Joint Inspection Team, including the following:</p>

		<ul style="list-style-type: none"> (i) Action Taken Report detailing compliance status with respect to all GPCB Inspection Reports during 2016-2021 and furnishing details of action taken in respect of observations and recommendations made by R-1/GPCB and R-6/CPCB during each inspection along with details of supporting documentation evidencing compliances undertaken as furnished contemporaneously. (ii) Details regarding hazardous waste management, disposal and handling – Details of all 8 SLF sites along with capacity and closure details, export permissions. (iii) Manifest details of lead anode and cathode, used insulation etc. (iv) Details regarding Wastewater management – ETP details and flow diagrams, details of tertiary water recycling unit etc. (v) Details of OCEMS data and calibration details. (vi) Details regarding water consumption, effluent generation, domestic effluents etc. along with dates of amendment in CCA quantity. (vii) Details of air quality improvement projects – RCC roads, upgradation of infrastructure at coal handling area, road sweeping machines etc. (viii) Details regarding copper slag management – generation, sale and sector-wise sale.
16.	14.03.2022	<p>4th Meeting held by the Joint Committee, wherein the following issues were deliberated: [<i>Minutes of 4th Meeting – Vol. IX @ pg. 1522-1524</i>]</p> <p><u>Assessment of impact in reserve forest area:</u></p> <ul style="list-style-type: none"> (i) R-7/MOEFCC informed that the satellite imagery map (LISS IV and Sentinel) was submitted by BISAG as per area of interest (AOI) provided by Forest Department, Govt. of Gujarat. The False Color Composite (FCC) image since 2004 up-to 2021 has inferred that the <u>dumping of copper slag in the reserve forest area has significantly less impact on the health of surrounding vegetation</u>. The AOI near boundary wall of Dahej Unit was found low lying area which results in ponding of water thus resulting in scarce vegetation in AOI. (ii) It was decided to compare the analysis results of soil samples with relevant environmental standards or

		<p>screening and response levels to assess the level of contamination and to evaluate the need for remediation if found contaminated.</p> <p><u>Discussion on Inspection-cum-Monitoring conducted by Joint Inspection Team on 18-19.02.2022:</u> R-6/CPCB made a detailed presentation to the Joint Committee and presented the assessments and analysis results of the environmental audit of Dahej Unit pursuant to the Inspection-cum-Monitoring conducted by the Joint Inspection Team on 18-19.02.2022.</p> <p>The Joint Committee decided to carry out inspection of Dahej Unit on 30-31.03.2022.</p>
17.	30.03.2022 31.03.2022	<p>The 9-member Joint Committee headed by Chairman Justice B.C. Patel conducted inspection and environmental audit of the Dahej Unit. The Report prepared by Joint Committee pursuant to said inspection and environmental audit was submitted before NGT during May 2022 [<u>JC Report – Vol. IX @ pg. 1425-1713</u>].</p> <p><u>Assessment of impact in reserve forest area</u> The Joint Committee conducted inspection of the reserve forest area [<u>@ pg. 1443-1446</u>] and undertook the following:</p> <p>(i) Evaluation of reasons for presence of copper slag in reserve forest area – Joint Committee examined contemporaneous records of inspections conducted by Forest Department as per which the presence of copper slag in reserve forest area was on account of a water runoff incident in 2009 due to heavy rainfall [<u>@ pg. 1444</u>].</p> <p>(ii) Joint Committee observed that R-8/HIL had "...shown intention to remove the slag and remediate the affected area ... at their own expenses after getting due permission from Forest Department" [<u>@ pg. 1446</u>].</p> <p>(iii) Soil sampling and analysis [<u>@ pg. 1449-1451</u>] – Representatives of R-6/CPCB, R-1/GPCB, R-7/MOEFCC, NEERI and Forest Department undertook soil sampling at 10 locations in reserve forest area to evaluate presence of metals and for chemical species determination of soil. Nine sets of samples were collected from the impacted area and one set of samples of native soil were collected from a far-</p>

		<p>away location in reserve forest area (near Bhootnath temple) for comparison.</p> <p><u>Environmental audit:</u> Joint Committee also inspected all other areas / units of interest at Dahej Unit and conducted on-ground verification, assessment and environmental audit, including:</p> <ul style="list-style-type: none"> (i) CRZ areas (including GMB Port area [<u>@ pg. 1451-1453</u>] and Sterling jetty area [<u>@ pg. 1446-1448</u>]). (ii) Status of mangroves [<u>@ pg. 1446-1448; 1451-1453; 1454-1455</u>] (iii) captive jetty of Dahej Unit [<u>@ pg. 1453-1455</u>]. (iv) SLF sites [<u>@ pg. 1456-1458</u>]. (v) phosphogypsum storage yard [<u>@ pg. 1458-1459</u>]. (vi) coal yard [<u>@ pg. 1459-1462</u>]. (vii) Tertiary Water Recycling Unit [<u>@ pg. 1462-1464</u>]. (viii) Fertilizer Plant [<u>@ pg. 1465</u>]. (ix) Sulphuric Acid Plant-1 [<u>@ pg. 1466-1467</u>]. (x) Refinery-1 Plant [<u>@ pg. 1467-1469</u>]. (xi) Smelter-1 & Smelter-3 Plants [<u>@ pg. 1469-1472</u>]. (xii) CCR-3 Plant [<u>@ pg. 1472-1474</u>]. (xiii) Precious metal recovery plant [<u>@ pg. 1455-1456</u>] (xiv) Copper slag management & disposal [<u>@ pg. 1474-1476</u>] <p>After undertaking comprehensive on-ground inspection, monitoring and environmental audit of Dahej Unit and taking into consideration relevant records and information, the Joint Committee concluded that:</p> <ul style="list-style-type: none"> (i) Operations at Dahej Unit are currently compliant with the prescribed environmental norms and parameters and there are no contraventions / violations on the part of R-8/HIL in respect of 31 allegations raised in the OA [<u>@ pg. 1437-1442</u>] (ii) R-8/HIL is compliant with all conditions and parameters specified under the CCA dated 30.05.2020 granted by R-1/GPCB to R-8/HIL [<u>@ pg. 1477-1490</u>] <p><u>Assessment of Environment Damage Compensation (EDC):</u> [<u>@ pg. 1491-1500</u>] The Joint Committee determined that EDC of INR 5,53,79,292/- ought to be imposed upon R-8/HIL under the following heads:</p>
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		<p>(i) EDC for soil pollution in reserve forest area on account of copper slag run-off incident in 2009 - INR 2,47,79,292/- [<u>@ pg. 1491-1496</u>]. The assessment of impacted area (7061 m²) and EDC assessment for soil pollution was undertaken by NEERI [<u>NEERI Report @ pg. 1589-1593</u>]</p> <p>(ii) EDC for air pollution, water pollution and other non-compliances during 2016-2021 – INR 3,06,00,000/- [<u>@ pg. 1496-1500</u>]. The said EDC for non-compliances was computed as per the Methodology for Assessing Environmental Compensation issued by CPCB in 2019 (“CPCB Methodology”).</p> <p>Further, the Joint Committee proposed a Remediation and Restoration Plan in respect of the reserve forest area to be implemented by R-8/HIL at its expense and under supervision of regulatory authorities [<u>@ pg. 1500-1501</u>]. The said Plan envisages removal of 11317.38 MT of soil from the reserve forest area by R-8/HIL and disposal thereof in accordance with HWM Rules 2016 after obtaining prior permission from local forest department and refilling equal volume of fresh soil in the impact area.</p> <p>Conclusions of Joint Committee Report <u>@ pg. 1501</u>.</p>
18.	14.05.2023	Applicant filed written submissions / objections to the Joint Committee Report before NGT [<u>Vol. X @ pg. 1714-2197</u>].
19.	16.05.2023	R-8/HIL filed short note on arguments before NGT [<u>Vol. XI @ pg. 2198-2205</u>]
20.	05.01.2024	R-8/HIL filed Written Submissions before NGT]



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**Report of the CPCB In-house Committee on
Methodology for Assessing Environmental
Compensation and Action Plan to Utilize the Fund**



**CENTRAL POLLUTION CONTROL BOARD
"Parivesh Bhawan", East Arjun Nagar,
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Abstract

Environmental compensation is a policy instrument for the protection of the environment which works on the Polluter Pay Principal. Environmental compensation has already been implemented in various countries, although limited in scope. Experiences from these implementations are mixed and tend to stress the importance of certain principles in order to achieve the overall objective of protection of the environment.

The Hon'ble National Green Tribunal through its various judgments has empowered the Central Pollution Control Board to lay down the methodology to assess and recover compensation for damage to the environment and utilize such amount in terms of an action plan for protection of the environment.

An attempt has been made by the CPCB in-house Committee to develop a methodology for assessing environmental compensation to be levied on concerned industry, authority, individual etc. for the protection of environment. Expert institutions/ NGOs like The Energy and Resources Institute, Centre for Science and Environment-India, Institute of Economic Growth etc. were also consulted to finalize the report. Overall objective is to develop self-sense of responsibility towards the environment and to make defaulters realize their mistake by imposing compensation, which will be utilized for the protection/restoration of the environment.

Although, this is the first attempt in India towards development of methodology for assessing environmental compensation, however, efforts have been made to simplifying the process so that regulatory institutions can easily adopt the methodology for implementation.

Chapter-I: Environment Compensation to be levied on Industrial Units

1.1 Background

The Hon'ble National Green Tribunal (NGT), Principal Bench in the matter of OA No. 593/2017 (WP (CIVIL) No. 375/2012, Paryavaran Suraksha Samiti & Anr. Vs. Union of India & Ors. directed Central Pollution Control Board (CPCB) that:

“The CPCB may take penal action for failure, if any, against those accountable for setting up and maintaining STPs, CETPs and ETPs. CPCB may also assess and recover compensation for damage to the environment and said fund may be kept in a separate account and utilized in terms of an action plan for protection of the environment. Such action plan may be prepared by the CPCB within three months” (Annexure-I).

1.2 Constitution of the Committee

In this context, Chairman, CPCB constituted a Committee under the Chairmanship of Shri A. Sudhakar, I/c WQM-I with Shri A. K. Vidyarthi, I/c WQM-II, Shri P. K. Gupta, I/c IPC-VI, Shri Nazimuddin I/c IPC-II and Dr. S. K. Paliwal, Scientist 'D' as members. The Committee was asked to deliberate on this issue and come up with a draft formulation before 15.9.2018.

1.3 Methodology for Assessing Environmental Compensation

The Committee discussed the issue on 4.9.2018, 13.9.2018, 17.9.2018 and 09.10.2018. A meeting was also held with Senior Officers of CPCB Head Office and Regional Directorates through video conferencing on 28.09.2018 to discuss the draft report and to seek comments/feedbacks. The comments/feedbacks received and deliberations of the Committee on the same are given in **Annexure-II**.

As per the Hon'ble NGT suggestion, CPCB has invited comments of 3 expert institution, namely, Centre for Science and Environment (CSE), Institute of Economic Growth (IEG) and The Energy Research Institute (TERI). A meeting to incorporate the comments of the expert institutions and to finalize the report, was held on 27/03/2019. The CPCB in-house committee on Environmental Compensation has deliberated on the comments and finalized the report accordingly. The Committee's deliberations are attached as **Annexure-III**.

It was deliberated for developing a formula for imposing environmental compensation on industrial units for violation of directions issued by regulatory bodies and this is the first attempt made. The committee discussed that environmental compensation should be based on "Polluter Pay Principle". The Committee decided to list the instances for taking cognizance of cases fit for violation and levy environmental compensation.

Cases considered for levying Environmental Compensation (EC):

- a) Discharges in violation of consent conditions, mainly prescribed standards / consent limits.
- b) Not complying with the directions issued, such as direction for closure due to non-installation of OCEMS, non-adherence to the action plans submitted etc.
- c) Intentional avoidance of data submission or data manipulation by tampering the Online Continuous Emission / Effluent Monitoring systems.
- d) Accidental discharges lasting for short durations resulting into damage to the environment.
- e) Intentional discharges to the environment -- land, water and air resulting into acute injury or damage to the environment.
- f) Injection of treated/partially treated/ untreated effluents to ground water.

1.3.1 In the instances as mentioned at *a, b and c* above, Pollution Index may be used as a basis to levy the Environmental Compensation. CPCB has published guidelines for categorization of industries into Red, Orange, Green and White based on concept of Pollution Index (PI). The Pollution Index is arrived after considering quantity & quality of emissions/ effluents generated, types of hazardous wastes generated and consumption of resources. Pollution Index of an industrial sector is a numerical number in the range of 0 to 100 and can be represented as follows:

$$PI = f(\text{Water Pollution Score, Air Pollution Score \& HW Generation Score})$$

Pollution Index is a number from 0 to 100 and increasing value of PI denotes the increasing degree of pollution *hazard from the industrial sector*.

CPCB has issued directions to all SPCBs/PCCs on 07.03.2016 to adopt the methodology and follow guidelines prepared by CPCB for categorization of industrial sectors into Red, Orange, Green and White.

The concept of Pollution Index, which was deliberated widely with all stakeholders and agreed, shall be used for calculating Environmental Compensation. This may help in implementation of such provision throughout the country, a successful initiative in vital field of industrial pollution control.

After considering various factors including the policy implementation issues, Committee has come up with following formula for levying the Environmental Compensation in instances as mentioned at a, b and c including non-compliance of the environmental standards / violation of directions.

The Environmental Compensation shall be based on the following formula:

$$EC = PI \times N \times R \times S \times LF$$

Where,

- EC is Environmental Compensation in ₹
 PI = Pollution Index of industrial sector
 N = Number of days of violation took place
 R = A factor in Rupees (₹) for EC
 S = Factor for scale of operation
 LF = Location factor

The formula incorporates the anticipated severity of environmental pollution in terms of Pollution Index, duration of violation in terms of number of days, scale of operation in terms of micro & small/medium/large industry and location in terms of proximity to the large habitations.

Note:

- The industrial sectors have been categorized into Red, Orange and Green, based on their Pollution Index in the range of 60 to 100, 41 to 59 and 21 to 40, respectively. It was suggested that the average pollution index of 80, 50 and 30 may be taken for calculating the Environmental Compensation for Red, Orange and Green categories of industries, respectively.
- N, number of days for which violation took place is the period between the day of violation observed/due date of direction's compliance and the day of compliance verified by CPCB/SPCB/PCC.
- R is a factor in Rupees, which may be a minimum of 100 and maximum of 500. It is suggested to consider R as 250, as the Environmental Compensation in cases of violation.
- S could be based on small/medium/large industry categorization, which may be 0.5 for micro or small, 1.0 for medium and 1.5 for large units.
- LF, could be based on population of the city/town and location of the industrial unit. For the industrial unit located within municipal boundary or up to 10 km distance from the municipal boundary of the city/town, following factors (LF) may be used:

Table No. 1.1: Location Factor Values

S. No.	Population* (million)	Location Factor# (LF)
1	1 to <5	1.25
2	5 to <10	1.5
3	10 and above	2.0

*Population of the city/town as per the latest Census of India

#LF will be 1.0 in case unit is located >10km from municipal boundary

LF is presumed as 1 for city/town having population less than one million.

For notified Ecologically Sensitive areas, for beginning, LF may be assumed as 2.0. However, for critically Polluted Areas, LF may be explored in future.

- f. In any case, minimum Environmental Compensation shall be ₹ 5000/day.
- g. In order to include deterrent effect for repeated violations, EC may be increased on exponential basis, i.e. by 2 times on 1st repetition, 4 times on 2nd repetition and 8 times on further repetitions.
- h. If the operations of the industry are inevitable and violator continues its operations beyond 3 months then for deterrent compensation, EC may be increased by 2, 4 and 8 times for 2nd, 3rd and 4th quarter, respectively. Even if the operations are inevitable beyond 12 months, violator will not be allowed to operate.
- i. Besides EC, industry may be prosecuted or closure directions may be issued, whenever required.

A sample calculation for Environmental Compensation (without deterrent factor) is given at Table No. 1.2. It can be noticed that for all instances, EC for Red, Orange and Green category of industries varies from 3,750 to 60,000 ₹/day.

Table No. 1.2: A sample calculation for Environmental Compensation

Industrial Category	Red	Orange	Green
Pollution Index (PI)	60-100	41-59	21-40
Average PI	80	50	30
R-Factor	250		
S-Factor	0.5-1.5		
L-Factor	1.00-2.00		
Environmental Compensation (₹/day)	10,000-60,000	6,250-37,500	5,000-22,500

1.3.2 In other instances i.e. *d, e and f*, the environmental compensation may contain two parts – one requires providing immediate relief and other long-term measures such as remediation. In all these cases, detailed investigations are required from expert institutions/organizations based on which environmental compensation will be decided. CPCB shall list the expert institutions for this purpose.

In such cases, comprehensive plan for remediation of environmental pollution may be prepared and executed under the supervision of a committee with representatives of SPCB, CPCB and expert institutions/organizations.

1.4 Action Plan for Utilization of Environmental Compensation Fund

The Committee discussed about the utilization of funds, which will be received by imposing Environmental Compensation. The following Action Plan is proposed to utilize the fund for protection of the environment.

1.4.1. When Environmental Compensation is calculated through the Pollution Index:

The amount received by imposing the Environmental Compensation to the industries / organization non-complying with the environmental standards / violating any CPCB's directions shall be deposited in a separate bank account. The amount accumulated will be utilized for Protection of Environment. The following schemes were identified, which may be considered for utilization of Environmental Compensation Fund:

- a. Industrial Inspections for compliance verification
- b. Installation of Continuous water quality monitoring stations / Continuous ambient air quality monitoring stations for strengthening of existing monitoring network
- c. Preparation of Comprehensive Industry Documents on Industrial Sectors / clean technology
- d. Investigations of environmental damages, preparation of DPRs
- e. Remediation of contaminated sites
- f. Infrastructure augmentation of Urban Local Bodies (ULBs) /capacity building of SPCBs/PCCs

The above proposed list may include other schemes also, depending upon the requirement.

Considering the availability of accumulated funds, CPCB will finalize the scheme, keeping in mind the priority, to utilize the funds of Environmental Compensation.

1.4.2. When Environmental Compensation is assessed based on actual damage to the environment by Expert Organization/ Agency:

The amount of Environmental Compensation under this case will be remediation costs, measures requiring immediate and short-term actions, compensation towards loss of ecology, etc., and will be utilized exclusively for the purpose at specific site, based on the detailed investigations by the Expert Organizations/ agencies.

1.5 Recommendations

The Committee made following recommendations:

- 1.5.1 To begin with, Environmental Compensation may be levied by CPCB only when CPCB has issued the directions under the Environment (Protection) Act, 1986. In case of a, b and c, Environmental Compensation may be calculated based on the formula "EC = PI x N x R x S x LF", wherein, PI may be taken as 80, 50 and 30 for red, orange and green category of industries, respectively, and R may be taken as 250. S and LF may be taken as prescribed in the preceding paragraphs.

- 1.5.2 In case of d, e and f, the Environmental Compensation may be levied based on the detailed investigations by Expert Institutions/Organizations.
- 1.5.3 The Hon'ble Supreme Court in its order dated 22.02.2017 in the matter of Paryavaran Suraksha Samiti and another v/s Union of India and others (Writ Petition (Civil) No. 375 of 2012), directed that all running industrial units which require "consent to operate" from concerned State Pollution Control Board, have a primary effluent treatment plant in place. Therefore, no industry requiring ETP, shall be allowed to operate without ETP.
- 1.5.4 EC is not a substitute for taking actions under EP Act, Water Act or Air Act. In fact, units found polluting should be closed/prosecuted as per the Acts and Rules.

Chapter-II: Environmental Compensation to be levied on all violations of Graded Response Action Plan (GRAP) in NCR.

2.1 Background

The CPCB In-house Committee also discussed that the EC shall also be levied on all violations of Graded Response Action Plan (GRAP) in NCR. The implementing agencies for each activity have been identified and the EC will be levied on these agencies. These violations attract graded amounts of EC depending on the state of ambient air quality, which is given in table below:

Table No. 2.1: Environmental Compensation to be levied on all violations of Graded Response Action Plan (GRAP) in Delhi-NCR.

Activity	State Of Air Quality	Environmental Compensation (₹)
Industrial Emissions	Severe +/-Emergency	Rs 1.0 Crore
	Severe	Rs 50 Lakh
	Very Poor	Rs 25 Lakh
	Moderate to Poor	Rs 10 Lakh
Vapour Recovery System (VRS) at Outlets of Oil Companies		
i. Not installed	Target Date	Rs 1.0 Crore
ii. Non-functional	Very poor to Severe +	Rs 50.0 Lakh
	Moderate to Poor	Rs 25.0 Lakh
Construction sites (Offending plot more than 20,000 Sq.m.)	Severe +/-Emergency	Rs 1.0 Crore
	Severe	Rs 50 Lakh
	Very Poor	Rs 25 Lakh
	Moderate to Poor	Rs 10 Lakh
Solid waste/ garbage dumping in Industrial Estates	Very poor to Severe +	Rs 25.0 Lakh
	Moderate to Poor	Rs 10.0 Lakh
Failure to water sprinkling on unpaved roads		
a) Hot-spots	Very poor to Severe +	Rs 25.0 Lakh
b) Other than Hot-spots	Very poor to Severe +	Rs 10.0 Lakh

2.2 Action Plan for Utilization of Environmental Compensation Fund

EC levied on all violations of Graded Response Action Plan (GRAP) in Delhi NCR will be deposited in the same fund and will be utilized in the same manner as mentioned in para 1.4.1 of Chapter-I of this report.

Chapter-III: Environmental Compensation to be levied in case of failure of preventing the pollutants being discharged in water bodies and failure to implement waste management rules

3.1 Background

The Hon'ble Supreme Court in its order dated 22.02.2017 in the matter of Paryavaran Suraksha Samiti and another v/s Union of India and others (Writ Petition (Civil) No. 375 of 2012), directed State Governments (including the concerned Union Territories) to set-up Sewage Treatment Plants (STPs), which are already under implementation, within the time lines already postulated. Further, the STPs, which are yet to set-up, to be completed within a period of three years, from today, i.e. by 22.02.2020.

The Hon'ble NGT in its order dated 06.12.2018 (**Annexure-III**) in the matter of Court of its own motion v/s State of Karnataka (Original Application No. 125/2017 and M.A. No. 1337/2018) has given following directions:

“Since failure of preventing the pollutants being discharged in water bodies (including lakes) and failure to implement solid and other waste management rules are too frequent and widespread, the CPCB must lay down specific guidelines to deal with the same, throughout India, including the scale of compensation to be recovered from different individuals/authorities, in addition to or as alternative to prosecution. The scale may have slabs, depending on extent of pollution caused, economic viability, etc. Deterrent effect for repeated wrongs may also be provided.”

3.2 Ideology of Environmental Compensation Formula

In compliance of the directions of the Hon'ble Tribunal, the Committee deliberated on the issue of environmental compensation to be recovered from individuals/authorities in case of failure of preventing the pollutants being discharged in water bodies and failure to implement solid and other waste management rules. The Committee has suggested that environmental compensation in these cases should be comprised of two components i.e.

1. Cost saved/benefits achieved by the concerned individual/authority by not having proper waste/sewage management system; and
2. Cost to the environment (environmental externality) due to untreated/partially treated waste/sewage because of insufficient capacity of waste/sewage management/treatment facility.

Cost saved/benefits achieved by not having proper waste/sewage management system includes the interest on capital cost of the waste/sewage management facility and daily operation and maintenance (O&M) cost associated with the facility.

The Committee suggested that annual interest rate as 10% on loan amount, borrowed by concerned individual/authority for setting-up waste/sewage management facility, may be assumed as Capital Cost Factor for calculation of environment compensation. Further, as whole O&M cost is saved by concerned individual/authority for not managing required waste/sewage management system, 100% of the O&M cost saved may be considered as O&M cost factor.

Therefore, generalized formula for Environmental Compensation may be described as:

$$EC = \text{Capital Cost Factor} \times \text{Marginal Average Capital Cost for Establishment of Waste or Sewage Management or Treatment Facility} \times (\text{Waste or Sewage Management or Treatment Capacity Gap}) + \text{O\&M Cost Factor} \times \text{Marginal Average O\&M Cost} \times (\text{Waste or Sewage Management or Treatment Capacity Gap}) \times \text{No. of Days for which facility was not available} + \text{Environmental Externality}$$

Cost to the environment due to untreated/partially treated waste/sewage discharge by concerned individual/authority may be assumed as recommended by the committee, which is mentioned below:

Table No. 3.1: Environmental externality for untreated/partially treated sewage discharge

Sewage Treatment Capacity Gap (MLD)	Marginal Cost of Environmental Externality (Rs. per MLD/day)	Minimum and Maximum value of Environmental Externality recommended by the Committee (Lacs Rs. Per Day)
Up to 200	75	Min. 0.05, Max. 0.10
201-500	85	Min. 0.25, Max. 0.35
501 and above	90	Min. 0.60, Max. 0.80

Table No. 3.2: Environmental externality for improper municipal solid waste management

Municipal Solid Waste Management Capacity Gap (TPD)	Marginal Cost of Environmental Externality (Rs. per ton per day)	Minimum and Maximum value of Environmental Externality recommended by the Committee (Lacs Rs. Per Day)
Up to 200	15	Min. 0.01, Max. 0.05
201-500	30	Min. 0.10, Max. 0.15
501-1000	35	Min. 0.25, Max. 0.35
1001-2000	40	Min. 0.50, Max. 0.60
Above 2000		Max. 0.80

The Committee further decided to fix a cap for minimum and maximum cost for capital and O&M component for Environmental Compensation, which are given in below tables:

Table No. 3.3: Minimum and Maximum EC to be levied for untreated/partially treated sewage discharge

Class of the City/Town	Mega-City	Million-plus City	Class-I City/Town and others
Minimum and Maximum values of EC (Total Capital Cost Component) recommended by the Committee (Lacs Rs.)	Min. 2000 Max. 20000	Min. 1000 Max. 10000	Min. 100 Max. 1000
Minimum and Maximum values of EC (O&M Cost Component) recommended by the Committee (Lacs Rs./day)	Min. 2 Max. 20	Min. 1 Max. 10	Min. 0.5 Max. 5

Table No. 3.4: Minimum and Maximum EC to be levied for improper municipal solid waste management

Class of the City/Town	Mega-City	Million-plus City	Class-I City/Town and others
Minimum and Maximum values of EC (Capital Cost Component) recommended by the Committee (Lacs Rs.)	Min. 1000 Max. 10000	Min. 500 Max. 5000	Min. 100 Max. 1000
Minimum and Maximum values of EC (O&M Cost Component) recommended by the Committee (Lacs Rs./day)	Min. 1.0 Max. 10.0	Min. 0.5 Max. 5.0	Min. 0.1 Max. 1.0

The application of formula for calculation of EC may be further understood with the example of two typical cases.

3.3 Environment Compensation for Discharge of Untreated/Partially Treated Sewage by Concerned Individual/Authority:

BIS IS-1172:1993 suggests that for communities with population above 100,000, minimum of 150 to 200 lpcd of water demand is to be supplied. Further, 85% of return rate (CPHEEO Manual on Sewerage and Sewage Treatment Systems, 2013), may be considered for calculation of total sewage generation in a city. CPCB Report on "Performance evaluation of sewage treatment plants under NRC, 2013", describes that the capital cost for 1 MLD STP ranges from 0.63 Cr. to 3 Cr. and O&M cost is around Rs. 30,000 per month. After detail deliberations, the Committee suggested to assume capital cost for STPs as Rs. 1.75 Cr./MLD (marginal average cost). Further, expected cost for conveyance system is assumed as Rs. 5.55 Cr./MLD (marginal average cost) and annual O&M cost as 10% of the combined capital cost. Population of the city may be taken as per the latest Census of India. Based on these assumptions, Environmental Compensation to be levied on concerned ULB may be calculated with the following formula:

EC = Capital Cost Factor x [Marginal Average Capital Cost for Treatment Facility x (Total Generation-Installed Capacity) + Marginal Average Capital Cost for Conveyance Facility x (Total Generation -Operational Capacity)] + O&M Cost Factor x Marginal Average O&M Cost x (Total Generation- Operational Capacity) x No. of Days for which facility was not available + Environmental Externality x No. of Days for which facility was not available

Alternatively;

EC (Lacs Rs.) = [17.5(Total Sewage Generation – Installed Treatment Capacity) + 55.5(Total Sewage Generation-Operational Capacity)] + 0.2(Sewage Generation-Operational Capacity) x N + Marginal Cost of Environmental Externality x (Total Sewage Generation-Operational Capacity) x N

Where; N= Number of days from the date of direction of CPCB/SPCB/PCC till the required capacity systems are provided by the concerned authority

Quantity of Sewage is in MLD

Table No. 3.5: Sample calculation for EC to be levied for discharge of untreated/partial treated Sewage

City	Delhi	Agra	Gurugram	Ambala
Population (2011)	1,63,49,831	17,60,285	8,76,969	5,00,774
Class	Mega-City	Million-plus City	Class-I Town	Class-I Town
Sewage Generation (MLD) (as per the latest data available with CPCB)	4195	381	486	37
Installed Treatment Capacity (MLD) (as per the latest data available with CPCB)	2500	220	404	45.5
Operational Capacity (MLD) (as per the latest data available with CPCB)	1900	140	300	24.5
Treatment Capacity Gap (MLD)	2295	241	186	12.5
Calculated EC (capital cost component for STPs) in Lacs Rs.	29662.50	2817.50	1435.00	0.00
Calculated EC (capital cost component for Conveyance System) in Lacs. Rs.	127372.50	13375.50	10323.00	693.75
Calculated EC (Total capital cost component) in Lacs Rs.	157035.00	16193.00	11758.00	693.75
Minimum and Maximum values of EC (Total Capital Cost Component) recommended by the Committee (Lacs Rs.)	Min. 2000 Max. 20000	Min. 1000 Max. 10000	Min. 100 Max. 1000	Min. 100 Max. 1000
Final EC (Total Capital Cost Component) in Lacs Rs.	20000.00	10000.00	1000.00	693.75
Calculated EC (O&M Component in Lacs Rs./day)	459.00	48.20	37.20	2.50
Minimum and Maximum values of EC (O&M Cost Component) recommended by the Committee (Lacs Rs./day)	Min. 2 Max. 20	Min. 1 Max. 10	Min. 0.5 Max. 5	Min. 0.5 Max. 5
Final EC (O&M Component) in Lacs. Rs./Day	20.00	10.00	5.00	2.50
Calculated Environmental Externality (Lacs Rs .Per Day)	2.0655	0.2049	0.1395	0.0094
Minimum and Maximum value of Environmental Externality recommended by the Committee (Lacs Rs. Per Day)	Min. 0.60 Max. 0.80	Min. 0.25 Max. 0.35	Min. 0.05 Max. 0.10	Min. 0.05 Max. 0.10
Final Environmental Externality (Lacs Rs. Per day)	0.80	0.25	0.10	0.05

3.4 Environment Compensation to be Levied on Concerned Individual/Authority for Improper Solid Waste Management:

It is known that estimated MSW generation is approximately 1.5 lakh MT/Day in India (MoHUA Report-2016). As per the principles of SWM Rules, 2016 and PWM Rules 2016, as amended in 2018, the total cost of Municipal Solid Waste management in a city/town includes cost for door to door collection, cost of segregation at source, cost for transportation in segregated manner, cost for processing of MSW and disposal through facility like composting, bimethanation, recycling, co-processing in cement kilns etc.

In view of above, it is estimated that the total cost of processing and treatment of MSW for a city having population size of 1 lakh and generating approximately 50 tons/day of MSW is Rs.15.5 Crores, including capital cost (one time) and O & M cost for one year. The expenditure for subsequent years would be only Rs. 3.5 crores/annum.

CPCB sponsored a survey to ascertain the status of municipal solid waste disposal in 59 cities/towns of India. The survey was conducted by the Environment Protection Training Research Institute (EPTRI), Hyderabad. As per the survey, it is estimated that solid waste generated in small, medium and large cities and towns is about 0.1 kg (Class-III), 0.3-0.4 kg (Class-II) and 0.5 kg (Class-I) per capita per day respectively. The committee opined that 0.6 kg/day, 0.5 kg/day and 0.4 kg/day per capita waste generation may be assumed for mega-cities, million-plus UAs/towns and Class-I UA/Towns respectively for calculation of environmental compensation purposes. Based on these assumptions, Environmental Compensation to be levied on concerned ULB may be calculated with the following formula:

EC = Capital Cost Factor x Marginal Average Cost for Waste Management x (Per day waste generation-Per day waste disposed as per the Rules) + O&M Cost Factor x Marginal Average O&M Cost x (Per day waste generation-Per day waste disposed as per the Rules) x Number of days violation took place + Environmental Externality x N

Where;

Waste Quantity in tons per day (TPD)

N= Number of days from the date of direction of CPCB/SPCB/PCC till the required capacity systems are provided by the concerned authority

Simplifying;

EC (Lacs Rs.) = 2.4(Waste Generation - Waste Disposed as per the Rules) +0.02 (Waste Generation - Waste Disposed as per the Rules) x N + Marginal Cost of Environmental Externality x (Waste Generation - Waste Disposed as per the Rules) x N

Table No. 3.6: Sample calculation for EC to be levied for improper management of Municipal Solid Waste

City	Delhi	Agra	Gurugram	Ambala
Population (2011)	1,63,49,831	17,60,285	8,76,969	5,00,774
Class	Mega-City	Million-plus City	Class-I Town	Class-I Town
Waste Generation (kg. per person per day)	0.6	0.5	0.4	0.4
Waste Generation (TPD)	9809.90	880.14	350.79	200.31
Waste Disposal as per Rules (TPD) (assumed as 25% of waste generation for sample calculation)	2452.47	220.04	87.70	50.08
Waste Management Capacity Gap (TPD)	7357.42	660.11	263.09	150.23
Calculated EC (capital cost component) in Lacs. Rs.	17657.82	1584.26	631.42	360.56
Minimum and Maximum values of EC (Capital Cost Component) recommended by the Committee (Lacs Rs.)	Min. 1000 Max. 10000	Min. 500 Max. 5000	Min. 100 Max. 1000	Min. 100 Max. 1000
Final EC (capital cost component) in Lacs. Rs.	10000.00	1584.26	631.42	360.56
Calculated EC (O&M Component) in Lacs. Rs./Day	147.15	13.20	5.26	3.00
Minimum and Maximum values of EC (O&M Cost Component) recommended by the Committee (Lacs Rs./Day)	Min. 1.0 Max. 10.0	Min. 0.5 Max. 5.0	Min. 0.1 Max. 1.0	Min. 0.1 Max. 1.0
Final EC (O&M Component) in Lacs. Rs./Day	10.00	5.00	1.00	1.00
Calculated Environmental Externality (Lacs Rs. Per Day)	2.58	0.18	0.03	0.02
Minimum and Maximum value of Environmental Externality recommended by the Committee (Lacs Rs. per day)	Max. 0.80	Min. 0.25 Max. 0.35	Min. 0.01 Max. 0.05	Min. 0.01 Max. 0.05
Final Environmental Externality (Lacs Rs. per day)	0.80	0.25	0.03	0.02

3.3 Action Plan for Utilization of Environmental Compensation Fund

EC levied in case of failure of preventing the pollutants being discharged in water bodies and failure to implement waste management rules will be deposited in the same fund and will be utilized in the same manner as mentioned in para 1.4.1 of Chapter-I of this report.

3.4 Recommendations

1. The Committee recommended that to begin with, Environmental Compensation to be recovered from individuals/authorities in case of failure of preventing the pollutants being discharged in water bodies and failure to implement solid waste management rules may be calculated with the methodology described in the report.
2. If mixing of Bio-medical Waste or Hazardous Waste is found in Municipal Solid Waste than capital cost component of EC may be increased by a multiplication factor of 1.5.

3. In order to include deterrent effect for continuous violations, component of O&M and Environmental Externality in EC formula may be increased on exponential basis by 2, 4, and 8 times after every six-months, beyond the time prescribed by authority for ensuring complete treatment of sewage/waste of the city/town.

Chapter-IV: Environmental Compensation in Case of Illegal Extraction of Ground Water

4.1 Background

The Hon'ble National Green Tribunal (NGT), Principal Bench in the matter of Shailesh Singh v/s Central Ground Water Board & Ors. (Original Application No. 327/2018) vide order dated 03/01/2019 (Annexure-V) directed Central Pollution Control Board (CPCB) that:

"CPCB may constitute a mechanism to deal with individual cases of violation of norms, as existed prior to Notification of 12/12/2018, to determine the environment compensation to be recovered or other coercive measures to be taken, including prosecution, for past illegal extraction of ground water, as per law."

4.2 Constitution of the Committee

In compliance to Hon'ble NGT dated 03/01/2019, CPCB constituted a committee under the Chairmanship of Shri A. Sudhakar, DH, WQM-I Division with Shri P. K. Gupta, DH, IPC-VI, Shri Vishal Gandhi, Sc. D, UPC-I Division and Smt. Suniti Parashar, Scientist B, WQM-I Division as members. The committee was asked to deliberate on this issue and come up with draft formulation of mechanism to determine the Environmental Compensation for illegal extraction of ground water.

4.3 Methodology for Assessing Environmental Compensation

The committee discussed the issue on 07/02/2019, 07/03/2019 and 20/3/2019. The committee deliberated on the issue of Environmental Compensation to be recovered from individuals/industries such as domestic, packaging drinking water units, mining & infrastructure projects and industrial units in case of illegal extraction of ground water. The Guidelines/Criteria for evaluation of proposals/requests for Ground Water Abstraction, 2015 were also discussed and based on this further formulation to levy Environmental Compensation has been evolved.

4.4 Ideology of Environmental Compensation w.r.to illegal extraction of ground water

Ground water is becoming an increasingly scarce resource because of its unabated and indiscriminate over-exploitation. Growth in ground water exploitation, however, has led to a steep fall in water table in several parts of the country. Use of ground water is becoming unsustainable day by day. The falling water table is a matter of special concern since it tends to reduce the accessibility of the resource to small and marginal farmers due to increase in costs of extractions.

Specific conditions applicable in Notified/Non-Notified areas for various users, as mentioned in Guidelines/Criteria for evaluation of proposals/requests for Ground Water Abstraction, 2015 are given below:

For Notified Areas:

1. Permission to abstract ground water through any energized means will not be accorded for any purpose other than drinking water.

2. Central Ground Water Authority (CGWA) so far has notified 162 areas, in the country for the purpose of regulation of ground water development.
3. Regulation of Ground Water development in Notified areas is through District Administrative Heads assisted by Advisory Committees under the provisions of Section 4 of the Environment (Protection) Act, 1986.
4. In Notified areas, ground water use in individual houses, infrastructure complexes like group housing societies, hospitals, schools etc. and drinking water requirements of workers in industries can be allowed.
5. NOC for ground water withdrawal will be considered only if Water Supplying Department is not providing adequate water in the area/premises. Proof for this is to be produced from the concerned authority by the applicant.
6. For individual houses, the maximum diameter of the tube-well should be restricted to 4 inch only and the capacity of the pump should not exceed 1HP. For infrastructure projects, maximum diameter of the ground water abstraction structures should be restricted to 150 mm (6 inches) only and capacity of the pump should not exceed 5 HP.
7. Any violation of the above conditions will attract legal action under Section 15 of the Environment (Protection) Act, 1986.

For Non-Notified Areas:

NOC for ground water withdrawal will be considered for industries/infrastructure/packaging as per safe, semi critical, critical and over-exploited criteria.

4.5 Formula for Environmental Compensation for illegal extraction of ground water

The committee decided that the formula should be based on water consumption (Pump Yield & Time duration) and rates for imposing Environmental Compensation for violation of illegal abstraction of ground water. The committee has proposed following formula for calculation of Environmental Compensation (EC_{GW}):

EC_{GW}	=	Water Consumption per Day x No. of Days x Environmental Compensation Rate for illegal extraction of ground water (ECR_{GW})
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Where water Consumption is in m^3/day and ECR_{GW} in $Rs./m^3$

Yield of the pump varies based on the capacity/power of pump, water head etc. For reference purpose, yield of the pump may be assumed as given in **Annexure-VI**.

Time duration will be the period from which pump is operated illegally.

In case of illegal extraction of ground water, quantity of discharge as per the meter reading or as calculated with assumptions of yield and time may be used for calculation of EC_{GW} .

4.6 Environmental Compensation Rate (ECR_{GW}) for illegal use of Ground Water

The committee decided that the Environmental Compensation Rate (ECR_{GW}) for illegal extraction of ground water should increase with increase in water consumption as well as water scarcity in the area. Further, ECR_{GW} are kept relaxed for drinking and domestic use as compared to other uses, considering the basic need of human being.

As per CGWB, safe, semi-critical, critical and over-exploited areas are categorized from the ground water resources point of view (CGWB, 2017). List of safe, semi-critical, critical and over-exploited areas are available on the website of CGWB and can be accessed from- <http://cgwa-noc.gov.in/LandingPage/NotifiedAreas/CategorizationOfAssessmentUnits.pdf#ZOOM=150>.

Environmental Compensation Rates (ECR_{GW}) for illegal use of ground water (ECR_{GW}) for various purposes such as drinking/domestic use, packaging units, mining and industrial sectors as finalized by the committee are given in tables below:

4.6.1 ECR_{GW} for Drinking and Domestic use:

Drinking and Domestic use means uses of ground water in households, institutional activity, hospitals, commercial complexes, townships etc.

Sl. No.	Area Category	Water Consumption (m^3/day)			
		<2	2 to <5	5 to <25	25 & above
Environmental Compensation Rate (ECR_{GW}) in Rs./ m^3					
1	Safe	4	6	8	10
2	Semi Critical	12	14	16	20
3	Critical	22	24	26	30
4	Over-Exploited	32	34	36	40
Minimum EC_{GW}=Rs 10,000/- (for households) and Rs. 50,000 (for institutional activity, commercial complexes, townships etc.)					

4.6.2 ECR_{GW} for Packaged drinking water units:

Sl. No.	Area Category	Water Consumption (m^3/day)			
		<200	200 to <1000	1000 to <5000	5000 & above
Environmental Compensation Rate (ECR_{GW}) in Rs./ m^3					
1	Safe	12	18	24	30
2	Semi critical	24	36	48	60
3	Critical	36	48	66	90
4	Over-exploited	48	72	96	120
Minimum EC_{GW}=Rs 1,00,000/-					

4.6.3 ECR_{GW} for Mining, Infrastructure and Dewatering Projects

Sl. No.	Area Category	Water Consumption (m^3/day)			
		<200	200 to <1000	1000 to <5000	5000 & above
Environmental Compensation Rate (ECR_{GW}) in Rs./ m^3					
1	Safe	15	21	30	40
2	Semi critical	30	45	60	75
3	Critical	45	60	85	115
4	Over-exploited	60	90	120	150
Minimum EC_{GW}=Rs 1,00,000/-					

4.6.4 ECR_{GW} for Industrial Units:

Sl. No.	Area Category	Water Consumption (m ³ /day)			
		<200	200 to <1000	1000 to <5000	5000 & above
Environmental Compensation Rate (ECR _{GW}) in Rs./m ³					
1	Safe	20	30	40	50
2	Semi critical	40	60	80	100
3	Critical	60	80	110	150
4	Over-exploited	80	120	160	200
Minimum ECR _{GW} =Rs 1,00,000/-					

For better understanding of implementation of ECR_{GW} policy, some example calculations are given below:

Example No. 1 (For drinking and domestic Use):

It is observed that a household in safe zone is extracting ground water illegally from past 2 year and 3 months with the help of 1 HP pump, dia 4 inches and head as 25 meter. It is assumed that the house-owner runs the pump for 0.5 hr/day. What Environmental Compensation (EC_{GW}) will be charged to the owner?

Solution: Pump Yield (Please refer Annexure-VI) = 3 m³/hr

Daily Consumption = 3 x 0.5 = 1.5 m³

ECR_{GW} = 4 Rs./m³ (Please refer para 4.6.1)

EC to be levied = 4 x 1.5 = 6 Rs./day

Total time period = 820 days

Then, EC_{GW} = 6 x 820

Calculated EC_{GW} = 4,920 Rs.

EC_{GW} to be levied = 10,000 Rs. (minimum prescribed ECR_{GW}, please refer para 4.6.1)

Example 2 (For Industrial Units):

It is observed that an industry in critical zone is extracting ground water illegally from past 1 year with the help of 5 HP pump, dia 6 inches and head as 50 meter. It is assumed that the industry runs the pump for 3 hrs/day. What Environmental Compensation (EC_{GW}) will be charged to the owner?

Solution: Pump Yield (Please refer Annexure-VI) = 12 m³/hr

Daily Consumption = 12 x 3 = 36 m³/day

ECR_{GW} = 60 Rs./m³ (Please refer para 4.6.4)

EC to be levied = 60 x 36 = 2,160 Rs./day

Total time period = 365 days

Then, EC_{GW} = 2,160 x 365

EC_{GW} = 7,88,400 Rs.

4.7 Relaxation

Central Ground Water Authority (CGWA) reserves to right to relax or interpret these mechanisms in case of any exigency or situation of National strategic importance, as per Guidelines/Criteria for evaluation of proposals/requests for Ground Water Abstraction, 2015.

4.8 Recommendations

The committee has given following recommendations:

- The minimum Environmental Compensation for illegal extraction of ground water for domestic purpose will be Rs. 10,000, for institutional/commercial use will be 50,000 and for other uses will be 1,00,000.
- In case of fixation of liability, it always lies with current owner of the premises where illegal extraction is taking place.
- Time duration may be assumed to be one year in case where no evidence for period of installation of bore well could be established.
- For Drinking and Domestic use, where metering is not present but storage tank facility is available, minimum water consumption per day may be assumed as similar to the storage capacity of the tank.
- For industrial ground water use, where metering is not available, water consumption may be assumed as per the consent conditions. Further, where in case industry is operating without consent, water consumption may be calculated based on the plant capacity (on the recommendation of SPCB/PCC, if required). SPCB/PCC may bring the issue of illegal extraction of ground water in industries in to the notice of CGWA for appropriate action by CGWA.
- Authorities assigned for levy EC and taking penal action are listed below:

S. No.	Actions	Authority
1.	To seal the illegal bore-well/tube-well to stop extraction of water and further closure of project	District Collector
2.	To levy EC _{GW} as per prescribed method	District Collector, CGWA
3.	To levy EC on water pollution, as per the method prescribed in report of CPCB- "EC on industrial pollution"	CPCB/SPCB/PCC
4.	Prosecution of violator	CGWA under EP Act SPCB/PCC under Air and Water Act

- CGWA may maintain a separate account for collection and utilization of fund, collected through the prescribed methodology in this report.

Annexure-IBEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHIOriginal Application No. 593/2017
(W.P. (Civil) No. 375/2012)In the matter of:Paryavaran Suraksha Samiti & Anr.
Vs.
Union of India & Ors.CORAM : HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
HON'BLE DR. JUSTICE JAWAD RAHIM, JUDICIAL MEMBER
HON'BLE MR. JUSTICE S.P. WANGDI, JUDICIAL MEMBER
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER

Present:	Applicant: Amicus Curiae: Respondent Nos.	Mr. Rohit Prajapati, Applicant in person Mr. Jai A. Dehadrai, Adv. Mr. Nishe Rajan Shonker, Adv. for State of Kerala Mr. Tarunvir Singh Khehar, Ms. Guneet Khehar Mr. Sandeep Mishra Advs. for GNCTD Mr. Anil Shrivastava Mr Rituraj Bswas and Ms. Sujaya Bardhan, Advs. for State of Arunachal Pradesh Mr. Jogy Scaria, Ms. Beena Victor, Advs. for Kerala State Pollution Control Board Mr. Avijit Roy, Adv. for Assam Pollution Control Board Mr. Leishangthem Roehmani Kh. Ms. Maibam Babina, Advs. for State of Manipur Mr. Nikhil Nayyar, Mr. Dhananjay Bajjal, Advs. for APPCB and TSPCB Mr. Mukesh Verma, Adv. Mr. Tarunvir Singh Khehar, Adv., Mr. Sandeep Mishra and Ms. Guneet Khehar, Adv. Mr. Dinesh Jindal, LO for DPCC Ms. Aruna Mathur, Mr. Avneesh Arputham, Ms. Simraj Jeet and Ms. Aauradha Arputham, Advs. for State of Sikkim Mr. Raja Chatterjee, Mr. Piyush Sachdev, Ms. Abhinandini Yadav, Advs. and Advs. for State of WB Mr. Edward Belho, AAG, Mr. K. Luikang Michael and Ms. Hoinethiam, Advs. for State of Nagaland Ms. Enatoli Sema, Adv. for State of Nagaland and Pollution Control Board Mr. M. Paikaray and Mr. A.K. Panda, Advs. for SPCB, Odisha Mr. Dhruv Pal, Adv. for State of Gujarat Mr. V.K. Shukla, Adv. for State of MP Mr. Jayesh Gaurav, Adv. for R-47 Mr. Tayenjam Momo Singh, Adv. for Meghalaya Pollution Control Board Mr. Shlok Chandra and Mr. Ritesh Kumar Sharma, Advs. Mr. Gautam Singh and Mr. Shoeb Alam, Advs. for State of Bihar Ms. Aprajita Mukherjee, Adv. Ms. G. Indira, Adv. for UT of Andaman & Nicobar Mr. Balendu Shekhar, Mr. Sriansh Prakash and Mr. Rajkumar Maurya, Advs. for Ministry of Environment, Forest and Climate Change Ms. Puja Kalra, Adv. for SDMC & NDMC Mr. Anil Grover, AAG, Mr. Rahul Khurana and Mr. Mishal Vij, Advs. for State of Haryana and HSPCB
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Ms. Yogmaya Agnihotri, Adv. and Ms. Prity, Adv. for CECEB
 Ms. Sakshi Popli, Adv. for Ministry of Environment, Forest and Climate Change
 Mr. Shuvodeep Roy, Adv. and Mr. Rituraj Biswas, Adv. for State of Tripura & Tripura Pollution Control Board
 Mr. Shashank Bajpai and Mr. Shakun S. Shukla, Advs. for State of Odisha
 Ms. Asha Nayar Basu and Ms. Aradhita Ghosh Mandal, Advs.
 Ms. Priyanka Sinha, Adv. for State of Jharkhand
 Mr. Rajul Shrivastav, Adv. for MPPCB
 Mr. Pradeep Misra and Mr. Daleep Dhyani Advs. for UPPCB
 Mr. R. Rakesh Sharma and Mr. V. Mowli, Advs. for State of TN & TNPCE
 Mr. Shubham Bhalla, Adv.
 Mr. Shiv Mangal Sharma, AAG, Mr. Saurabh Rajpal, Mr. Adhiraj Singh, Ms. Shikha Sandhu and Mr. Vikrmjeet Singh, Advs. for State of Rajasthan and Pollution Control Board
 Mr. G. M. Kawoosa, Adv. for State of J & K
 Mr. Divya Prakash Pande, Adv. For HPSPCB
 Mr. Manish Kumar, Adv.

Date and Remarks	Orders of the Tribunal
Item No. 12 August 03, 2018 A	<p>1. This matter was taken by this Tribunal in furtherance to the orders of the Hon'ble Supreme Court dated 22.02.2017 <i>Paryavaran Suraksha Samiti Vs. Union of India</i> (2017) 5 SCC 326, establishment and functioning of ETPs/CETP/STPs.</p> <p>2. Vide order dated 25.05.2017, Notice was issued to Central Pollution Control Board and all the States Pollution Control Boards/Committees and the Ministry of Environment, Forest and Climate Change. They were directed to file status-cum-compliance report in terms of the orders of the Hon'ble Supreme Court. Accordingly, various status reports have been filed. An affidavit has been filed by the Ministry of Environment, Forest and Climate Change dated 04th July, 2017 stating as follows:</p> <p style="padding-left: 40px;">“4. That the answering Respondent is engaged in policy formulation, prescribing standards and its implementation through the Central Pollution Control Board (CPCB), State Pollution Control Boards (SPCBs) and Pollution Control Committees (PCCs) for UTs. This Ministry has written to all SPCBs and PCCs as well as to CPCB to ensure compliance of the judgment of the Hon'ble Supreme Court and to submit detailed compliance report.</p>

	<p>Item No. 12</p> <p>August 03, 2018 A</p>	<p>5. That the CPCB has also followed up with all SPCBs and PCCs through letters and review meetings to ensure compliance of the aforementioned judgment and that the matter was also discussed in the 62nd Conference of the Chairmen and Member Secretaries of SPCBs and PCCs held on 27.06.2017. That 26 SPCBs/PCCs have submitted the compliance report, which has been summarized at Annexure-I.</p> <p>6. That the CPCB has also carried out inspections of 17 categories of industries to verify compliance with its directions issued on online effluent/emission monitoring system and to cross-verify online results with manual sampling. During February-June, 2017, 64 industries were inspected and directions under section 5 of the Environment (Protection) Act, 1986 have been issued to 24 non-complying industries; 18 industries were complying; 8 were found closed and inspection reports of 14 industries are under process.</p> <p>7. That the CPCB and NMCG through 11 technical institutions, inspected 751 industries located in the River Ganga main stem during March-April, 2017 to verify the status of installation and connectivity of industries discharging effluents as well as their compliance with the standards. Closure directions have been issued to 154 industries; show cause notices issue to 36 industries; 149 industries were found complying and direction issued to 91 self-closed Grossly Polluting Industries (GPI) to remain closed; 93 GPI units were found closed as per directions; 38 GPI units found operational in violation of closure directions and inspection reports of 190 industries are under process".</p> <p>3. We have heard learned Amicus Curiae Sh. Jai A. Dehadrai and the learned counsel for Ministry of Environment, Forest and Climate Change, Central Pollution Control Board, various State Pollution Control Boards and the Pollution Control Committees.</p> <p>4. Learned Amicus Curiae has drawn our attention to orders dated 04.07.2017, 18.09.2017 and 11.10.2017 of the Tribunal directing the State Pollution Control Boards to file a statement as to how many Industrial Units discharging trade effluents or causing emissions exist in the State, how many are having their own STPs, ETPs and/or connected to Common Effluent Treatment Plant</p>
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	<p>Item No. 12 August 03, 2018 A</p>	<p>(CETP), whether any such CETP or ETP or STP is properly functioning and treating the effluents as per prescribed limits or not.</p> <p>5. Learned Amicus Curiae submitted that contamination of water due to industrial effluents can lead to various diseases and adverse consequences on the aquatic organism due to decreased level of oxygen. The use of technology can help reduction of adverse consequences. However, the best solution is to prevent pollution by soil conservation and proper disposal of toxics and chemicals which may include chemical recycling.</p> <p>6. Having monitored the matter for the last more than one year on several dates, we are of the view that the matter requires continuous monitoring by statutory authorities as per directions which we proceed to issue today.</p> <p>(i) We direct the Central Pollution Control Board (CPCB) to forthwith prepare an action plan after looking into all the status reports. The action plans must have mechanism to ensure compliance or all the directions in the order of the Hon'ble Supreme Court. To enable this to be done, a Nodal officer must be identified to deal with the issue of CETPs/ETPs/STPs.</p> <p>(ii) A representative of the Ministry of Environment, Forest and Climate Change may be associated with the Nodal Officer of the CETP for monitoring. The Monitoring by the said two officers- the representative of the MoEF and the Nodal Officer of the CPCB must be held atleast once in a month and on the basis of such meeting and the feedback taken further follow up action must be taken and</p>
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	<p>Item No. 12</p> <p>August 03, 2018 A</p>	<p>appropriate directions issued. This process may be a continuous process.</p> <p>(iii) It must be ensured that STPs, CETPs and ETPs are functional and meet the requisite standards.</p> <p>(iv) There is already a direction in the above judgment under which 50% of the funds for the purpose are to be provided by the Central Government, 25% by the States and remaining 25% to be arranged by way of loans which is to be re-paid by the user industries. Local bodies and the States have duties as clearly stipulated in the judgment. There has to be online monitoring system by each State to display emission levels in public domain in terms of paragraph 17 of the order of the Hon'ble Supreme Court.</p> <p>(v) A report of the steps taken may be placed on the website of the Central Pollution Control Board atleast once in three months. Deficiencies if any may also be so displayed.</p> <p>(vi) The Central Pollution Control Board may take penal action for failure, if any, against those accountable for setting up and maintaining STPs, CETPs and ETPs. Central Pollution Control Board may also assess and recover compensation for damage to the environment and the said fund be kept in a separate account and utilized in terms of an action plan for protection of the environment. Such action plan may be prepared by the Central Pollution Control Board within three months from today.</p> <p>(vii) A compliance report in terms of the above order may be furnished to this Tribunal within four months from today by e-mail at filing.ngt@gmail.com.</p>
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<p>Item No. 12</p> <p>August 03, 2018 A</p>	<p>(7) Proceedings are disposed of.</p> <p>However, the report received from the Central Pollution Control Board may be placed for consideration before this Tribunal on 04.09.2018.</p> <p>We place on record our appreciation for the services rendered by the learned Amicus Curiae.</p> <p>....., CP (Adarsh Kumar Goel)</p> <p>....., JM (Dr. Jawad Rahim)</p> <p>....., JM (S.P. Wangdi)</p> <p>....., EM (Dr. Nagin Nanda)</p> <p>03.08.2018</p>
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Comments Received from Various RDs on Draft Report for Environmental CompensationAnnexure-II

S. No.	Item	RD Kolkata	RD Vadodara	RD Bengaluru	RD Lucknow	Committee Deliberations
1	Case- a, b & c	<p>Bypassing of effluent/emission should be given special consideration.</p> <p>EC levied on ROG categories of industries should be on the basis of inspection by CPCB, complaint verification and routine inspection.</p>	<p>Instead of "Compensation", "Penalty" word should be used.</p> <p>In case common facilities like CETPs, factor may be introduced based on member industries.</p> <p>Clarify the applicability of penalty in addition to closure directions for pro-longed and gross non-compliance.</p>			<p>The Committee discussed that the points highlighted by RD Kolkata are already the part of cases fit for violation and levy environmental compensation. However, as mentioned by RD Vadodara, word "Penalty" may be used for case a, b and c. For CETPs, a factor may be considered in future based on the capacity of the plant.</p>
2	Case- d, e & f	<p>Higher rates for irreparable damages crop, soil, health etc.</p> <p>Leakages/spillage should have different compensation value.</p>	<p>It should be mentioned that instances d, e & f shall be dealt for environmental compensation in line with the polluter pays principle, besides of environmental penalty for cases a, b and c.</p>	<p>Similar to 'Guidelines on Liabilities for Environmental Damages due to Handling & Disposal of Hazardous Waste and Penalty', Guidelines may be prepared.</p>		<p>Suggestions made by RD Kolkata and Vadodara has already been taken care. Concept of environmental compensation is based on the philosophy of "polluters pay" and for grievance injury to environment, compensation will be charged as per the assessment of remediation cost, on case to case basis.</p>
3	Pollution Index (PI)			<p>Instead of average PI, Actual PI may be used.</p>		<p>Committee suggested that to make the implementation of EC simple and easy, use of average PI may be considered for calculation of EC.</p>
4	R-factor	<p>Should be based on pollution load. For ex. Amount of BOD/NOx etc. discharged.</p>		<p>May be classified based on the contribution of pollution load based on quantity of effluent, concentration, emissions</p>	<p>May be as per the category of industry, for ex. Red-500, Orange-300, Green-100.</p>	<p>As PI is based on the pollution load, suggestion of RDs are already taken care in the formula.</p>
5	L-factor			<p>May be redefined based on the features, activities involved and habitation.</p>		<p>L-factor may be covered in future as already indicated in the report.</p>

S. No.	Item	RD Kolkata	RD Vadodara	RD Bengaluru	RD Lucknow	Committee Deliberations
6	Defining period of violations for which EC will be levied		Duration of violations needs more clarity.	For industry having OCEMS, no. of days may be counted based on the recorded data. Industry without OCEMS-based on break down of ETP/APCD, disturbance of power supply or any failure of auxiliary machineries w.r.t. control system.	May be clearly defined as the period between the day of violation observed and the day of compliance verified by CPCB/SPCB/PCC.	The committee agreed that period of violation for which EC may be levied will be the period between the day of violation observed and the day of compliance verified by CPCB/SPCB/PCC.
7	Repeated Violations		Some number of days may be specified after which the penalty amount may get a factor of 1.5 or 2.		Multiplying factor for repeated violations may be included. For ex. 1 st Repetition- 25% 2 nd Repetition- 50% 3 rd Repetition- 100%	For habitual offenders, higher amount of penalty/compensation may be charged in future.
8	Utilization of fund	An environmental damage assessment cell may be created. Expertise in the field may be achieved by involving scientist/engineers and providing them training in country/abroad.	Amount should not be utilized for a) Industrial Inspections for compliance verification, b) Installation of Continuous water quality monitoring stations / Continuous ambient air quality monitoring stations for strengthening of existing monitoring network, c) Preparation of Comprehensive Industry Documents on Industrial Sectors / clean technology f) Funding to financially weaker municipalities for installation of STPs The amount should be utilized solely for damage assessment, remediation of affected sites, orphan contaminated sites and creating awareness. The purpose should not get inclined towards revenue generation.			RD Vadodara suggested that amount should be utilized only for remediation purpose. However, committee discussed that the proposal for utilization of fund is prepared considering the other aspects (i.e. direct and indirect) for protection of environment, which include research, monitoring etc. Suggestion of RD Kolkata may be considered in future.

			Thus, the functional fabric of CPCB shall remain intact.			
9	Others	Higher EC for non-installation of pollution control measures. Expected sources should have different scoring methodology based on their weightage.				The committee discussed that CPCB is already taking appropriate action including closure direction against the industries found operating without pollution control measures.

Comments Received from Various Expert Institutions on the Report on Environmental Compensation

As per the Hon'ble NGT suggestion, CPCB has invited comments of 3 expert institution, namely, Centre for Science and Environment (CSE), Institute of Economic Growth (IEG) and The Energy Research Institute (TERI). The CPCB in-house committee on Environmental Compensation has deliberated on the comments and finalized the report accordingly. The Committee's deliberations are summarized in table below:

S. No.	Item	Comments from TERI	Comments of CSE	Comments of IEG	Committee's Deliberations
1	Cases d, e and f	Distinction between categories "a, b, c" and "d, e, f" is not clear. Case specific investigations should be minimized. Proposed cases deals separately with intentional and accidental cases but sometimes they are not easy to establish.	-	Why cases 'e' and 'f' are left for later remediation and study?	There may be a varied damage to the environment as considered in cases 'e' and 'f'. Such damage assessment requires detailed case specific study and remediation measures. Therefore, whenever such case comes into the notice, Environmental Compensation may be levied based on the detailed investigation made by Expert Institutions/Organizations.
2	R-factor	-	R-factor should be Rs. 1,000/day.	Why R-factor is kept as 250, although the value ranges between 100 to 500?	In the Environmental Compensation policy, average value of the R-factor as 250 is recommended, keeping in view both its practicability as well as to make it significantly deterrent, which may be further revised in future.
3	L-factor	-	L-factor should be based on the population density of surroundings, instead of population of the nearby city/town. For critically polluted areas/ ecologically fragile areas LF should be considered as 2.	For nearby city, having population less than 1 million, the LF is 1. This implies that we care only for populated regions only. Industries located in critically polluted and ecologically fragile area should be closed down.	Population density for surrounding of industrial units will be complex because it will vary depending on area used in calculation of population density as industrial units are generally away from population. More weightage is given to the higher population exposure to the risk. In case the industry is located in the city of population less than one million than the LF Factor will be 1. Depending on the local environmental conditions, the restrictions on expansion and modernization of industries in critically polluted areas are imposed as per the prevailing policy of the Government of India. Similarly, industries in ecologically fragile areas are permitted after careful examination, as per prevailing policy of MoEFCC/SPCB, The Committee agreed that for notified ecologically fragile areas, LF may be considered as 2. However, LF for critically polluted areas may be explored in future.

S. No.	Item		Comments of CSE	Comments of IEG	Committee's Deliberations
4	S-factor	Classification of industries should be based on profit/turnover basis.	S-factor should be based on the turn-over of the industrial unit.	-	Presently industrial units are classified into small, medium and large category (MSME Act, 2006) based on the data of assets/infrastructure available with them. The data for profit/turnover of industrial units are not available with SPCBs/PCCs and S-factor based on profit/turnover will complicate the procedure for calculation of EC. This may be considered in future when SPCBs/PCCs will have such type of data.
5	Level of non-compliance	<p>Pollution Index does not measure the level of pollution. Further, averaging PI eliminates the variation in the nature/ impact of pollution that PI tries to capture. Further, the Red Category itself is too wide and some sort of sub-classification should be undertaken</p> <p>The rate of the penalty should increase with the period of violation. The penalty should increase exponentially in case of repeated violations. The objective should be that units should choose to shut down operations when violations cannot be brought under control in the specified time.</p>	For different level of non-compliance such as gross, moderate and low, a factor for 'intensity of violation', IV-factor should be incorporated in the formula.	-	<p>Pollution Index (PI) itself covers the potential of environmental pollution as its calculation considers variation in pollution load.</p> <p>The industrial sectors have been categorized into Red, Orange and Green, based on their Pollution Index in the range of 60 to 100, 41 to 59 and 21 to 40, respectively. As PI is not available for all the industrial sectors, calculating PI for rest of the sectors will delay the processing. Therefore, for calculating the Environmental Compensation average PI as 80, 50 and 30 may be used for Red, Orange and Green category of industries, respectively.</p> <p>To keep the formula simple for better implementation, the IV factor may not be considered as there are different environmental parameters such as environmental standards and for each standard calculation of level of violation and its weightage will be a tedious task, which may bring difficulty in implementation of EC concept.</p> <p>The Committee has agreed that in order to include deterrent effect for repeated violations, EC may be increased on exponential basis, i.e. by 2, 4 and 8 times on each similar violation. Further, if the violator continues its operations beyond 3 months then EC may be increased by 2, 4 and 8 times for 2nd, 3rd and 4th quarter, respectively.</p> <p>Besides EC, industry may be prosecuted or closure directions may be issued, whenever required.</p> <p>EC is not a substitute for taking actions under EP Act, Water Act or Air Act. In fact, units found polluting should be closed/prosecuted as per the Acts.</p>
6	Utilization of fund	Funds may be utilized for building monitoring and enforcement capacity of SPCBs and strengthening the pollution compliance especially in the MSME sector.	-	Incentives to regulators where no violations are observed and incentives to public for reporting violations may be provided.	<p>Scheme of infrastructure augmentation of Urban Local Bodies (ULBs) /capacity building of SPCBs/PCCs is already covered in the report</p> <p>Further, schemes such as incentives to regulators where no violations are observed and incentives to public for reporting violations may be considered separately.</p>

S. No.	Item		Comments of CSE	Comments of IEG	Committee's Deliberations
7	GRAP	-	-	Size of the construction sites more than 20,000 sqm. area are considered for EC. Although, small sites cumulatively impact significantly. Illegal dumping of municipal solid waste regardless of the place should be penalized.	As per the EIA Notification, 2006, building construction projects more than 20,000 sqm. area are required to have environmental clearance, therefore, the same cut-off is maintained here. Issue of Illegal dumping of municipal solid waste is being covered in separate report of EC.
8	Others: (a)	Severity of violations should be measured in terms of hours of violation because for some pollutants even a few hours of violation can have serious environmental and health consequences. This would require continuous monitoring of stacks, which is not the case presently for most units. Therefore, continuous monitoring should be implemented urgently, to begin with for all red and orange categories.	-	-	Currently, online continuous effluent/emission monitoring system (OCEMS) is installed in only in 17 categories of highly polluting industries and some other industrial sectors. Further, in current practice the compliance of industries is only verified by physical monitoring and compensation may be imposed based on the manual testing. The idea of measurement of violation on hourly basis may be considered in future, when OCEMS is widely installed and included in policy.
	(b)	CETP should be categorized under Red Category of industries. Some sub-classification should be undertaken under red categories of industries.	-	-	CETPs are already categorized under Red Category of Industries
	(c)	Based on the spirit behind the proposed charge, it should therefore be called an "environmental penalty" rather than "environmental compensation".	-	-	The power of imposing "Penalty" lies in the jurisdiction of the Hon'ble Courts and NGT only. The CPCB is empowered to levy environmental compensation by the Hon'ble NGT in its order dated 03.08.2018 (OA No.593/2017). Therefore, term "Environmental Penalty" is avoidable.

Annexure-IV

Item Nos. 01 & 02

Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHIOriginal Application No. 125/2017
(M.A. No. 1337/2018)

With

Original Application No. 217/2017
(M.A. Nos. 761/2017, 1073/2017,
1098/2017 & 1471/2017)

Court on its own Motion		Applicant(s)
State of Karnataka	Versus	Respondent(s)
With		
D. Kupendra Reddy		Applicant(s)
State of Karnataka	Versus	Respondent(s)

Date of hearing: 06.12.2018

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

Original Application No. 125/2017
(M.A. No. 1337/2018)

For Applicant(s): Mr. Sajan Poovayya, Sr. Advocate and Mr. Saransh Jain,
Advocate for impleaded applicant - Namma Bengaluru
Foundation
Mr. Vikram Hegde, Advocate for impleaded applicant

For Respondents (s): Mr. Devraj Ashok, Advocate
Mr. Rajkumar, Advocate and Ms. Sonia, LA
Ms. Nidhi Mehrotra, Advocate

Original Application No. 217/2017
(M.A. Nos. 761/2017, 1073/2017,
1098/2017 & 1471/2017)

For Applicant(s): Ms. Guneet Khehar, Mr. Tarunvir Singh Khehar, Mr.
P. Ramaprakash and Mr. Sandeep Mishra, Advocates
For Respondents (s): Dr. Abhishek Atrey, Advocate
Mr. Rajkumar, Advocate and Ms. Sonia, LA

ORDER

1. The issue for consideration in the two matters, one initiated by the Tribunal on its own motion and the other filed by an individual relates to contamination of water bodies at Bengaluru - Bellandur lake, Agara lake and Varthur lake *inter-alia*, on account of discharge of untreated sewage and other effluents from

their performance should be recorded and considered favourably or otherwise for their career progression.

- xv. Similar exercise as (xiv) may be undertaken to identify officers responsible for failure in the past. Such exercise may be completed within three months from today.
- xvi. Since failure of preventing the pollutants being discharged in water bodies (including lakes) and failure to implement solid and other waste management rules are too frequent and widespread, the CPCB must lay down specific guidelines to deal with the same, throughout India, including the scale of compensation to be recovered from different individuals/authorities, in addition to or as alternative to prosecution. The scale may have slabs, depending on extent of pollution caused, economic viability, etc. Deterrent effect for repeated wrongs may also be provided.
- xvii. MoEF&CC may specify limit for phosphorus in soaps and detergents to prevent damage to the environment and public health.
27. The above amount in the present case has been determined having regard to the estimated cost of setting up of STPs, based on the data available, which has been assessed with the assistance of the learned Counsel for the parties.
28. We have nominated Justice Santosh Hegde on information being provided during the hearing that he is agreeable to undertake the above job.
29. Justice Hegde will be entitled to a token honorarium of Rs. 2.5 Lakh per month from the date he assumes the charge. Justice Hegde will be entitled to assistance of persons of his choice for which remuneration will be paid by the SPCB, Karnataka as may be determined by Justice Hegde.

Annexure-V

Item Nos. 1 to 11

Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 176/2015
(M.A. No. 1332/2015)
&
Original Application No. 59/2012
(M.A. No. 34/2016 & M.A. No. 190/2016)
&
Original Application No. 108/2013
(M.A. No. 489/2015)
&
Original Application No. 179/2013
(M.A. No. 866/2014 & M.A. NO. 644/2015)
&
Appeal No. 67/2015
(M.A. No. 652/2015)
And

Original Application No. 484/2015
(M.A. No. 155/2017, M.A. No. 567/2017
& M.A. No. 927/2017)
And

Original Application No. 327/2018
(M. A. No. 1282/2018)
And

Original Application No. 115/2017
(M.A. No. 442/2017)
And

Original Application No. 411 of 2018
And

Original Application No. 613/2017
And

Original Application No. 614/2017

Shailesh Singh	Versus	Respondent(s)
Hotel Holiday Regency, Moradabad & Ors.		Applicant(s)
With		
Legal Aid, National Green Tribunal Bar Association		Applicant(s)
	Versus	
NCT of Delhi & Ors.		Respondent(s)
With		
Raj Hans Bansal		Applicant(s)
	Versus	
Ministry of Water Resources & Ors.		Respondent(s)
With		
Apex Chambers of Commerce and Industries of N.C.T. of Delhi & Ors.		Applicant(s)
	Versus	
Govt. of NCT Delhi & Ors.		Respondent(s)
With		
Vikrant Tongad		Applicant(s)

Versus

Union of India & Ors.		Respondent(s)
With Shailesh Singh		Applicant(s)
	Versus	
Hotel The Oberoi Amarvilas & Ors.		Respondent(s)
With Shailesh Singh		Applicant(s)
	Versus	
Panchsheel Buildtech Pvt. Ltd. & Ors.		Respondent(s)
With Shailesh Singh		Applicant(s)
	Versus	
Central Ground Water Board & Ors.		Respondent(s)
With M/s A-One Mineral Water Industry		Applicant(s)
	Versus	
Central Ground Water Authority & Ors.		Respondent(s)
With Mohd. Javed Asghar		Applicant(s)
	Versus	
M/s Upper Ganges Sugar and Industries Ltd. (Distillery Unit) & Ors.		Respondent(s)
With Mohd. Javed Asghar		Applicant(s)
	Versus	
State of U.P. & Ors.		Respondent(s)

Hearing concluded on: 18.12.2018

Order uploaded on: 03.01.2019

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

For Applicant(s): Mr. Raj Pajwani, Senior Advocate and Mr. Rahul Choudhary, Advocate (In O.A. Nos. 59/2012 & 108/2013)
Ms. Preeti Singh, Mr. S. Porwal, Mr. Shivam Jaiswal, Advocates (In O.A. Nos. 176/2015, 484/2015, 327/2018 & 115/2017)
Mr. Amrendra Kumar Dubey, Advocate (O.A. No. 411/2018)

For Respondent (s): Ms. Sakshi Popli, Advocate for DJB (O.A. No. 59/2012)
Mr. Sumeet Pushkarna, Mr. Devanshu, Advocates with Mr. Sudhir Chauhan, E.E., Delhi Jal Board (O.A. No. 108/2013)
Mr. Ajay Jain, Advocate for GNCTD
Mr. Ardhendumauli Kumar Prasad, Mr. Shashank Saxena, Ms. Diksha Gera, Mr. Amritesh Raj, Advocates for CGWA
Mr. Pradeep Mishra, Mr. Daleep Dhyani, Advocates for UPPCB
Ms. Sakshi Popli, Advocate for NDMC
Mr. Amit Tiwari, Mr. Rohit Pratap Singh, Advocates for State of UP

appropriate mechanism can be introduced consistent with the needs of environment.

29. The MoEF&CC is directed to constitute an Expert Committee by including representatives from IIT Delhi, IIT Roorkee, IIM Ahmedabad, CPCB, NITI Ayog and any other concerned agency or department to examine the issue of appropriate policy for conservation of ground water with a robust institutional mechanism for surveillance and monitoring with a view to enhance access to ground water for drinking purposes in OCS areas by way of appropriate replenishment practices which can be properly accounted and measured for as well as to sustain the floodplains of rivers in terms of e-flows and other water bodies. The MoEF & CC and MoWR may finalize the issue of subject remain *inter-se* with regard to ground water reserve and its quality.

30. The Committee may be constituted in two weeks and report of the Committee may be furnished to the MoEF &CC and this Tribunal in two months by e-mail at ngt.filing@gmail.com.

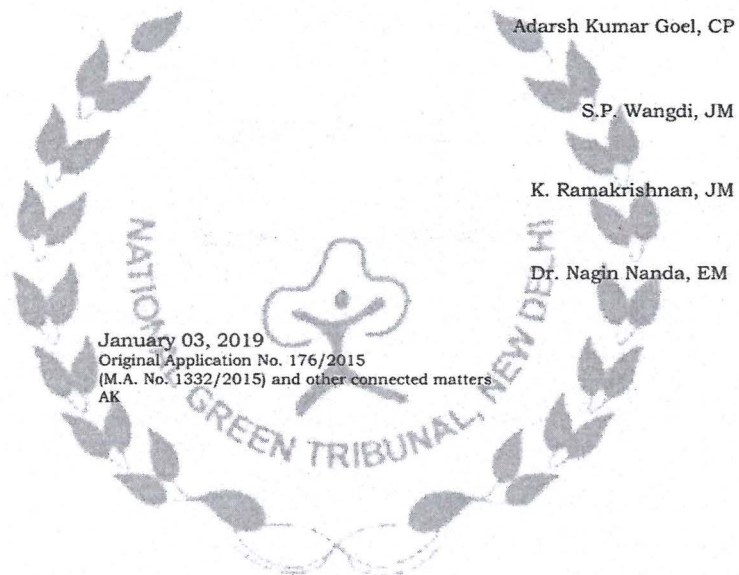
31. The Committee may also indicate the projection of its impact study in light of projected data for the next 50 years (in phased manner with action plan for each decade). Thereafter, fresh guidelines be issued by the concerned Ministry and the report furnished to the Tribunal on or before 30.04.2019.

32. The CPCB may constitute a mechanism to deal with individual cases of violations of norms, as existed prior to Notification of 12.12.2018, to determine the environment compensation to be recovered or other coercive measures to be taken, including prosecution, for past illegal extraction of ground water, as per

law. All the matters relating to illegal extraction of ground water by individuals are disposed of with these directions.

33. The Expert Committee report, the new policy and challenge to orders of authorities, if any, will be considered on the next date.

The matter be put up for above consideration in the first week of May, 2019.



CRITERIA TO CALCULATE WATER CONSUMPTION**Table 1: Discharge of 4" Dia and 1 HP Pump**

Sl. No.	Depth (Meter)	Discharge	
		LPM	m ³ /hr
1	25	50	3
2	43	40	2.4
3	59	30	1.8
4	69	20	1.2
5	77	10	0.6

Table 2: Discharge of 4" Dia and 2 HP Pump

Sl. No.	Depth (Meter)	Discharge	
		LPM	m ³ /hr
1	60	50	3
2	98	40	2.4
3	124	30	1.8
4	141	20	1.2
5	165	10	0.6

Table 3: Discharge of 6" Dia and 3 HP Pump

Sl. No.	Depth (Meter)	Discharge	
		LPM	m ³ /hr
1	17	200	12
2	29	175	10.5
3	41	150	9
4	50	130	7.8
5	62	100	6

Table 4: Discharge of 6" Dia and 5 HP Pump

Sl. No.	Depth (Meter)	Discharge	
		LPM	m ³ /hr
1	26	225	13.5
2	50	200	12
3	70	175	10.5
4	86	150	9
5	92	140	8.4

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