

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
EASTERN ZONE BENCH, KOLKATA
(THROUGH PHYSICAL HEARING WITH HYBRID MODE)**

Execution Application No.05/2025/EZ
In
Original Application No. 109/2023/EZ
Satrughan Meher-----Applicants(s)
Versus
State of Odisha & Ors. ----- Respondent(s)

Affidavit on Behalf of the Opposite Party/Respondent No. 04 State
Environment Impact Assessment Authority (SEIAA), Odisha

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Place: Bhubaneswar
Date: 18/12/2025

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Affidavit on Behalf of the Opposite Party/Respondent No. 04 State
Environment Impact Assessment Authority (SEIAA), Odisha

1. Shri K. S. Pradeep, IFS, son of late K. Sivaraman aged 45 years, at present working as Member Secretary, State Environment Impact Assessment Authority, Odisha, do hereby solemnly affirm and state as follows.
2. That I am the deponent in this affidavit and I have been duly authorized to swear this affidavit on behalf of the Opposite Party No.04 before this Hon'ble National Green Tribunal.
3. That, I have gone through the original application order dated 13.09.2023 and final order dated 10.01.2025 and present order dated 10.10.2025 in Execution Application No.05/2025/EZ



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State E.I.A. Authority
Orissa, Bhubaneswar

and understood the contents thereof. I am well acquainted with the facts of the case and the relevant official records. Any contention, allegation or averment not dealt with in the present affidavit shall be construed as denied.

4. That, in reply to the averments made in the Para-02 of the order dated 10.10.2025 in EA, the deponent humbly submits the following points in chronological order for better appreciation of Hon'ble Tribunal are as follows:

a. This is matter on un-authorized extraction of Morrum from different place of Jharsuguda District by M/s. RSA Infra Project Pvt. Ltd. without obtaining environmental clearance (EC), Consent to Operate (CTO) and other permission from concerned different Authority.

b. As per direction of Hon'ble NGT in order dated 13.09.2023 of OA No. 109/2023/EZ, a joint committee was formed and visited the allegation site on 06.10.2023. In this case the SEIAA, Odisha is one of a committee member and Dr. Pradeept Kumar Nayak, Environmental Scientist has been nominated to represented on behalf of SEIAA, Odisha.

c. In the earlier joint committee report dated 06.10.2023, it shows that 4,55,000 cum of Morrum has been extracted in the alleged area and M/s RSA Infra Project Pvt. Ltd. has extracted 45018 cum of Morrum as intimated by the Tahasildar, Jharsuguda and the rest of quantity i.e. 4,09,982 cum may be



Pradeept Kumar Nayak
MEMBER SECRETARY
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Orissa, Bhubaneswar

extracted by some other agency which is not known submitted by Tahasildar, Jharsuguda to joint committee. The environmental compensation amounting of **Rs.92,92,955.58/-** has been calculated in the Approach-2 formula of Central Pollution Control Board (CPCB) for the unauthorised extraction quantity Morrum of 45018 cum was extracted by M/s. RSA Infra Project Pvt. Ltd. and accordingly, the joint inspection report was submitted before Hon'ble NGT.

Copy of earlier joint committee report dated 06.10.2023 is attached in **Annexure-I**.

- d. After hearing the matter, the Hon'ble NGT disposed of the case on 10.01.2025 with direction as follows:

Para-65 of the order- "We may also observe that on the own admission of the Respondent No.9 in para 'xxvii' of the affidavit dated 17.07.2024 that soil/morrum extracted was 4,55,000 cum by the Project Proponent, therefore, environmental compensation would be computed on this figure".

Para-66 of the order- "We, therefore, dispose of the present Original Application with a direction to the Joint Committee to re-compute the environmental compensation in the light of the observations made hereinabove within a period of two months, giving an opportunity of being heard to the Project Proponent on the quantum of compensation. The computation of



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environmental compensation already made by the Joint Committee shall be subject to the any final order which may be passed by it”.

- e. In pursuance to compliance of Hon'ble NGT order dated 10.01.2025 on the above-mentioned points, the joint committee have recalculated the environmental compensation amounting of **Rs.1,09,50,000/-** based on the formula i.e. **EC=PI x N x R x S x LF** (i.e.report of the CPCB in-house Committee on Methodology for Assessing Environmental Compensation and Action Plan to Utilize the Fund) which is basically applicable for industrial case where number of days of violation taken into consideration. The environmental scientist, SEIAA, Odisha has not signed in the joint inspection report with reason that the environmental compensation has not been calculated on the basis of **Approach-2 formula of CPCB** i.e.

$$PV = \sum_{t=1}^5 \frac{D * RF}{(1+r)^t}$$

and NPV = PV-D (i.e. recommendations on scale of Compensation to deal with the cases of illegal sand mining) which is applicable for mining of mineral cases where unauthorised quantity of mined out material is taken into consideration. In this case, the specifically direction in Para-65 of order dated 10.01.2025 of Hon'ble NGT that environmental compensation would be computed on this figure i.e. 4,55,000 cum of unauthorised extracted Morrum



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quantity by M/s. RSA Infra Project Pvt. Ltd.

Copy of the report of the CPCB in-house Committee on Methodology for Assessing Environmental Compensation and Action Plan to Utilize the Fund is attached in **Annexure-II**. Copy of the report of the CPCB in respect of recommendations on scale of Environmental Compensation to deal with the cases of illegal sand mining is attached in **Annexure-III**.

- f. Again, the Execution Application filed by the petitioner in EA No. 05/2025/EZ in OA No. 109/2023/EZ with allegation that the Tribunal order dated 10.01.2025 has not been complied by the joint committee.
- g. In Pursuance to order dated 10.10.2025 of Hon'ble NGT in EA No. 05/2025/EZ in OA No. 109/2023/EZ, again the joint committee meeting was held on 03.11.2025 and 04.11.2025 and heard the Project Proponent i.e. M/s. RSA Infra Project Pvt. Ltd. stating that they have extracted 4,55,000 cum of morrum material unauthorizedly without obtaining EC, CTO and other approval from respective authority. The Project Proponent also submitted that they are not aware about the requirement of EC, CTO and other permission before mining of any minor or major minerals which is not acceptable. Also, submitted that the committee either consider the environmental compensation in light of the Risk Factor (RF) 0.25 for mild case with the 8% discount rate and over 5 years or the committee may consider



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Orissa, Bhubaneswar



CPCB polluter pay fee formula i.e. $EC=PI \times N \times R \times S \times LF$ for calculation of environmental compensation which has been adopted by the other joint committee in Original Application No. 167/2023/EZ in the matter of Srikanta Kumar Pakal & Others vs State of Odisha & Others and submitted their report before the Hon'ble National Green Tribunal. Some committee members are agreed the submission of project proponent and some other members including SEIAA, Odisha are not agreed with the submission of project proponent.

Copy of the final order dated 07.05.2025 in OA No.167/2023/EZ (I.A. No.75/2024/EZ & I.A. No.129/2024/EZ) is attached in **Annexure-IV**.

- h. There is ambiguity among the committee member in respect of which formula will be applicable for the instant case for calculation of environmental compensation. Hence, no conclusive decision could be made regarding the computation of Environmental Compensation. Accordingly, it was decided that the committee may request to Hon'ble NGT which formula will be applicable for this case for the instant case i.e. either i.e. CPCB polluter pay fee formula of in-house Committee on Methodology for Assessing Environmental Compensation and Action Plan to Utilize the Fund i.e. **$EC=PI \times N \times R \times S \times LF$** or Approach-2 formula of CPCB (i.e. recommendations on scale of Environmental Compensation to deal with



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the cases of illegal sand mining i.e.

$$PV = \sum_{t=1}^5 \frac{D*RF}{(1+r)^t}$$

Approach-2 formula of CPCB i.e.

$$PV = \sum_{t=1}^5 \frac{D*RF}{(1+r)^t}$$

and **NPV = PV-D**

- i. Then, the regional Officer, State Pollution Control Board (SPCB), Jharsuguda has sent a draft joint committee report to SEIAA, Odisha through email dated 28.11.2025 for view of SEIAA, Odisha. After consultation with Authority, SEIAA, Odisha, Dr. Pradeept Kumar Nayak, the Environmental Scientist, has modified the joint committee report and again sent to the RO, SPCB, Jharsuguda through email dated 28.11.2025 for finalization of report, then there is no communication made from RO, SPCB, Jharsuguda to SEIAA, Odisha for signature of the report.



Copy of the draft joint committee report submitted by RO, SPCB, Jharsuguda to SEIAA, Odisha is attached in **Annexure-V** and the copy of modified joint committee report submitted by SEIAA, Odisha to RO, SPCB, Jharsuguda is attached in **Annexure-VI**.

- j. The opinion of SEIAA, Odisha in respect to calculation of environmental compensation for the instant case are as follows:

Pradeep Kumar Nayak
MEMBER SECRETARY
State E.I.A Authority
Orissa, Bhubaneswar

- a. This is totally illegal/unauthorized mining involved different area of Jharsuguda District including forest area. No prior clearance has been taken from appropriate Authorities before mining. No Environmental Clearance (EC) and Forest Clearance has been taken by the Project Proponent/Respondent no.11 for mining of Morrum. It can be treated as sever case and environmental compensation should be imposed on the Risk Level-04 sign factor 01 of Approach-2 formula. Computation of Net Present Value (NPV) for ecological damages based on Risk Factor-1 (Discount Rate 5%).
- b. In a similar case matter of Jharsuguda District i.e. in the O.A. No.26/2025/EZ and M.A. No. 26/2025/EZ in the matter of Jitendra Kumar Pradhan Vrs State of Odisha & Ors, the SEIAA, Odisha has already calculated the environmental compensation amount of **Rs.1,15,80,585.73/-** based on the Approach-2 formula of Central Pollution Control Board (CPCB). In this matter the Respondent No. 11, M/s. Aditya Construction has extracted 56,100 cum of Morrum material from different place of Jharsuguda District without EC, CTO and other statutory clearance from different authorities which is reflected in the Joint Inspection report dated 01.03.2024 and as mentioned in the final order dated



Paul
MEMBER SECRETARY
State E.I.A Authority
Orissa, Bhubaneswar

09.01.2025 of Hon'ble NGT. As per the direction of Hon'ble NGT to SEIAA, Odisha, a Show Cause Notice has been issued to M/s. Aditya Construction vide letter no. 6892/SEIAA dated 02.12.2025 for hearing the matter.

The copy of the Show Cause Notice to to M/s. Aditya Construction vide letter no. 6892/SEIAA dated 02.12.2025 is attached in **Annexure-VII**.

- c. The Revenue and Disaster Management Department, Government of Odisha has also adopted the Approach-2 formula of CPCB for calculation of environmental compensation in illegal sand mining cases and accordingly letter issued to concerned Authority related to minor minerals vide letter no.5157 dated 17.02.2022.



The copy of the Revenue and Disaster Management Department, Government of Odisha letter no. 5157 dated 17.02.2022 is attached in **Annexure-VIII**.

5. That the deponent reserves the right to file further affidavit as and when necessary.
6. That the facts stated above in this counter affidavit are true to the best of my knowledge and belief which are based on official records that I believe to be true.

Identified by
Advocate

Deponent
MEMBER SECRETARY
State E.I.A Authority
Orissa, Bhubaneswar

VERIFICATION

Verified at Bhubaneswar on this day of 18 DEC 2025
that the contents of the above affidavits are true and correct on
the basis of the records maintained by the respondent in the daily
course of its business, no part of it is false and nothing has been
concealed therefore.

Place: Bhubaneswar

Date:



[Handwritten Signature]

Deponent
MEMBER SECRETARY
State E.I.A Authority
Orissa, Bhubaneswar

SWORN BEFORE ME

[Handwritten Signature]
IDENTIFIED BY ME
18.12.2025
ADVOC



[Handwritten Signature]
18.12.2025

DUSAN SAMANTARAY
NOTARY, GOVT. OF ODISHA
BHUBANESWAR, ODISHA
REGD. NO. 88/2012
MOB-9439143015

**Joint Committee enquiry report with regards to the direction of
Hon'ble NGT order dated:-13.09.2023 in OA No.109/2023/EZ-
Satrughan Meher Vs State of Odisha & Ors**

As per the direction of the Hon'ble NGT order dated 13.10.2023 in OA No. 109/2023/EZ- Santrughan Meher Vs. State of Odisha & Ors, a committee has been constituted, comprising of Senior Scientist, SPCB, Odisha, Senior Scientist, SEIAA, Odisha, Representative of District Collector, Jharsuguda not below the rank of Addl. District Magistrate and Divisional Forest Officer or his representative and directed for inspection of the site in question and submit its report. It is also directed that in case of violations are found, the committee shall recommend penalty as well as Environmental Compensation and also to suggest remedial measures, if any.

In this regard, a field enquiry was conducted on 06.10.2023 in and around the alleged site. The following members of Joint Committee were present during the field visit:-

1. Sri Brajabandhu Bhoi, O.A.S (S), Additional District Magistrate (Gen), Jharsuguda.
2. Er H.K Nayak, Regional Officer, SPCB, Odisha, Jharsuguda.
3. Sri Pardipta Nayak, Environment Scientist, SEIAA, Odisha
4. Sri Lalit Naik, Assistant Conservator of Forests (ACF), Jharsuguda

In addition to the above committee members, the following representatives and villagers were also present during the site visit:-

1. Sri Basant Kumar Hati, Tahasildar, Jharsuguda
2. Smt A.Ekka, Dy.Env Scientist, SPCB, Odisha
3. Sri Tejraj Singh, resident of Jamera village and representative of Sri Satrughan Meher.
4. Sri Iswari Neti, resident of Jamera village and representative of Sri Satrughan Meher.
5. Sri Nityanand Meher, resident of Jamera village and representative of Sri Satrughan Meher.

6. Sri Biswajit Meher, resident of Jamera village and representative of Sri Satrughan Meher.
7. Sri Viksah Agarwal, representative of RSA Infratect Pvt. Ltd.

Observations:-

- All over the alleged site was visited by the committee except Singhabagha village, which was submerged by the water of Hirakud reservoir.
- No excavation work was in progress during the visit. However, soil with morrum was found to be excavated from the alleged site. The land details of the alleged site are as follows:-

Khata No	Plot no	Mouza	Kisam	Total Area in Acres
59 (AJA)	233/331	Jamuapali	Dungri	43.920
60 (SER)	255/333	Jamuapali	IB station	63.970
01	287/346	Jamuapali	Jalabhandar	1.800

- As reported by the Tahasildar Jharsuguda, M/s RSA Infra Project Pvt. Ltd has been penalized for 45018 cum of soil with a penalty & royalty amounting to Rs. 31,91,170 for unauthorized lifting. Copy attached in **Annexure-I**.
- Apart from the above, as per the statement submitted by the Tahasildar, Jharsuguda, M/s RSA Infra Project Pvt. Ltd. has extracted and utilised soil of quantity 4,39,244 cum, morrum of quantity 5,663 cum for Jharsuguda-Bilaspur Railway line construction work as contractor.
- M/S RSA Infra Project Pvt. Ltd has been imposed Rs. 2,30,48,693 as Royalty and Rs, 27,17,854 as penalty amounting to total of Rs.2,57,66,547, out of which the agency has deposited Rs. 84,73,308 as royalty and Rs. 13,17,854 as penalty amounting to total of Rs. 97,91,162. The copy of same is enclosed as **Annexure-I**.
- But during joint inspection the committee observed in the field and from the satellite view (google earth map) that about approximately 130000

sqm of area has been excavated with average depth of mining is 3.5 meter so, the total quantity of morrum extracted from the alleged khata no. 59, Plot no. 233/331, Khata no. 60, Plot no. 255/333 & Khata no. 01, plot no. 287/346 is 4,55,000 cum. The Tahasildar, Jharsuguda has calculated the quantity of material extracted 4,44,907 cum by M/s RSA Infra Project Pvt. Ltd. However, morrum except the quantity 4,44,907 cum if excavated by any other company is not known.

- As per the joint visit made by Forest Officials, Asst. Mining Officer and Tahasildar, Jharsuguda on 10.06.2023, there was no tree growth on the above schedule land, only climbers and unwanted bushes like Dhatuki, Kurei, Lantina were available. In this regard, different cases have been instituted by forest officials of Jharsuguda Forest Range and imposed penalties against the person involved through M/s RSA Infra Project Pvt. Ltd. The details are annexed as **Annexure-II**.
- As reported by the representative of M/s RSA Infra Project Pvt. Ltd and documents submitted they had received the work order by South East Railway vide no-CES/BSP/ER/T/22-23/19/IB Fly Over/510, dtd:- 03.11.2022. The copy of the same is enclosed as **Annexure-III**.
- As reported by the local villagers the excavation work is going on since 2019.
- For excavation of Morrum the project proponent has not obtained Environment Clearance from SEIAA, Bhubaneswar and valid CTE and CTO from SPCB, Odisha.

Penalty

- M/s RSA Infra Project Pvt. Ltd has deposited royalty and penalty to the office of the Tahasildar, Jharsuguda. Out of 444907 cum of excavated soil and morrum, the agency has made the payment for only 207354 cum. The agency has to pay the royalty and penalty for the balance 237553 cum of excavated soil and morrum.
- Penalty amounting to Rs. 15,000.00 has also been imposed by DFO, Jharsuguda for damaging the natural vegetation like Dhatuki, Kurei, Lantina by the agency at the excavated site.

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Calculation for Environmental Compensation of morrum mixing with soil material in accordance to the order of Hon'ble NGT in O.A. 150/19 and CPCB guidelines

- As in absence of any market value for morrum material at District Administration, Jharsuguda the Committee has finalized the market value of Morrum of Rs. 62/- i.e. highest bidding amount of the Jharsuguda District.
- Here the environmental compensation is calculated only 45018 cum of morrum on basis of information given by Tahasildar, Jharsuguda that 45018 cum of morrum extracted by the M/s RSA Infra Project Pvt. Ltd from the allegation plot illegally but rest of quantity i.e. 4,09,982 cum may be extracted by some other agency which is not known as informed by Tahasildar, Jharsuguda.
- The market value of illegally/un-authorized mined out Morrum (D) = 45018 cum × Rs.62/- = 27,91,116/-

Market Value of Illegally mined material (D)	45018 cum × Rs. 62/- per cum	= Rs. 27,91,116/
Annual value of Foregone Ecological Values (D × RF) i.e. Risk factor taken as 1 for severe case.	27,91,116 × 1	= Rs. 27,91,116/

Discount Rate may be considered as below:

Severity	Mild	Moderate	Significant	Severe
Risk Level	1	2	3	4
Risk Factor	0.25	0.50	0.75	1.0
Discount Rate	8%	7%	6%	5%

- **Present value of Foregone Ecological values (@ 5% discount rate and over 5 years)**

$$PV = \sum_{t=1}^5 (D \cdot RF) / (1+r)^t$$

$$= \sum \frac{2791116}{(1+0.05)^1} + \frac{2791116}{(1+0.05)^2} + \frac{2791116}{(1+0.05)^3} + \frac{2791116}{(1+0.05)^4} + \frac{2791116}{(1+0.05)^5}$$

$$= 26,58,205.71 + 25,31,624.48 + 24,11,070.94 + 22,96,258.04 + 21,86,912.41 =$$

$$\text{Rs. } 1,20,84,071.58/-$$

- Net present value (after netting out market value of illegally mined material) – i.e., Total Compensation to be levied

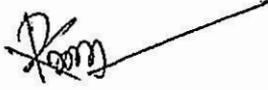
$$= NPV = PV - D$$

$$= \text{Rs. } 1,20,84,071.58 - \text{Rs. } 27,91,116 = \text{Rs. } 92,92,955.58/-$$

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Recommendation: -

- M/s RSA Infra Project Pvt. Ltd may be directed to develop plantation of indigenous species on the above plots for damaging the natural vegetation without the permission of competent authority.



Environment Scientist, SEIAA, Odisha


Assistant Conservator of Forests (ACF),
Jharsuguda


Regional Officer, SPCB, Odisha, Jharsuguda


Additional District Magistrate (Gen).
Jharsuguda.

**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,
Delhi-110032

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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 NRCDC, 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, biomethanation, 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) (<i>assumed as 25% of waste generation for sample calculation</i>)	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 EC_{GW}=Rs 1,00,000/-					

For better understanding of implementation of EC_{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 EC_{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-I**BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI****Original 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: Mr. Rohit Prajapati, Applicant in person Amicus Curiae: Mr. Jai A. Dehadrai, Adv. Respondent Nos. 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 Roshmani Kh, Ms. Maibam Babina, Advs. for State of Manipur Mr. Nikhil Nayyar, Mr. Dhananjay Bajjal, Advs. for APCCB 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. Anuradha 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 SPCCB, 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. Shoeab 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 CECB
 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, Adv. for State of Odisha
 Ms. Asha Nayar Basu and Ms. Aradhita Ghosh Mandal, Adv.
 Ms. Priyanka Sinha, Adv. for State of Jharkhand
 Mr. Rajul Shrivastav, Adv. for MPPCB
 Mr. Pradeep Misra and Mr. Daleep Dhyani Adv. for UPPCB
 Mr. R. Rakesh Sharma and Mr. V. Mowli, Adv. for State of TN & TNPCB
 Mr. Shubham Bhalla, Adv.
 Mr. Shiv Mangal Sharma, AAG, Mr. Saurabh Rajpal, Mr. Adhiraj Singh, Ms. Shikha Sandhu and Mr. Vikrmjeet singh, Adv. 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
<p>Item No. 12 August 03, 2018 A</p>	<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;"><i>"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.</i></p>

	<p>Item No. 12</p> <p>August 03, 2018</p> <p>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</p> <p>August 03, 2018</p> <p>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</p> <p>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</p> <p>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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Annexure-II

Annexure-II
Comments Received from Various RDs on Draft Report for Environmental Compensation

S. No.	Item	RD Kolkata	RD Vadodara	RD Bengaluru	RD Lucknow	Committee Deliberations
1	Case- a, b & c	By-passing of effluent/emission should be given special consideration. EC levied on ROG categories of industries should be on the basis of inspection by CPCB, complaint verification and routine inspection.	Instead of "Compensation", "Penalty" word should be used. In case common facilities like CETPs, factor may be introduced based on member industries. Clarify the applicability of penalty in addition to closure directions for pro-longed and gross non-compliance.			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.
2	Case- d, e & f	Higher rates for irreparable damages crop, soil, health etc. Leakages/spillage should have different compensation value.	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.	Similar to 'Guidelines on Liabilities for Environmental Damages due to Handling & Disposal of Hazardous Waste and Penalty', Guidelines may be prepared.		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.
3	Pollution Index (PI)			Instead of average PI, Actual PI may be used.		Committee suggested that to make the implementation of EC simple and easy, use of average PI may be considered for calculation of EC.
4	R-factor	Should be based on pollution load. For ex. Amount of BOD/NOx etc. discharged.		May be classified based on the contribution of pollution load based on quantity of effluent, concentration, emissions	May be as per the category of industry, for ex. Red-500, Orange-300, Green-100.	As PI is based on the pollution load, suggestion of RDs are already taken care in the formula.
5	L-factor			May be redefined based on the features, activities involved and habitation.		L-factor may be covered in future as already indicated in the report.

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.

9	Others	Higher EC for non-installation of pollution control measures. Expected sources should have different scoring methodology based on their weightage.	Thus, the functional fabric of CPCB shall remain intact.			The committee discussed that CPCB is already taking appropriate action including closure direction against the industries found operating without pollution control measures.
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Annexure-III**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 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.	-	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	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 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.	-	Pollution Index (PI) itself covers the potential of environmental pollution as its calculation considers variation in pollution load. 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. 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. 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 2 nd , 3 rd and 4 th quarter, respectively. Besides EC, industry may be prosecuted or closure directions may be issued, whenever required. 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. Scheme of infrastructure augmentation of Urban Local Bodies (ULBs) /capacity building of SPCBs/PCCs is already covered in the report Further, schemes such as incentives to regulators where no violations are observed and incentives to public for reporting violations may be considered separately.
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.	

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
State of Karnataka

Versus

Applicant(s)

Respondent(s)

With

D. Kupendra Reddy

Versus

Applicant(s)

State of Karnataka

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 applicantFor Respondents (s): Mr. Devraj Ashok, Advocate
Mr. Rajkumar, Advocate and Ms. Sonia, LA
Ms. Nidhi Mehrotra, AdvocateOriginal 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, AdvocatesFor 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		Respondent(s)
	Versus	
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)

1

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. Amrithesh 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.



Annexure-VI**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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BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

ORIGINAL APPLICATION NO. 360/2015

IN THE MATTER OF:-

NATIONAL GREEN TRIBUNAL BAR ASSOCIATION

APPLICANT(S)

VERSUS

VIRENDRA SINGH (STATE OF GUJARAT)

RESPONDENT(S)

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2.	ANNEXURE- A EXAMPLES.	
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NAZIMUDDIN
SCIENTIST 'E'

CENTRAL POLLUTION CONTROL BOARD
PARIVESH BHAWAN, EAST ARJUN NAGAR,
DELHI- 110032

PLACE: - DELHI

DATED: - 30.01.2020

Recommendations on Scale of Compensation to deal with the cases of illegal sand mining

Submitted to

**Hon'ble National Green Tribunal,
Principal Bench, New Delhi**

(Submitted by the Committee constituted in the matter of Hon'ble NGT
OA No. 360 of 2015 order dated-05.04.2019)

29th January 2020

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1. Introduction

The mining operation has its consequence on the environment. The sand mining operation has traditionally been carried out manually in river both in-stream and in flood plain, coastal and paleo channels, but with advent of time the method of mining has changed to semi-mechanised and mechanised. The use of machinery in riverbed mining may impact the river environment to great extent depending on the scale of operation.

It is estimated that more than 35 million people are employed in sand business, and economic valuation is well over \$126 billion per annum (Ref: NGT order dated 05.04.2019 in O.A. 360/2015). The illegal sand mining has been rampant in different states of the country and the protection of environment from the impacts of unregulated sand mining has been a challenge to regulatory bodies.

The Hon'ble NGT (Principal Bench), New Delhi by order dated-05.04.2019 in O.A. No. 360/2015 (13 clubbed cases) related to illegal sand mining from riverbeds in different states, constituted a Committee comprising of representatives of Ministry of Environment, Forest and Climate Change, Government of India (MOEF&CC), Central Pollution Control Board (CPCB), Indian Institute of Forest Management - Bhopal (IIFM), Institute of Economic Growth - New Delhi (IEG) and Madras School of Economics (MSE) "to prepare a scale of compensation, after including the components mentioned in the order, which can then be adopted in whole of country. The nodal agency for compliance and coordination is CPCB. The committee may also take professional service of an expert / institution in the matter if it so desires."

In view of Hon'ble NGT (PB) order dated 05.04.2019 in O.A. No. 360/2015 (13 clubbed cases), this report has been prepared to suggest a scale of compensation to deal with cases of illegal sand mining in whole of country.

2. Constitution of Committee

In compliance of the above order, the Nodal Agency (CPCB) issued office order dated 22.05.2019 regarding constitution of the committee of the members based on the nominations received from the concerned organisations as follows:

1. Dr Purnamita Dasgupta, Professor, IEG, Delhi
2. Dr K.S. Kavi kumar, Professor, MSE, Chennai
3. Dr. Yogesh Dubey, Associate Professor, IIFM, Bhopal
4. Shri Sundeep, Director, MoEF&CC, Delhi
5. Shri A. Sudhakar, Additional Director, CPCB, Delhi

Meetings of the committee were convened on 31.05.2019, 20.06.2019, 24.07.2019, 16.09.2019 and 11.12.2019 to arrive at a scale of compensation based on inputs of subject experts and available resource to deal with the matter of illegal mining. The minutes of the meetings are annexed at **Annexure I**. Inputs received from experts are annexed at **Annexure II to IV**.

3. Impacts due to Illegal Sand Mining

3.1 Framework for a Compensation Scale

A framework for assessing the value of ecological damage due to illegal sand mining is developed taking into consideration the following dimensions.

- **Extent of Illegal Mining:** It must be recognised that in any given geographic area the ecological impacts will be felt from all mining that takes place in the relevant region (or that within which the water body concerned is located). Hence, ideally, a landscape has to be considered for estimating the ecological damages in their entirety. However, this may practically pose several data and information challenges. Sometimes the ecological processes are also uncertain. Therefore, the objective in the current context would be to establish a practical approach of estimating the extent of 'illegal' mining, assuming that the legally permitted mining takes into account the sustainable ecological limits within which such mining should be restricted. For present purposes, to fix individual liability, this may be done by making an assessment of the total extraction through sand mining being carried out and netting out the amount for which environmental clearance has been given.
- **Restoration of ecology:** It is acknowledged at the outset that in practice, full restoration of nature in its pristine form is next to impossible. However, the reality of ongoing economic activities causing ecological damages implies that the adoption of the polluter pays principle can be a way ahead for raising the resources for undertaking restoration activity to the maximum extent possible. At the same time, some of the foregone ecosystem services (and hence values associated with these) will improve gradually over the years as the riverine ecosystem gets restored.
- **Ecological damages associated with mining** - Ideally, each river or water body which is affected by such mining should have an independent assessment of the extent of ecological damages which would be specific to its context.

- Interim approach - In the absence of such information, or in the interim till such studies are carried out, two alternative ways of operationalizing a compensation scale to cover the ecological costs associated with illegal sand mining are developed. One approach uses a deterrence factor as a proxy for capturing non-linearities associated with ecological damages, the other uses a simplified Net Present Value approach. A comparison of the two is provided with an illustration.
- Rationale for scale of compensation: In both approaches, the damage assessment is based on the material cost of the illegal sand, interacting it with the ecological risks associated with it. The underlying assumption is that the feasible limits within which sand mining can be allowed without destabilising the ecological conditions have been taken into account while setting the legally permitted quantity for extraction. Mining beyond this is illegal and causes trade-offs between this particular provisioning service of the river (sand flow) and its supporting and regulating (and other provisioning) services which thereby get affected, constituting ecological damages. The compensation would comprise of the material cost of the illegally mined sand and foregone ecological values, while keeping in mind the objective of restoration.
- Finally, it is noted that the concerned authority shall take appropriate action under the provision of applicable Acts/ Rules, whenever any illegal or non-complying mining activities is observed. The proposed environmental compensation suggested in this recommendation will be in addition to the requirement of any such action.

3.2 Determination of Net Present Value (NPV)

Computation of the NPV requires both scientific and socio-economic data and application of state-of-the-art methodology. The most appropriate valuation will be context specific for both scientific and socio-economic considerations. Some of the physical and environmental factors include the following: (morphological changes, changes in settlement and habitation patterns, river bank slope, tidal activity, etc.). Hence, the actual compensation will vary across riverine systems. Therefore, each state and river and related development authority should make efforts to estimate the NPV applicable over the next 5 years.

Various definitions of NPV have been used in the context of the environment (United Nations, 2000, Chopra et al 2006, US EPA 2014, etc.). As per the Chopra Committee in the context of forests, the NPV refers to "the discounted sum of rupee values of eco-system goods and services that would flow from a forest over a period of time net of costs incurred." It is thus not meant to capture the value of the forest wealth as such, but only the flow of goods and services from it. In the context of the diversion of forest land to non forestry use, NPV is interpreted by the committee as the loss of value of the forest resources to the stakeholders as at the time of the diversion for non-forest use. It excludes any values that may accrue or get created by the user agency who uses it for non-forest purposes (See, Page 9 of Chopra, Kadekodi, & Eswaran, 2006). The range of services considered in such a case can include timber, carbon storage value, fuel wood and fodder, non-timber forest products, watershed services, and so on. Actual estimates of such NPV have also been worked out for specific forest circles and levied by state departments*

The benefits from avoiding the ecological damages to riverine ecosystems could range from recreation activities, aesthetics, wildlife viewing, fishing, boating, swimming, supporting and regulating services such as climate moderation, flood moderation, groundwater recharge, sediment trapping, soil retention, nutrient cycling, biodiversity, genetic library, water filtration, soil fertilization, species preservation, and many other non-use and intangible values. However, it is difficult to conceptualize current or future benefits to the ecology from mining activity since

the pristine condition of the river basin (or affected ecosystem) would be considered to be the most desirable condition from the assessment's point of view. However, estimating the true value of all these benefit components which may be harmed by mining activity is not possible at this stage due to a variety of reasons, such as lack of data or information on such aspects, the non-market functions and complexities of the science involved. In particular, these values are extremely contextual in nature and therefore, we assume that the current condition has been reflected accurately in the legally permitted level of mining. Using this as a basic premise, a compensation formula is proposed as described in Section 4, to capture the NPV.

In the context of the assessment of ecological damages arising from sand mining, the NPV is thus considered to be the present value of the current and future stream of net costs of such activity. The rationale lies in recognizing that there may be negative externalities or ecological damages that result from excessive mining which manifests itself in a loss of the ecosystem services of rivers, and creates a loss of well being for both current and future generations. The extent of damage and the scope for restoration will vary from site to site, and will depend on a variety of biophysical and man-made characteristics.

Till such time as site specific assessments of the river systems are carried out, a compensation scale maybe proposed as suggested in Section 4 below.

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4. Recommendations on Scale of Compensation

As discussed earlier, the full economic value for compensation should be as per the Net Present Value. As legal and illegal mining proceeds usually either in conjunction or in sequential manner, the ecological impacts of mining will take place irrespective of whether it is legal or illegal. The attribution to illegal mining, of a specific impact at the landscape level, will require careful evaluation. Till such information becomes available, two alternative approaches for compensation are proposed keeping in mind the various dimensions of the TOR for this committee.

4.1 Approach 1: Direct Compensation based on the market value of extraction, adjusted for ecological damages

A scale for calculation of the compensation to be charged has been worked out as provided in the Table No. 01. The compensation to be charged is based on three distinct criteria:

Exceedance Factor (EF): This criteria captures the extent of illegal mining that has taken place. It is introduced in order to bring in a notion of balance that the amount of penalty that is charged to any party is in proportion to the extent of illegal extraction of material at the first stage.

Risk Factor (RF): This criteria reflects the severity of the ecological damages at the field site in question. It is an attempt to capture the fact that there is likely to be substantial variation in the ecological conditions and resultant damages across sites where illegal mining takes place. It is reasonable therefore to introduce a risk factor that accounts for the extent of severity of damages using a four-point scale of mild, moderate, significant and severe risk. Till the time that detailed basin level studies are carried out, this risk factor can be judged on the basis of the state department's assessment of the ecological fragility of the river basin concerned based on a priori knowledge of the circumstances.

Deterrence Factor (DF): This criteria is an attempt to capture the fact that ecological damages tend to display non-linearities and can increase in unexpected ways. Thus, the greater the extent of extraction (as reflected in the relative magnitude of the illegally extracted amount), the greater is the likelihood that this may have cumulative impact over time, which may not be observable at the time of assessment (as reflected in the RF). Given that the scale should also have a deterrence effect, this criteria is introduced to proxy for these non-linear aspects till such time that more site specific data becomes available to carry out a comprehensive NPV.

Permitted Quantity (in MT or m ³)	Total Extraction (in MT or m ³)	Excess Extraction (in MT or m ³)	Exceedance in Extraction:	Compensation Charge (in Rs.)
X	Y	Z = Y-X	Z/X	D * (1+RF + DF) Where D = Z x Market Value-of-the-material-per-MT-or-m ³
				DF = 0.3 if Z/X = 0.11 to 0.40 DF = 0.6 if Z/X = 0.41 to 0.70 DF = 1 if Z/X >= 0.71
				RF = 0.25, 0.50, 0.75, 1.00 (as per table 2)

Note:

- The inspecting team will consider the error in measurement of quantity of material (maximum 10% for up to 5 Ha. sites but should be less for large sites) and accordingly decide/recommend whether any particular case is fit for imposing compensation for damages or not.
- Market Value of the material per (MT or m³) will be based on applicable market price of the mined material.
- Risk Factor (RF)** to take value as per the Risk Level of the illegal mining case, as below:

Risk Level	1	2	3	4
Risk Factor	0.25	0.50	0.75	1

- d) **Risk Level** to take value as per the severity of the impacts of illegal mining case, as below:

Severity of Impact	Mild	Moderate	Significant	Severe
Risk Level	1	2	3	4

- e) **Severity of impact** of illegal mining case to be categorised as Mild or Moderate or Significant or Severe for various components of the river and highest value to be used:

S. No.	River Component	Impacts	Impacts (Sub -category)	Severity of impact/ Risk Factor
1.	Morphology	Instability of Channel geometry	Bed degradation	
			Channel adjustment	
			Bank Erosion	
2.	Hydrology	Ground Water level	Change of ground water table in adjacent areas	
		Change in river flow	Variation in flow energy	
3.	Ecology	Loss of local Ecological community	Disturbance to flora	
			Disturbance to fauna	
4.	River Structures	Instability to Hydraulic Structure	Damage to Hydraulic Structure and its surrounding	
5.	Any Other			

Deriving the Risk Factor (RF): Some criteria can be considered by states for judging the risk factor applicable at various sites. Accordingly, States may develop a subjective scale for severity of impact (Risk Factor-RF) for purposes of implementing the interim compensation scale based on any 3 of the 4 heads listed in Table No.04 through expert consultation over the period of next 3 months. Till such criterion/guidelines is prepared by states the inspections team may decide RF based on its own assessment.

4.2 Approach 2: Computing a Simplified NPV for ecological damages

Till such time as data and information for a comprehensive NPV is worked out in a site specific manner to account for all (or atleast the major) ecological damages, a simplified NPV, proxied on the market value of the illegally extracted amount maybe computed. In this case the NPV approach would imply that **the total benefits from the activity of sand mining (as represented by the market value of the extracted amount) be deducted from the total ecological costs** imposed by the activity. In the absence of data on benefits and costs separately, we recommend a modification of the formula as shown below.

Total Benefits (B) = Market Value of illegal extraction : D (refer Table 1)

Total Ecological Costs (C) = Market Value adjusted for risk factor: D * RF (refer Table 1).

For present purposes, it is assumed that the Benefits would accrue only in the first year (in which the extraction of the illegally mined material takes place), while the ecological costs would continue to be felt over a period of time. NPV is to be calculated for a period of 5 years on the net value, $\sum(C-B)$, at a discount rate ranging from 8%-5%, varying in inverse with the risk factor. Thus, where the highest risk factor (say 1) is applicable, the discount rate applicable would be the lowest (say 5% in this case).

Thus, it is recommended that the annual net present value (NPV) of the amount arrived at after taking the difference between the costs and the benefits through the use of the above approach, maybe calculated for a period of 5 years at a discount rate of 5% for mining which is in a severe ecological damage risk zone. The rationale for levying this NPV is based on expert opinion that reversal and/or restoration of the ecological damages is usually not possible within a short period of time and rarely is it feasible to achieve 100% restoration, even if the sand deposition in the river basin is restored through flooding in subsequent years. The negative externalities of the mining activity are therefore to be accounted for in this manner. Ideally, the worth of all such damages, including costs of those which can be restored should be charged. However, till data on site-specific assessments becomes available, this approach maybe adopted in the interim. In situations where the risk categorisation

charged. However, till data on site-specific assessments becomes available, this approach may be adopted in the interim. In situations where the risk categorisation is unavailable or pending calculation, the following Discount Rates may be considered:

Severity	Mild	Moderate	Significant	Severe
Risk Level	1	2	3	4
Risk Factor	0.25	0.50	0.75	1.0
Discount Rate	8%	7%	6%	5%

Basis of recommending 5 % Discount Rate

It is to be noted that the choice of a discount rate varies widely across countries and further, by the type of project or purpose. The rate used in developing countries in general is usually found to be higher, with social discount rates varying from 8 to 15% (Jhuang et al 2007, Murty et al 2018). The Government of India has issued guidelines for parameters (discount rates) and processes for project appraisal periodically. The national parameters for project appraisal in operation since 1994, for instance stipulated that projects had to yield a minimum of 12% financial and economic internal rate of return for the purpose of investment approval. Recently these were re-examined in a study, and in keeping with the growth of income in the economy an estimate of 8 per cent for the rate of discount for investment project appraisal in India was suggested (Murty et al 2018). In India, The Kanchan Chopra committee report on NPV recommends a 5% discount rate. The specific sentence from this report is that - "Considering the fact that forest resources provide long term goods and services and ecosystem benefits and, interest rates in India are going down, the Committee recommends a 5% social discount rate for forest resources." Several other studies in India and abroad for projects with implications for forests, water utilities, health and sanitation, and other such social, environmental or public sector projects, have used similar rates of discount ranging from 5 to 8% (Purushothaman et al 2000, Dasgupta et al 2019, Chopra and Dasgupta 2008, Simpson 2008). Further, it is recommended that rates of interest should ideally decline and be lower, where there are uncertainties about the future, and/or in case of climate mitigation and environmental management projects where the benefits are likely to accrue over a longer time period (Weitzman 2001, Gollier 2012). For India, the suggested rate was between 8%-5% for such environment related projects. Thus, the suggested rate of discount in this report draws upon these studies. Lower "discount rate" means that compensation amount will be more.

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Examples

For ease of understanding the calculation of compensation, possible scenario of illegal mining are given below.

Example 01: Violation with respect to Area

A case of non-compliance in terms of excess area was reported. The inspection team carried out an assessment of mining site and observed severity of impacts on river components as *Severe*, then the computation of Compensation Charge will be as follow:

Compensation Charged (Scenario I - no explicit accounting of NPV)

Violation reported as follow:

Total Permitted Quantity in Environmental Clearance (X)	=30000 m ³
Total Area of mined out mineral	=15000 m ²
Total Permitted Area in Environmental Clearance	=10000 m ²
Excess Mined out area	=5000 m ²
Total Depth permitted as in Environmental Clearance	=3 m
Excess extraction (Z)	=5000 × 3 = 15000 m ³
Exceedance Factor (Z/X)	=15000/30000=0.5

Methodology:

Market Value of Illegally Mined Material (D) (assuming Market Value of the material as Rs. 400/- per m ³)	D = 15000 × 400 = 6000000/-
Risk Factor (RF)	Severity <i>Severe</i> Risk Level 4 Risk Factor (RF) 1
Deterrence Factor (DF)	DF = 0.6 (for Z/X in 0.41 to 0.70 range)
Compensation	=D × (1+RF+DF)
Total (in Rs.)	=6000000/- × (1+1+0.6) =Rs.1,56,00,000/-

Compensation Charge (Scenario II - explicit accounting of NPV)

Market Value of Illegally Mined Material (D) $5000 \times 400 = 6000000/-$

Annual Value of Foregone Ecological Values $D \times RF = 6000000/-$

- **Present Value of Foregone Ecological Values (@ 5% discount rate and over 5 years)**

$$\begin{aligned}
 PV &= \sum_{t=1}^5 \frac{(D \times RF)}{(1+r)^t} \\
 &= \sum \frac{(6000000)}{(1+0.05)^1} + \frac{(6000000)}{(1+0.05)^2} + \frac{(6000000)}{(1+0.05)^3} + \frac{(6000000)}{(1+0.05)^4} + \frac{(6000000)}{(1+0.05)^5} \\
 &= \text{Rs. } 2,59,76,860/-
 \end{aligned}$$

- Net Present Value (after netting out market value of illegally mined material) - i.e., Total Compensation to be levied

$$= NPV = PV - D$$

$$= \text{Rs. } 1,99,76,860/-$$

Compensation Charge in above case:

Approach 1 (no explicit accounting of NPV)	Approach 2 (explicit accounting of NPV)
D*(1+RF+DF)	@ 5% discount rate and over 5 years
Rs. 1,56,00,000/-	Rs. 1,99,76,860/-

Example 02: Violation with respect to Depth

A case of non-compliance in terms of excess depth was reported. The inspection team carried out an assessment of mining site and observed severity of impacts on river components as *Severe*, then the computation of Compensation Charge will be as follow:

Compensation Charge (Scenario I - no explicit accounting of NPV)

Violation reported as follow:

Total Permitted Quantity in Environmental Clearance (X)	=30000 m ³
Total Permitted Area in Environmental Clearance	=10000 m ²
Total Depth of mined out material	=4 m
Total Permitted Depth in Environmental Clearance	=3 m
Total Violation in Depth	=1 m
Excess Extraction (Z)	=10000 x 1 =10000 m ³
Exceedance Factor (Z/X)	=10000/30000=0.33

Methodology:

Market Value of Illegally Mined Material (D) (assuming Market Value of the material as Rs. 400/- per m ³)	D = 10000 x 400 = 4000000/-
Risk Factor (RF)	Severity <i>Severe</i> Risk Level 4 Risk Factor (RF) 1
Deterrence Factor (DF)	DF = 0.3 (for Z/X in 0.11 to 0.40 range)
Compensation	=D x (1+RF+DF)
Total (in Rs.)	=4000000/- x (1+1+0.3) =Rs 92,00,000/-



Compensation Charge (Scenario II - explicit accounting of NPV)

Market Value of Illegally Mined Material (D) $10000 \times 400 = 4000000/-$

Annual Value of Foregone Ecological Values $D \times RF = 4000000/-$

- Present Value of Foregone Ecological Values (@ 5% discount rate and over 5 years)

$$\begin{aligned}
 PV &= \sum_{t=1}^5 \frac{(D \times RF)}{(1+r)^t} \\
 &= \sum \frac{(4000000)}{(1+0.05)^1} + \frac{(4000000)}{(1+0.05)^2} + \frac{(4000000)}{(1+0.05)^3} + \frac{(4000000)}{(1+0.05)^4} + \frac{(4000000)}{(1+0.05)^5} \\
 &= \text{Rs. } 1,73,17,907/-
 \end{aligned}$$

- Net Present Value (after netting out market value of illegally mined material) - i.e., Total Compensation to be levied

$$= NPV = PV - D$$

$$= \text{Rs. } 1,33,17,907/-$$

Compensation Charge in above case:

Approach 1 (no explicit accounting of NPV)	Approach 2 (explicit accounting of NPV)
$D \times (1 + RF + DF)$	@ 5% discount rate and over 5 years
Rs. 92,00,000/-	Rs. 1,33,17,907/-

Example 03: Violation with respect to Depth and Area

A case of non-compliance in terms of excess depth and area was reported. The inspection team carried out an assessment of mining site and observed severity of impacts on river components as *Severe*, then the computation of Compensation Charge will be as follow:

Compensation Charge (Scenario I - no explicit accounting of NPV)

Violation reported as follow:

Total Permitted Quantity in Environmental Clearance (X)	=30000 m ³
Total Permitted Area in Environmental Clearance	=10000 m ²
Total Permitted Depth in Environmental Clearance	=3 m
Total Area of mined out material	=12000 m ²
Total Depth of mined out material	=4 m
Total Volume of mined out material m ³	=12000 m ² x 4 m =48000

(The example can be applied to a case of totally illegal mining without EC also where illegal mining of 18000 m³ has been done)

Excess Extraction (Z)	=18000 m ³
Exceedance Factor (Z/X)	=18000/30000=0.6

Methodology:

Market Value of Illegally Mined Material (D) (assuming Market Value of the material as Rs. 400/- per m ³)	D = 18000 x 400 = 7200000/-						
Risk Factor (RF)	<table> <tr> <td>Severity</td> <td><i>Severe</i></td> </tr> <tr> <td>Risk Level</td> <td>4</td> </tr> <tr> <td>Risk Factor (RF)</td> <td>1</td> </tr> </table>	Severity	<i>Severe</i>	Risk Level	4	Risk Factor (RF)	1
Severity	<i>Severe</i>						
Risk Level	4						
Risk Factor (RF)	1						
Deterrence Factor (DF)	$DF = 0.6$ (for Z/X in 0.41 to 0.70 range)						
Compensation	=D x (1+RF+DF)						
Total (in Rs.)	$=7200000/- \times (1+1+0.6)$ $=Rs\ 1,87,20,000/-$						

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Compensation Charge (Scenario II - explicit accounting of NPV)Market Value of Illegally Mined Material (D) $18000 \times 400 = 7200000/-$ Annual Value of Foregone Ecological Values $D \times RF = 7200000/-$

- **Present Value of Foregone Ecological Values (@ 5% discount rate and over 5 years)**

$$\begin{aligned}
 PV &= \sum_{t=1}^5 \frac{(D \times RF)}{(1+r)^t} \\
 &= \sum \frac{(7200000)}{(1+0.05)^1} + \frac{(7200000)}{(1+0.05)^2} + \frac{(7200000)}{(1+0.05)^3} + \frac{(7200000)}{(1+0.05)^4} + \frac{(7200000)}{(1+0.05)^5} \\
 &= \text{Rs. } 3,11,72,232/-
 \end{aligned}$$

- Net Present Value (after netting out market value of illegally mined material) - i.e., Total Compensation to be levied

$$= NPV = PV - D$$

$$= \text{Rs. } 2,39,72,232/-$$

Compensation Charge in above case:

Approach 1 (no explicit accounting of NPV)	Approach 2 (explicit accounting of NPV)
D*(1+RF+DF)	@ 5% discount rate and over 5 years
Rs. 1,87,20,000/-	Rs. 2,39,72,232/-

Example 04: Violation with respect to Quantity / Production

A case of non-compliance in terms of excess quantity/production was reported. The inspection team carried out an assessment of mining site and observed severity of impacts on river components as *Severe*, then the computation of Compensation Charge will be as follow:

Compensation Charge (Scenario I - no explicit accounting of NPV)

Violation reported as follow:

Total Volume of mined out material	=35000 m ³
Total Permitted Quantity in Environmental Clearance (X)	=30000 m ³
Excess Extraction (Z)	=5000 m ³
Exceedance Factor (Z/X)	=5000/30000 = 0.16

Methodology:

Market Value of Illegally Mined Material(D) (assuming Market Value of the material as Rs. 400/- per m ³)	D = 5000 × 400 = 20,00,000/-
Risk Factor (RF)	Severity <i>Severe</i> Risk Level 4 Risk Factor (RF) 1
Deterrence Factor (DF)	DF = 0.3 (for Z/X in 0.11 to 0.40 range)
Compensation	-D × (1+RF+DF)
Total (in Rs.)	=2000000/- × (1+1+0.3) =Rs. 46,00,000/-

Compensation Charge (Scenario II - explicit accounting of NPV)

Market Value of Illegally Mined Material (D) $5000 \times 400 = 2000000/-$

Annual Value of Foregone Ecological Values $D \times RF = 2000000/-$

- **Present Value of Foregone Ecological Values (@ 5% discount rate and over 5 years)**

$$\begin{aligned}
 PV &= \sum_{t=1}^5 \frac{(D \times RF)}{(1+r)^t} \\
 &= \sum \frac{(2000000)}{(1+0.05)^1} + \frac{(2000000)}{(1+0.05)^2} + \frac{(2000000)}{(1+0.05)^3} + \frac{(2000000)}{(1+0.05)^4} + \frac{(2000000)}{(1+0.05)^5} \\
 &= \text{Rs. } 86,58,953/-
 \end{aligned}$$

- Net Present Value (after netting out market value of illegally mined material) - i.e., Total Compensation to be levied

$$= NPV = PV - D$$

$$= \text{Rs. } 66,58,953/-$$

Compensation Charge in above case:

Approach 1 (no explicit accounting of NPV)	Approach 2 (explicit accounting of NPV)
D*(1+RF+DF)	@ 5% discount rate and over 5 years
Rs. 46,00,000/-	Rs. 66,58,953/-

Deliberations in the Meetings of the Committee

First meeting of the committee

The first meeting of the member of the committee constituted by the Hon'ble NGT in O.A. No. 360/2015 order dated 05.04.2019 was convened on 31.05.2019 at CPCB, Delhi. The committee meeting was attended by the following members:

1. Shri Sundeeep, Director, MoEF&CC, Delhi
2. Shri A. Sudhakar, Additional Director, CPCB, Delhi
3. Dr. Yogesh Dubey, Associate Professor, IIFM, Bhopal
4. Dr Purnamita Dasgupta, Professor, IEG, Delhi

The member, Dr. K.S. Kavi Kumar, Professor, MSE, Chennai was not able to attend the meeting due to unavoidable circumstances.

The members of the committee expressed the opinion that assessment of the damage and net present value of eco-system services forgone forever and the cost of mitigation and restoration are the most important elements to arrive at a scale of Environmental Compensation and it is necessary to hear views of experts on these subjects in a workshop.

Second Meeting of the Committee

As desired by the committee in the first meeting, the following institutes / experts were requested for participation in a one-day workshop and to provide their views/opinion:

Expert Institutes:

- Forest Research Institute, Dehradun
- Indian Institute of Soil and Water Conservation, Dehradun
- National Institute of Hydrology, Roorkee
- Indian Institute of Technology Delhi
- Indian Institute of Technology, Roorkee
- Wildlife Institute of India, Dehradun
- Zoological Survey of India, Kolkata

Individual Experts:

- Dr. C.R. Babu, Professor Emeritus, University of Delhi
- Dr. Jagdish Krishnaswamy, Senior Fellow, Suri Sehgal Centre for Biodiversity and Conservation, Bangalore



The second meeting cum workshop was convened on 20.06.2019 at CPCB, Delhi to hear the views of the subject experts. The meeting cum workshop was attended by following member of committee and subject experts:

Committee Members:

1. Shri Sundeep , Director, MoEF&CC, Delhi
 2. Shri A. Sudhakar, Additional Director, CPCB, Delhi
 3. Dr Purnamita Dasgupta, Professor, IEG, Delhi
- Dr. K.S. Kavi Kumar, Professor, MSE, Chennai and Dr. Yogesh Dubey, Associate Professor, IIFM, Bhopal were unable to attend the meeting cum one-day workshop due to other works.*

Subject Experts

Dr. C. R. Babu, Professor Emeritus, University of Delhi
 Dr. Zulfiqar Ahmad, Professor, IIT Roorkee
 Dr. C. Raghunathan, Scientist E, Zoological Survey of India, Kolkata
 Dr. Sumant Kumar, Scientist C, National Institute of Hydrology, Roorkee

Views of Subject Experts:

Professor Zulfiqar Ahmad, IIT Roorkee expressed his view on assessment of physical damage caused in the river due to mining and shared the case studies on morphological changes in the river and its likely impacts. The study comprised of identification of critical reach of river, measures suggested to protect the critical reach, and the cost required for restoration of the physical damages occurred. Other aspects for assessment included the change in the stability of slope and structure in the river stretch. He expressed that assessment of physical damages needs to be done through comprehensive case specific study. He highlighted that mining activities done even at long distance from a civil structure may result in ultimate lowering of the bed by head cutting in upstream due to movement of nick point as well as cutting/degradation in downstream from the mining site. (*Power Point Presentation enclosed*)

Dr C.R. Babu, Professor Emeritus, University of Delhi provide a detailed note on the matter describing types of sand mining and adverse impacts of sand mining which was circulated to committee members and other experts (**copy enclosed**). He said that mining activity lead to channel incision, erosion of riverbed and vertical instability, results in shallowing and widening of channel and multiple channel of river from one channel. The shallowing of channel causes increase in temperature, affecting local fish population, fish diversity and vegetation in riparian zone. The deepening of riverbed due to depletion of material impacts on existing dug well / tube well and underground water, changes the water quality and reduces the

sediment deposits which serves as substratum for vegetation and habitats for riparian and terrestrial species. He agreed to attend any future committee meeting as a special invitee and provide his expert views.

Dr. Sumant Kumar, Scientist C, NIH, Roorkee expressed his views that severity of change in course of river flow depends on bank stability and energy of river and needs to be taken into consideration. He also expressed that the mining activity in the river may increase silt content, which may affect the cost of purification of the river water in downstream treatment plants, and damages assessment should include this aspect. He agreed to provide a note on the matter.

Dr C. Raghunathan, Scientist E, ZSI, Kolkata also expressed that silt / suspended solids content increases in river due to mining activity and result in increase in turbidity in the river, which affects the penetration of sunlight and impact primary production activity which influences the entire food chain. The assessment of damages must be done in consideration of the impacts caused to river flora and fauna. The silt formation in the river affects the fish population directly also as it gets deposited in the scales of fishes and reduce their production. He agreed to provide a note on the matter.

Third Meeting of the committee

The third meeting of the members of the committee constituted in compliance of NGT order dated-05.04.2019 in OA No. 360/2015 was convened on 24.07.2019 at CPCB, Delhi. The committee meeting was attended by Shri Sundeep, Director, MoEF&CC, Delhi (Member) and Dr. C.R. Babu, Professor Emeritus, University of Delhi (Special Invitee)

Dr. Purnamita Dasgupta, Professor, IEG, Delhi (Member) and Dr. K.S. Kavi Kumar, Professor, MSE, Chennai (Member) had confirmed participation but could not participate due to some unavoidable circumstances at the last moment. Shri A. Sudhakar, Additional Director, CPCB, Delhi (Member) could not participate as he was abroad and Dr. Yogesh Dubey, Associate Professor, IIFM, Bhopal could not participate due to important works in his institute.

It was expressed by Committee member and special invitee that considering the nature of work at least 06 month time may be required to prepare the report. The framework of the report may be prepared in one month and an interim report may be prepared in three months. CPCB may submit a progress report of committee meetings convened and request NGT for extension of time on behalf of committee.

Fourth Meeting of the committee

Based on the progress report and time extension request filed by CPCB on behalf of the committee constituted, NGT by its order dated-26.07.2019 in OA No. 360/2015 granted 03month time for submission of report to committee. CPCB convened fourth meeting of committee members on 16.09.2019 at CPCB HO Delhi. The committee meeting was attended by the following members:

1. Shri Sundeep, Director, MoEF&CC, Delhi
2. Shri A. Sudhakar, Additional Director, CPCB, Delhi
3. Dr. Purnamita Dasgupta, Professor, IEG, Delhi
4. Dr. K.S. Kavi Kumar, Professor, MSE, Chennai

(The member, Dr. Yogesh Dubey, IIFM, Bhopal was not able to attend the meeting.)

Discussion were held on the draft report prepared by CPCB based on inputs and suggestions of committee members, the scale/formula to compute the environmental compensation. It was agreed by committee members to categorise severity of impacts of illegal mining and extent of violations based on field inspections and accordingly, Risk factor and Deterrence factor to be considered for computation of environmental compensation whereby the risk factor to be categorised into four level and Deterrence factor for higher extent of violations, based on quantifiable exceedance evaluated.

The meeting concluded with committee members agreeing on basic formula/scale of compensation and further agreed to provide correction in the draft report.

Fifth Meeting of the committee

In consideration of time bound finalization of report, the fifth meeting of the members of the committee constituted in compliance of NGT order dated-05.04.2019 in OA No. 360/2015 was convened on 11.12.2019 at MoEF&CC, Delhi. The committee meeting was attended by Shri Sundeep, Director, MoEF&CC, Delhi (Member), Dr. Purnamita Dasgupta, Professor, IEG, Delhi (Member) and representatives of CPCB Delhi. Discussion were held on final draft of the report and inclusion of inputs provided by the committee members in the final draft. The committee members agreed to time bound finalization of the report and given concurrence to CPCB and submission of report to Hon'ble NGT on finalization.

1. Write up provided by Prof. C.R. Babu, Professor Emeritus, University of Delhi

Adverse Impacts of sand mining and creation of guide bunds and marginal bunds on Rivers and their Tributaries

(Source: Impacts of sand mining on Ecosystem structures, process Biodiversity in Rivers by Lois Koehnkem)

Sand Mining

Three types of sand mining are common in river systems. In stream mining (mining in channel), river-bed mining (mining near the channel) and mining from flood plains. All three types of mining are rampant across the country, as sand is an important natural resource and used widely in the construction activity.

Sand mining encompass excavation of aggregates consisting of sand, gravel, pebbles or cobbles; but in this note sand mining refers to mining of sand which include fine grained sediments which are rich in nutrients and sediment of intermediate size consisting of fine to coarse sand and very coarse sediment consisting of very coarse sand only. Very coarse sediment, as a rule, contains very coarse sand besides larger material such as pebbles, cobbles and boulders which are usually absent in river channels that develop within the sediment deposits of alluvial river system. All three kinds of sediments in have specific roles in the riparian ecology. For example, the fine grained sediments transported in suspension form and are deposit in deep channels and flood plains where low energy environment prevails. The fine grained sediment is rich in nutrients and affects water quality and control light penetration in the channel. The intermediate size grained sediment is transported in suspension during high flows or as bed load during low energy, and it is stored in the bed, banks, flood plains and bars (sand bars) of river system.

The continuous deposition of sand is essential for the maintenance of delta and shore line stability which form the first line protection against storm surge and other extreme events. The very coarse sediment is transported during very high flows and moves as bed load - rolling or bouncing along the bed of the river. The transport and deposition of sediment (sand) in the river system generate a mosaic in stream /in channel habitats that form the basis of ecological functioning of rivers/streams. In other words, sediments (sand) movements and deposition are integral part of the river system and are critical in sustaining its ecological functions.

All the three types of sand mining is common all along Yamuna, particularly in both upstream and downstream of Delhi. In plains sand mining includes fine grained

sediment, intermediate sized sediment and very coarse sediment; but in the hilly areas not only mining of aggregates but also pebble mining is common.

Adverse impact of sand mining

The extraction of sand (sand mining) from the river system has several adverse impacts on the riparian ecosystems. Some of the major adverse impacts are mentioned below

Sand mining results in removal of sediments, and stones, and alteration in the transport of sediment, both of which bring physical and ecological changes in river channels. Since the river channels itself develops within the sediment deposits of alluvial river system, sand mining leads to erosion of channel banks, bars and flood plains. Sediment transportation also affects bedrock controlled reaches where localised sediment deposits serve as substratum for vegetation and habitats for riparian and terrestrial species.

The sediment load and river morphology are controlled/ maintained by balance between sediment bed, sediment grain-size, water flow and slope of the river. Sand mining alters all the four variables, For example, reduction in sediment load and reduction in medium sized sediment and local increase in slope of the river due to sand mining cause bed erosion that can propagate both upstream and downstream. Sand mining brings in changes in all the four variables and these changes resulted in three kinds of impacts: (i) Physical, ecological and social impacts.

A. Physical Impacts:

Changes in the channel morphology, alteration in the flow regime, and changes in the composition and movement of sediments impact on quality of water and ground water. A total of 107 different physical impacts were recorded in the scientific literature.

- (1) Both channel widening and narrowing across the river is due to sand mining has been reported. The channel incision is the major physical impact of sand mining in the rivers. The channel incision takes place from the lowering of the bed of river due to erosion of riverbed which results from the creation of a nick point by mining in the river bed. The impacts of incision are listed below:
 - (a) The turbulence, as water flows over the nick point, causes erosion of the river bed with the nick point retreating in an upstream direction and this upstream movement of the nick increases the slope of the river resulting in increase in water velocity during high flow events leading to increased erosion in downstream.



- (b) The deeper and steeper river bed will cause an increase in river energy and erosion which result in continual of incision leading to narrower channel.
 - (c) Channel incision also results in vertical instability in the channel that make it narrower, but lateral instability in the form of stream bank erosion result in widening of channel which in turn results in shallowing the bed. Both shallowing and widening of channel increase stream temperature extremes, Shallowing of river beds also results in flash floods; and channel instability also increases transport of sediments to downstream.
 - (d) Rivers narrowed through incision are disconnected with flood plains, the maintenance of which requires episodic inundation. These flood plains serve as wide range of ecological services due to exchange of water, sediment and organisms during inundation resulting in enhanced instream and flood plain productivity, while allowing recharging ground water; the flood plains allow the river to spread out during periods of high water and slows down and absorb high flows, and thereby reduce flood intensity and magnitude, and hence limit their impacts on downstream avian habitats and infrastructure. Sediment deposited provides influx of nutrients which enhances the productivity. Sand mining impacts all these services due to incision that leads to narrowing of channel.
 - (e) The incision can one channel of rivers from multiple channels as these channels ones, are separated by mobile islands. Yamuna river is the best example where multichannel river has become single channel river not only due to sand mining but also to filling up and encroachments of flood plains.
 - (f) By deepening of the base of river, the incision leads to decrease in ground water level, as the banks and surrounding permeable areas drain to the new lowered level.
 - (g) Mining from sand bars (bar skinning) can lead to bar erosion, and local channel and downstream widening. Additional channel widening occurs if mining causes river bank instability and collapse. This leads to decrease in local water velocity due to increased capacity of the channel, local increase in sediment load and increased downstream erosion due to reduction in sediment transport.
- (ii) Mining from flood plains (dry mining) alters the course of river. A series of pits near river course soon form a new channel by inundation and linking of pits. These inundated pits soon become lakes and contribute to increase in bank erosion. Flood plain mining also alters ground water levels. Ground water recharging is drastically reduced and the channel flow will be altered.



- (III) Sand mining also creates sediment laden plumes in downstream and deposit in undesirable locations and coats substrates and make them unsuitable habitats. These plumes also reduce the depth to which light penetration occurs effecting growth of algae and aquatic vegetation.
- (IV) On a large scale, reduction in the volume of sediment in the river results in decrease or absence of (sediment deposition) in deltas and coastal zone. This in turn results in erosion and subsidence of deltas and the degradation of deltas enhances the vulnerability to flooding leading to adverse impacts on human communities.
- (V) In-stream sand mining changes water quality. For example, increase in turbidity at the site due to re-suspension of sediment and sedimentation from stock piling and dumping of excess mining material and pollution due to oil spills from machinery are common adverse impacts of mining at the site
- (VI) Channel widening due to sand mining contributes to increase in temperature which in turn reduces dissolved oxygen and increase in toxicity due to heavy metals, pesticides and natural toxicants.
- (VII) There will be increase in suspended solids at the mining site and downstream due to increase in riverbed and bank erosion from mining. This will increase the cost of water treatment in the downstream. This has been happening in Yamuna where upstream sand mining is contributing to high suspended solids in waters. Water quality changes due to mining may also result in the alteration in the distribution and availability of habitats which in turn affect aquatic flora and fauna.

B. Ecological Impacts

- (I) Sand mining destroys spawning grounds of local fish populations leading to reduction in fish catch, replaces lentic species by lotic species and displaces native habitat specific species by generalists and invasive species, reduction in abundance of many game fishing species, extinction of local fish populations due to channel alteration by flood plains mining. Mining also decreases fish diversity.
- (II) Sand mining has negative impacts on invertebrates, which play significant role in self-purification system of rivers. For example, enhanced turbidity will impact the macroinvertebrates. Low water levels due to incision have adverse impacts in mussels.
- (III) Sand mining has also negative impacts on vegetation in riparian zones.

C. Social Impacts

Sand mining has adverse social impacts, besides physical and ecological impacts.

- (I) Groundwater depletion, loss of land, depletion of fisheries, reduction in ground water quality and damage to infrastructure such as bridges, all of which have indirect impacts on the communities.
- (II) Incision due to instream mining is a threat to support structures such as bridges and weirs. Upstream sand mining led to the replacement of bridges involving loss of several million dollars in California. In fact service lines like under cables and gas pipe lines have been exposed, and with decrease in river levels, the irrigational channel and pump sets rendered useless. All these impacts results in loss of several millions of rupees.
- (III) An increase in distribution of flood waters with reduced sediment load and channel incision due to sand mining and land subsidence associated with the extraction of ground water contribute to reduction in the base level of the river which in turn also resulting in lowering of the surrounding water table leading to threatening water availability for local people and agriculture.
- (IV) Sand mining also impacts land use and loss of land. Sand extraction leads to deep pools in flood plains leading to reduction in land availability for agriculture.
- (V) Sand mining increased intrusion of salt water, which led to decrease in drinking water quality and salinization of agricultural lands. Vectors that carry infectious pathogens may become abundant in stagnant water filled pits due to sand mining.

Conclusions

To sum up, indiscriminate and rampant sand mining in rivers lead to reduction in water availability, change in the water quality, loss of self-purification system through loss of biodiversity, permanent changes in physical features of river morphology, hydraulics that lead to ecological disasters during extreme events, degradation of deltas and intrusion of salt water. We need to regulate and even prevent sand mining to save our river systems.

- -----End of Write up -----

2. Note Received from Dr. Sumant Kumar, Scientist C, NIH, Roorkee

Impact of Sand Mining on River Hydrology including SW and GW interaction

Rivers played a major role in development of human civilization. Many rivers of the world are being drastically altered beyond their self-resilience capacity due to accelerated developmental activities. Sand mining is one of the human intervention, which threatens the riverine ecosystem. The degree of sand mining impact (on-site and off-site) depends on geologic and geomorphic features. Continued and indiscriminate mining may cause changes in the physical characteristic of river in addition to disturbances to flora and fauna of riverine ecosystem. Keeping in view of the above facts, my views as discussed in the meeting also are listed below:

- Primary and secondary data (quantity of sand, lowering of river bed, shifting of river bank etc.) may be generated or collected.
- Impact on hydraulic structures such as dams, weirs and other important structures such as Intake well for drinking water supply should be studied.
- Assessment of saturated water present in mined sand should be quantified.
- Depth of mining may be regulated region-wise based on geological, geomorphological, groundwater level and physical characteristics of river.
- Assessment of groundwater flow to/from river will depends to aquifer and river characteristic and hence it varies site to site.
- Water quality (suspended particles, turbidity, oil and grease etc.) of SW and GW in sand mined area may be assessed.
- Control measures such as bank stabilization should be evaluated.
- Remote sensing data may be used for morphological and other analysis of rivers.
- An integrated environmental assessment, management and monitoring program should be part of sand extraction processes.

3. Initial note on estimating ecological damage from illegal sand mining

(Prof. K. S. Kavikumar)

A draft framework for assessing the value of ecological damage due to illegal sand mining:

- First, in any given geographic area the extent of 'illegal' mining needs to be established. This can be done by making rapid assessment of extent of sand mining being carried out and netting out the area for which environmental clearance has been given (even in the mines that received environmental clearance, there could be violations and the same should be included in the 'illegal' mining area)
- For simplicity three main components can be considered for ecological damage assessment - material cost component, eco-restoration cost component, and NPV of foregone ecosystem services.
- The following time line could serve as basis for assessing these costs:

T₁

T₂

T₃

T1: Time when 'illegal' sand mining is recognized (ignoring the unauthorized sand mining being carried out prior to T1)

T2: Completion of restoration work; between the period T1 and T2 ecological restoration work is undertaken in and around the riverbed as suggested by the subject experts.

T3: The restoration work 'yields' ecosystem services (i.e., restoration of ecosystem services following the restoration work undertaken). In other words, beyond T3 the ecosystem provides all the services that it used to provide before the unauthorized sand mining has affected such services.

While it would be easy to establish T1 and T2, it is not easy to arrive at T3 in an objective manner and needs to be fixed based on inputs from the subject experts.

- **Material Costs:** The material costs could include the auction value of the seized mined material and any fines imposed on the 'illegal' mining activities. This cost will be in T1 year prices estimated at time T1. In practice, the market values of the mined material can be taken for the cost estimation.

- Eco-restoration costs: This consists of the costs of suggested restoration activities in and around the mining area. It is expected that the restoration work would stretch over the period T1 and T2. The eco-restoration costs would be the present value (at T1) of the expected restoration expenses over the years T1 to T2.

Standard restoration activities could be identified (including say, construction of retaining wall, plantation along river bank etc.) and cost estimations can be made based on normative values.

- Present Value of Foregone Ecosystem Services: This component is perhaps the most difficult one as it requires assessment of value of ecosystem services that would have been obtained in the absence of 'illegal' mining. One may have to source such information from the literature and after required value addition, use the per hectare value in a manner similar to what has been done in case of forest land. Once annual per hectare value is identified, the foregone value per year can be estimated by multiplying it with the extent of 'illegal' mining area. The present value calculation can then be carried out over the period T1 and T3.
- For the purpose of present value calculations (in case of the cost components involving eco-restoration and foregone ecosystem services), choice must be made for the relevant discount rate.

Annexure - III

Inputs about existing legal provisions regarding illegal mining

(MoEF&CC & CPCB)

Compensation as per Statutory Provisions

Hon'ble Supreme Court in its Judgement dated-02.08.2017 in Writ Petition (Civil) No. 114 of 2014 in the matter of Common Cause Vs. Union of India with Writ Petition (Civil) No. 194 of 2014, mentioned the provisions regarding mining activity under Mines and Minerals (Development and Regulation) Act, 1957 (or the MMDR Act), the Mineral Concession Rules, 1960 (or the MCR) and the Mineral Conservation and Development Rules, 1988 (or the MCDR).

Para 125-129 of the said Judgement defined the expression **Illegal Mining** as mining operations undertaken by any person in any area without holding a mining lease and any other mining operation conducted in violations of terms of the mining scheme, the mining plan and the mining lease as well as the statutes such as the Environment (Protection) Act, 1986, the Forest (Conservation) Act, 1980, the Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981 and Wildlife Protection Act, 1972.

Para 150 of the said Judgement is related to applicability of Section 21(5) of MMDR Act when any person raises, without any lawful authority, any mineral from any land and, authority of the State Government to recover the price thereof as compensation. Accordingly, the extraction of mineral from permitted mining lease area over and above what is permissible under the mining plan or the environmental clearance is to be taken as extraction without lawful authority and attracts the provisions of Section 21(1) and Section 21(5) of MMDR Act.

In view of provisions under Section 21(1) and Section 21(5) of MMDR Act, the computation of cost of material illegally extracted will be as per applicable methodology and rules in MMDR Act.

Therefore, compensation can be classified in following two categories

- I. Compensation for Illegal Mining shall be subjected to provision of section 21(1) and section 21(5) of MMDR Act, 1957, as amended from time to time, and cost associated for restoration of damages incurred due to such mining to any physical structures, flood plains and cost assessed for the services lost for the period to restore the damages.

- ii. Compensation for Non-Complying Mining shall be subjected to the recovery of revenue loss due to excess production over and above permitted capacity or area or depth under any applicable statutory provisions and cost associated for restoration of any damages incurred due to such mining to any physical structures, flood plains and cost assessed for the services lost for the period to restore the damages.

Illegal and Non-complying Mining

1. Illegal Mining means extraction of minerals or associated mining activities carried out, without any lawful authority, from land or river bed or both, or from prohibited area. Lawful authority includes mining permission from competent authority including permission or clearance under applicable statutory laws/rules (i.e. MMDR Act, Water (P&CP) Act, Air(P&CP) Act, E(P)Act, FC Act, WLPA etc.
2. **Non-complying** mining means extraction of minerals or associated mining activities carried out, with due permission of lawful authority, from land or river bed or both, or from prohibited or regulated area, but in contravention of stipulated conditions for undertaking such activities.

Sustainable Sand Mining Management Guidelines 2016

To deal with issues of legal sand mining, Ministry of Environment, Forest and Climate Change, Government of India have issued Sustainable Sand Mining Management Guidelines 2016. These guidelines were prepared after consultation with States and other stakeholders with an objective to ensure sustainable sand mining and environment friendly management practices in order to restore and maintain ecology of river and other sand sources. Emphasis has been given on use of information technology and services for scientific monitoring and transportation of mined out material.

Relief and Compensation under NGT Act 2010

The National Green Tribunal Act 2010 provides for filing of Application by a victim of pollution for grant of relief or compensation and other environmental damage before the Tribunal, or for restitution of the property damaged, or for restitution of the environment of the area, and empowers the Tribunal to pass order - to provide such relief or compensation, or for restitution of the property damaged, or for restitution of environment of the area.

Annexure - IV

Inputs/suggestions for detailed assessment of damages

(MoEF&CC)

There is no comprehensive or guiding rationale available for assessing environmental damage or for evaluation in quantifiable terms. Considering the diversified geographical, morphological, temporal and spatial variation in flow regime of riverine system across Indian sub-continent, it is difficult to work out any one reasonable rationale for calculating NPV. It is essential to create such database by undertaking detail studies by experts on major riverine system across its stretch with significant variation.

A committee may be deputed consisting of domain experts viz. river morphology, biodiversity, agriculture, pollution control, irrigation / public works department, mining and local administration along with the Mine lease holders to assess the damage and quantifying the requisite variables for assessing the NPV values.

A baseline data assessment of the indicative attributes of the ecology which are having significant impacts and can be considered as an indicator, shall be collected as part of Environmental Impact Assessment study and submitted to the regulatory authority while seeking grant of environmental clearances. This will create database for assessing the damages as well as the loss in services. Such information will also facilitate the Regulatory authority to assess and impose appropriate conditions highlighting the risk associated to damages incurred due to non-compliance of the imposed conditions. This will extend the monitoring agencies to directly impose the environmental compensation in case the non-compliance is observed.

For area, where baseline data is not available including "illegal" mining, it is proposed that the values of the nearest legal mines or its baseline data shall be considered for defining the unavailable data and all calculation shall be based on the scientific primary data of the nearest assessed values.

Damages may be assessed as and when specific information on the ecological variables becomes available to the state. Each specific river basin will have its own set of most relevant variables and methodology to be considered for calculation of the NPV for ecological damages.

Table No. 05: Indicative Damages

S.No.	Damage type
1	Ingress in Flood Plain (non-mining zone)
2	Flood Plain damage
3	Diversion of River flow or change in river morphology
4	Damages to agriculture land
5	Damages to public property (Roads/Bridges/embankment/ghats/etc.) or water intake point
6	Ingress in habitat of species of significant importance or damage to river vegetation

Pre-requisite for damage assessment

To evaluate the damage assessment caused due to mining in river, it is desirable to have pre-requisite information. A checklist needs to be prepared on important points in light of the comments provided by subject experts which are provided as annexures to this report for availability and facilitation of information to person involved for damage assessment in case of illegal mining in river. The checklist for requisite information should be prepared at every district level in respective state where riverbed mining is permitted. The checklist have to be prepared within one year of time period for existing mines and to be considered mandatory before auction of new mining leases.

In addition to checklist, the following information is necessary:

- District Survey Report and Audit Report
- Provision of Public Liability Insurance in Mine Lease Agreement
- Scheduled Market Rate of sand / gravel
- Flora and Fauna Inventory (Yearly basis)
- Inventory on River structures and their locations

Report of the damage assessment team shall be, but not limited to, the format suggested. Additional information which is observed as relevant by the domain expert members of the assessment team shall be appropriately reported and acted upon in due consideration of the basic objective of deriving a scientific rational for assessment of ecological of infrastructural damage arising due to the mining activity. Standard operating practice correct assessment of damage by the expert committee constituted by concerned authority, for the purpose is delivered below, which can be modified based of site specific condition, and any deviation shall be recorded in the report.

Standard Operating Procedure

This Standard Operating Procedure (SOP) is applicable for damage assessment due to illegal mining and have to be undertaken in addition to related provisions in MMDR Act.

Step 1:	The assessment team should collect the information and documents prescribed in Pre-Requisite section.
Step 2:	The assessment team should verify the applicability / validity of statutes under EPA-1986, Air and Water Act, MMDR 1957, State Mines and Mineral Rules, etc.
Step 3:	Field visit should be conducted for identification of mining lease area (in hectare) and boundary pillar constructed to indicate the same.
Step 4:	With the help of GPS instrument, the team should assess the area where any extraction or mining have been carried out on day of visit and calculate the mined out area in hectare.
Step 5:	If available, the team may avail the use of latest satellite images for calculating the total mined out area.
Step 6:	The team should verify the Ground / Surface Level (in meter above MSL) of atleast 04 highest points in or around the area where mining has been done. The Ground / surface level will then be computed based on averaging of 04 highest points verified by the team.
Step 7:	With the help of Depth Measurement kit or any depth measuring instruments, the depth should be measured for atleast 04 points in mined out area. For computing the depth, averaging of value obtained at 04 points should be done.
Step 8:	Verification of compliance conditions of Environmental Clearance and Consent to operate, mining methodology under Mining Plan
Step 9:	Identification of vulnerable impacts observed on the field and non-compliance of conditions of Environmental Clearance and Consent to Operate.
Step 10:	Field Survey for identification, monitoring and verification of ecological species based on the information available and documents mentioned in Pre requisite section.
Step 11:	Preparation of inventory of machinery used / observed on the field as per format in Checklist.
Step 12:	Preparation of inventory of hydraulic structures observed on the field as per format in Checklist.
Step 13:	Water sampling for assessment of water quality including physical and biological parameters.
Step 14:	Computation of amount of cost of damage in term of mined out mineral as per format.
Step 15:	Identification of restoration plan and computation of cost of restoration plan.



Damage Assessment Report Format			
Mining Lease	Individual / Cluster		
Total Mine Lease Area			
Area permitted for Mining (excluding safety bench marks)			
Permitted depth	----- meter		
Mining Area Description -	Riverbed / Floodplain / Combine Area		
Applicable Mining Method	Mechanised / Semi-mechanised / Manual		
Quantity available for mining			
Mineral available for mining			
Bulk Density of Mineral			
Replenishment Rate (Yearly basis)			
Ground Level	Point 01 -	Point 02 -	
	Point 03 -	Point 04 -	
	Average = ----- meter above MSL		
Ground water Level	Point 01 -	Point 02 -	
	Point 03 -	Point 04 -	
	Average = ----- meter above MSL		
Riverbed Depth	Point 01 -	Point 02 -	
	Point 03 -	Point 04 -	
	Average = ----- meter above MSL		
River channel Width	-----meter		
River water Temperature (Avg)	----- °C		
River Flow Velocity	Jan. -	Feb. -	Mar. -
	Apr. -	May. -	Jun. -
	Jul. -	Aug. -	Sept. -
	Oct. -	Nov. -	Dec. -
Machinery Observed	Machinery	Capacity	Total Number
	JCB		
	Tractor-Trolley		
	Truck		
	Dumper		
Any Other			
Hydraulic Structures	Type	Distance from mined out area	Total Number
	Remarks		

Item No.06

Court No.1

**BEFORE THE NATIONAL GREEN TRIBUNAL
EASTERN ZONE BENCH, KOLKATA
(THROUGH PHYSICAL HEARING WITH HYBRID MODE)**

Original Application No.167/2023/EZ
(I.A. No.75/2024/EZ & I.A. No.129/2024/EZ)

Srikanta Kumar Pakal & Ors.

Applicant(s)

Versus

State of Odisha & Ors.

Respondent(s)

Date of hearing: 02.05.2025

Date of uploading: 07.05.2025

**CORAM: HON'BLE MR. JUSTICE B. AMIT STHALEKAR, JUDICIAL MEMBER
HON'BLE DR. ARUN KUMAR VERMA, EXPERT MEMBER**

For Applicant(s) : Mr. Sankar Prasad Pani, Adv. a/w
Mr. Ashutosh Padhy, Adv. (in Virtual Mode)

For Respondent(s) : Mr. D. N. Ray, Sr. Adv. a/w
Mr. Sourav Haldar, Adv. for R-4 & 5 (in Virtual Mode),
Mr. Ashok Prasad, Adv. for R-8,
Mr. Dipanjan Ghosh, Adv. for R-9 (in Virtual Mode),
Mr. Apurba Ghosh, Adv. for R-10 (in Virtual Mode),
Mr. Surendra Kumar, Adv. for R-11,
Mr. Jaydeep Pal, Adv. for R-13 (in Virtual Mode)

ORDER

1. Mr. Sankar Prasad Pani, assisted by Mr. Ashutosh Padhy, learned Counsel is present (in Virtual Mode) on behalf of the Applicants.
2. No one is present on behalf of the State Respondents, Government of Odisha.
3. Heard learned Counsel for the parties.

***(Final order of the said case will be uploaded in NGT website
by separate sheets of paper).***

.....
B. Amit Sthalekar, JM

.....
Dr. Arun Kumar Verma, EM

May 02, 2025,
Original Application No.167/2023/EZ
(I.A. No.75/2024/EZ & I.A. No.129/2024/EZ)
SKB

Item No.06

Court No.1

**BEFORE THE NATIONAL GREEN TRIBUNAL
EASTERN ZONE BENCH, KOLKATA
(THROUGH PHYSICAL HEARING WITH HYBRID MODE)**

Original Application No.167/2023/EZ
(I.A. No.75/2024/EZ & I.A. No.129/2024/EZ)

IN THE MATTER OF:**1. Srikanta Kumar Pakal**

S/o – Sindhubas Pakal,
At/Po – QR No.25/1, OTM Colony Choudwar,
Dist – Cuttack,
Pin – 754025;

2. Ajaya Kumar Prusty,

S/o – Late Sanatan Prusty ,
Aged about 61 Years
Resident of At – Tangi,
P.o.-Kotsahi,
PS - Tangi,
Dist – Cuttack
Pin 754022;

3. Keshab Chandra Behera

S/o – Late Bichitranand Behera,
Aged about 50 years,
Resident of Mania,
Po – Uchapada, Via – Kotasahi,
Cuttack – 750422;

4. Naba Kishore Das

S/o – Mamda Das,
At – Saranga,
Po - Bhatimunda,
PS - Tangi, Dist – Cuttack,
Pin – 754022;

.... Applicant(s)

Versus

1. State of Odisha

Through Chief Secretary,
Government of Odisha,
Lokaseba Bhawan,
At/Po – Bhubaneswar,
Dist – Khurdha 751002;

2. Principal Secretary

Revenue and Disaster Management,
Government of Odisha,
Lokaseva Bhawan,
Bhubaneswar – 751002;

- 3. Additional Chief Secretary**
Forest and Environment Dept.,
Government of Odisha,
Kharavela Bhawan,
Bhubaneswar,
Odisha – 751001;
- 4. Secretary**
Ministry of Environment and Forest, Climate Change,
Indira Paryabaran Bhawan,
Jorbag,
New Delhi,
Pin – 110003;
- 5. Deputy Director General of Forests (C),**
Ministry of Environment, Forest and Climate Change,
Regional Office (EZ),
A/3, Chandrasekharpur,
Bhubaneswar – 751023;
- 6. District Collector, Cuttack**
Pin – 753002;
- 7. Tahasildar, Tangi-Choudwar Tahasil,**
Jagatpur,
Cuttack – 754021;
- 8. General Manager,**
East Coast Railway,
Rail Sadan,
Samant Vihar,
Bhubaneswar – 17;
- 9. Member Secretary**
Odisha State Pollution Control Board,
A/118, Unit-VII, Nilakantha Nagar,
Bhubaneswar,
Pin – 751012;
- 10. Member Secretary**
State Environment Impact Assessment Authority (SEIAA),
Odisha, Bhubaneswar,
5RF-2/1, Acharya Vihar, Unit-IX,
751022;
- 11. The Member Secretary**
Central Pollution Control Board,
Parivesh Bhawan,
East Arjun Nagar,
Delhi – 110032;
- 12. Director of Geology**
Bhubigyan Bhawan,
Bhubaneswar,
Khordha,
Pin – 751001;

13. Shanti Construction Pvt. Limited

Represented by its proprietor Bipin Agrawal,
Plot No. – 1104/2707,
Bangalipara, Badabazar,
Sambalpur - 768003

.... Respondent(s)

Date of hearing: 02.05.2025

Date of uploading: 07.05.2025

**CORAM: HON'BLE MR. JUSTICE B. AMIT STHALEKAR, JUDICIAL MEMBER
HON'BLE DR. ARUN KUMAR VERMA, EXPERT MEMBER**

For Applicant(s) : Mr. Sankar Prasad Pani, Adv. a/w
Mr. Ashutosh Padhy, Adv. (in Virtual Mode)

For Respondent(s): Mr. D. N. Ray, Sr. Adv. a/w
Mr. Sourav Halder, Adv. for R-4 & 5 (in Virtual Mode),
Mr. Ashok Prasad, Adv. for R-8,
Mr. Dipanjan Ghosh, Adv. for R-9 (in Virtual Mode),
Mr. Apurba Ghosh, Adv. for R-10 (in Virtual Mode),
Mr. Surendra Kumar, Adv. for R-11,
Mr. Jaydeep Pal, Adv. for R-13 (in Virtual Mode)

ORDER

1. Mr. Sankar Prasad Pani, assisted by Mr. Ashutosh Padhy, learned Counsel is present (in Virtual Mode) on behalf of the Applicants.
2. The allegation in the present Original Application is that the Respondent Nos.13 is constructing a 3rd line railway track from Bhadrak to Nergundi for which the earthbed is constructed by taking earth/Morrum from various places including Plot No.1606, Khata No.529 under Mania village, Khata No.530, Plot No.48 and Khata No.532, Plot No.550 under the Panchayat Uchapada under Tangi Choudwar Tahasil. It is alleged that about 20 lakh cubic meters of Morrum has been illegally lifted/extracted from various places in Cuttack district. Allegation also is that illegal Morrum mining being carried out on Revenue Forest Land of different villages and trees have been felled by the Respondent No.13 for mining Morrum.
3. It is also alleged that for construction of the railway line, thousands of truckloads of Morrum have been illegally lifted by the

Respondent No.13 in Tangi-Choudwar Tahasil without any valid permission or N.O.C. from the Uchapada Gram Panchayat under Tangi-Choudwar Tahasil. It is also alleged that vide Receipt dated 27.05.2020, the Tahasildar had collected royalty of Rs.1,50,000/- (Rupees one lakh fifty thousand only) and penalty of Rs.49,500/- (Rupees forty-nine thousand five hundred only) from the Respondent No.13 for illegally extracted Morrur. The details of the Khata and Plot of the land from where the Morrur and Soil are alleged to have been lifted in Tangi Choudwar Tahasil are given in a Table in para 15 which reads as under: -

“Sl. No.	Kisam	Khata No.	Plot No.
1	Jungle two	532	550
2	Patita	529	1606
3	Uncultivable waste land	530	48”

4. It is alleged that Morrur is a minor mineral and cannot be lifted from source without a Environmental Clearance issued by the State Environment Impact Assessment Authority (SEIAA for short), with Approved Mining Plan and Consent from the State Pollution Control Board but no such documents are there in the present case for carrying out the illegal mining of Morrur.
5. At the time of admission, this Tribunal constituted a Committee comprising of the following members:-
 - i) Senior Scientist, Odisha State Pollution Control Board;
 - ii) District Mining Officer, Cuttack;
 - iii) District Collector, Cuttack or his representative Officer not below the rank of Additional District Magistrate (A.D.M.); and
 - iv) Divisional Forest Officer, Cuttack

6. The Committee was directed to visit the site and submit its report with regard to the allegations made in the Original Application.
7. The Respondent No.9, State Pollution Control Board, Odisha, has filed affidavit dated 09.02.2024 and along with this affidavit, an Inspection Report of an inspection of the site carried out on 18.12.2023 has been filed which reads as under:-

“REPORT OF THE COMMITTEE CONSTITUTED BY THE HON’BLE NGT VIDE THEIR ORDER DTD. 23.11.2023, IN THE MATTER OF OA NO. 167/2023/EZ- SRIKANTA KUMAR PAKAL & ORS VERSUS STATE OF ODISHA & ORS

I. BACKGROUND:

1. An application has been filed by Srikanta Kumar Pakal & Ors before the Hon’ble NGT, EZB vide OA No.167/2023/EZ alleging that the Respondent No. 13 i.e., M/s. Shanti Construction Pvt. Limited is constructing a third line railway track from Bhadrak. to Nergundi for which the earthbed is constructed by taking earth/morrum from various places including Plot No.1606 of Khata No.529, Plot No.48 of Khata No.530 and Plot No.550 of Khata No.532 under Mania Village, Tangi-Choudwar Tahasil of Cuttack district.
2. It is alleged that about 20 Lakh cum of Morrum has been illegally lifted/extracted, illegal Morrum mining being carried out on Revenue Forest land of different Villages and trees have been felled by the Respondent No.13 for mining morrum.
3. That vide receipt dated 27.05.2020, the Tahasildar had collected royalty of Rs. 1,50,000/- and penalty Rs. 49,500/- from the respondent No.13 for illegally extracted Morrum.
4. That the mining is carried out illegally without obtaining Environmental Clearance from the State Environment Impact Assessment Authority (SEIAA), approved mining plan and Consent from the State Pollution Control Board (SPC13).
5. Considering the allegation made out in the Original Application, the Hon’ble NGT, EZB, Kolkata vide their order dated 23.11.2023 in the matter of OA NO.167/2023/EZ- Srikant Kumar Pakal & Ors Versus State of Odisha & Ors has been pleased to constitute a committee comprising of the following members:

- I. Senior Scientist, Odisha State Pollution Control Board,
- II. District Mining Officer, Cuttack,
- III. District Collector, Cuttack or his representative officer not below the rank of Additional District Magistrate, and
- IV. Divisional Puresst Officer, Cuttack

As per the direction of the Hon'ble NGT, Committee consisting of following members visited the site on dtd. 18.12.2023:

1. Mr. Umakant Raj, Additional District Magistrate, Cuttack
2. Er. Rashmita Priyadarshini, Regional Officer, SPCB, Cuttack
3. Mrs. A. Madhavi Lata, Asst. Conservator of Forest, Cuttack Division (Representative of Divisional Forest Officer, Cuttack)
4. Mr. Sambit Sahoo, Mining Officer, Cuttack

The Hon'ble NGT has directed the following in the said order dated 23.11.2023.

1. The Committee shall visit the site and submit its report with regard to the allegations made in the Original Application within three weeks.
2. The Odisha State Pollution Control Board shall be the Nodal Body far all logistic purpose and shall file the Inspection Report on affidavit.
3. In case violations are found, the Committee shall recommend penalty as well as Environmental Compensation and also suggest remedial measures, if any.

II. INSPECTION OF RECORDS:

1. The joint committee perused the records supplied by the Tahasildar, Tangi-Choudwar pertaining to the earth/morrum mining carried out by the agency M/s. Shanti Construction Pvt. Limited in Tangi-Choudwar Tahasil area. It is found from the records produced by the Tahasildar, Tangi-Choudwar,

(A) That, on DL 26.05.2020, RI Uchhapada detected some illegal mining carried out over Plot No.550, Khat No.532 (Rakhita), Kissam-Jungle-II of Mouza-Mania following which Tahasildar Tangi-Choudwar vide Touzi Misc case no.18/2020-21 imposed Rs 1,50,500/- towards royalty and Rs 49500/- towards penalty on Project Manager, M/s Shanti Construction Pvt Limited and R.I Uchhapada, realized the above royalty and penalty vide RR No. 0773280/Dt.27.05.2020.

(B) That, on Dt. 25.09.2020 M/s Shanti Construction Pvt Limited applied for arranging an earth source for "Execution of earth work and minor bridge in flyover portion between Byree-

Kapilash road (CH-1500 to Ch-6200 from CSB of Byree) of Bhadrak-Nirgundi 3rd line of east coast railway” vide agreement No.03/CE/CON/1/BBS/EcoR/2020, Dtd.27.05.2020 for which Tahasildar Tangi-Choudwar initiated Touzi Misc case No.42/2020-21.

The Dy. Chief Engineer (Con.), East Coast Railway, Jajpur-Keonjhar Road had also requested to the Sub-Collector, Cuttack, Tahasildar, Tangi-Choudwar and Collector, Cuttack vide letter dtd. 15.12.2020, 01.06.2022 and 16.06.2022 respectively to grant permission for government land to lift earth/morrum for execution of flyover portion between Byree-Kapilas Road of Bhadrak-Nergundi 3rd line as the agency M/s. Shanti Construction Pvt Limited getting difficulties in arranging earth & morrum from private sources.

Thereafter Tahasildar Tangi-Choudwar directed the agency M/s. Shanti Construction Pvt Limited vide his letter dtd. 15.01.2021 to submit the approved mining plan as per OMMC Rules 2016. The agency submitted mining plan to the Tahasildar- prepared for Mania Morrum Ordinary Earth Quarry over Plot No. 541,545,549,551 and 552, total area 3.37 acres of Vill-Mania having production quantity of 3530 cum earth and 15888 cum morrum during 2021-22 to 2025-26. The mining plan was approved by the Deputy Director Geology, Directorate of Geology Bhubaneswar.

Subsequently, Tahasildar Tangi- Choudwar issued temporary permit vide his office order No. 7162, dtd. 10.12.2022 in favour of M/s. Shanti Construction Pvt. Limited to lift and transport 2000 cum of ordinary earth/ Morrum from the following schedule of land. (Copy of temporary permit issued by Tahasildar is enclosed as Annexure- VI)

Land Schedule

<i>Mouza</i>	<i>Khata No.</i>	<i>Plot No.</i>	<i>Area</i>	<i>Kissam</i>
<i>Mania</i>	<i>529</i>	<i>541</i>	<i>Ac. 0.93 dec.</i>	<i>Patita</i>
		<i>545</i>	<i>Ac. 0.56 dec.</i>	<i>Patita</i>
		<i>549</i>	<i>Ac. 0.64 dec.</i>	<i>Patita</i>
		<i>551</i>	<i>Ac. 0.42 dec.</i>	<i>Patita</i>
		<i>552</i>	<i>Ac. 0.82 dec.</i>	<i>Patita</i>

During joint enquiry conducted on Dt 16.03.2023 by the R.S, Tangi-Choudwar, R.I Uchhapada and Amin of Tangi-Choudwar Tahasil, it is found that the M/s. Shanti Construction Pvt. Limited has illegally lifted 1,00,000 Cum of earth/morrum from the above scheduled plots, for which penalty as well as royalty amounting to Rs 40,00,000/- (Rupees Forty Lakhs) has been imposed for violation of Terms 8a condition/Illegal excavation vide Touzi Misc Case No.136/2022-23 and same has been realized vide M.R No.4073376/Dt.10.04.2023.

Again, on getting some public complaint, on the illegal lifting and transportation of minor mineral by M/s. Shanti Construction Pvt Limited the Tahasildar Tangi-Choudwar along with the Range Officer, Byree, RS, Tangi-Choudwar, R.I Uchhapada and Amin of Tangi-Choudwar Tahasil conducted a joint enquiry on Dt.05.07.2023. The joint enquiry report is reproduced below.

“As per pre scheduled programme, we the following signatories conducted spot visit today i.e. on Dt.05.07.2023 at about 11.30 A.M on illegal lifting and transporting of minor minerals (Ordinary earth/Morrum) by M/s. Shanti Construction Pvt. Limited was allowed through temporary lease to lift. 2000 cum ordinary earth from plot no.541, Ac0.93 dec, 545 Ac0.56dec, 549 Ac0.64dec, 551. Ac0.42dec 552 Ac0.82dec, Kissam-Patita under Abada Jogya Anabadi khata no.529 of Vill-Mania, Ps-Tangi for use the same in construction work of Bhadrak-Nirgundi 3rd line rail link project. But the company has excavated Ordinary earth/Morrum from plot no.1(P) Ac0.70dec of Vill-Kadei and plot no.550(P) Ac.087dec of Vill-Mania including the leased out plots. On verification of RoR of Vi11-Kadei and Mania, it is revealed that plot no.1, area Ac 20.41 dec, itissarn-Jungle-11 of Vill-Kadei stands recorded under Rakhita Khata no.465 and plot no.550 area Ac 16.37dec kissam-jungle-II of Vill-Mania stands recorded under rakhita khata no.532. Though the kissam of the land is Jungle-11, there is no forest growth as such over the plots except small bushes and laying as “Pathar Chatan”. The Range Officer present also admitted that fact of field position. On measurement of the excavated area, it is seen that the company has illegally excavated approximately 2,60,580 Cum of ordinary earth/Morrum from the above two jungle kissam plots. During previous field visit the company was asked to stop the illegal excavation henceforth and to fill up illegal excavated area and create plantation over it much before the monsoon. But the company has not been carried out the instruction till date”.

For which vide Touzi Misc case No.35/2023-24, the Tahasildar Tangi choudwar imposed penalty and royalty, total

amounting to Rs 1,60,71,320/-on M/s. Shanti Construction Pvt Limited, communicated vide his office L.No.4103/Dt. 10.07.2023. The amount is still not realized.

III. SITE VISIT BY THE COMMITTEE

The committee visited the alleged Plots as well as the plots allowed by the Tahasildar in favour of M/s. Shanti Construction Pvt Limited for lifting of ordinary earth/morrum. The committee observed that morrum/laterite have been excavated from the alleged plot and its surroundings areas including the plots permitted by Tahasildar. Since most of those pits were filled with water for which the actual depth of the pits could not be ascertained to quantify the volume of morrum/laterite stone extracted.

Therefore, it was decided that Mining Officer shall conduct a detail scientific survey and submit report in connection with the actual quantity of morrum/laterite excavated from the alleged Plots and their surrounding area.

Later

The Mining Officer, Cuttack submitted the survey report with detail map vide letter No. 299, dtd. 05.02.2024 is enclosed as Annexure-X. The survey was conducted with the help of Drone-DGPS and the Surface area method was adopted for the assessment of excavated volume in and out of the considered plot area. As per the survey report the volume of morrum/laterite excavated from the area as shown in the map is given as follows;

Affected Plots as per Survey

Sl. No.	Alleged Plot No.	The affected adjoining plots	Volume of morrum/laterite extracted within the alleged plot area (in Cum)	Volume of morrum/laterite extracted from the adjoining plot area (in Cum)	Total volume (in Cum)
1	550	(plot No.541, 545, 549, 551, 552 & plot no.01 (P) of Vill-Kadei)	3,33,889.9	3,33,889.9	5,47,603.3
2	1606	(Plot	1,14,108.3	1,66,782.1	2,80,890.4

		No.1607, 1609, 1631, 1633, 1636, 1641, 1668, 1679, 1168/2017			
3	48	-	19,902		19,902
					Total= 8,48,395.7 Cum

Classification of the affected plots

Khata No.	Plot No.	Kisam	Revenue Village Name
465	1	Jungle two	Kadei
529	1606	Patita	Mania
532	1607	Pani Nala	Mania
487	1609	Sarad II	Mania
444	1631	Sarad III	Mania
371	1633	Sarad III	Mania
529	1636	Patita	Mania
402	1641	Sarad III	Mania
532	1668	Jungle II	Mania
532	1679	Jungle II	Mania
175	1668/2017	Biali	Mania
532	550	Jungle 2	Mania
530	48	Parbat 2	Mania
529	541	Patita	Mania
529	545	Patita	Mania
529	549	Patita	Mania
529	551	Patita	Mania
529	552	Patita	Mania

OBSERVATION

1. *Environmental Clearance & Consent to Operate:*

It is observed by the committee that morrum/ laterite stones have been excavated from the aforesaid plots without obtaining Environmental Clearance from State Environment Impact Assessment Authority (SEIAA). Also State Pollution Control Board, Odisha has neither received any application nor issued any Consent to Establish & Consent to Operate order for excavation of morrum/ laterite stone from the said plots.

2. *Illegal Quarrying over Revenue Forest Land:*

It was observed by the committee that Soil/morrum has been excavated from the following plots having forest classification.

Khata No.	Plot No.	Area in Acre	Kissam	Mouza
532	550	16.37	Jungle II	Mania
465	1 (P)	20.41	Jungle II	Kadei
532	1668	25.85 Acres	Jungle II	Mania
532	1679	145.70 Acres	Jungle II	Mania

The status of land in Revenue record is forest kissam (Jungle two) as on 25.10.1980, which has been prepared after enactment of Forest (Conservation) Act, 1980. In W.P.(C) No. 171/96 T.N. Godavarman Thirumulpad-vrs-Union of India and others on 12.12.1996. The Hon'ble Supreme Court of India clarified that the word 'forest' must be understood according to its dictionary meaning. The description covers all statutorily recognized forests, whether designated as Reserve, Protected or otherwise for the purpose of Section 2 of Forest (Conservation) Act. The term forest land occurring in Section 2 will not only include forest as understood in the dictionary sense, but also any area recorded as forest in the Govt. record irrespective of its ownership.

In view of the word 'forest' in the act, it is obvious that, prior approval of the Central Govt. is required for any non-forest activities within the area of any forest. In accordance with Section 2 of Forest (Conservation) Act, all ongoing activities within any forest in any State throughout the country, without prior approval of the Central Govt., must cease forthwith.

Provision of Forest (Conservation) Act, 1980 will be applicable since Plot No.550 of Khata No.532, plot no.1(P) Khata No.465, Plot No.1668 Khata No.532 belongs the kissarn Jungle-II as per Sabik Record 1980. The excavated pit of Plot No.1679

Khata No.532 is coming under proposed reserve forest Kaliamba.

The mining in forest kissam (Jungle-II) and proposed reserve forest Kaliamaba without prior approval of Central Government is an offence under Section 3 of Forest (Conservation) Act, 1980.

Though the excavated land of Plot No.1679 Khata No.532 belongs to proposed reserve forest there is no forest growth over the plot as per Google sheet 17.02.2022d.

RECOMMENDATIONS

(A) Environmental Compensation:

The Hon'ble NGT has directed in para 18 of the order dt. 23.11.2023 that "in case violations are found, the Committee shall recommend penalty as well as Environmental Compensation and also to suggest remedial measures, if any".

The committee observed that violation has been made by M/s. Shanti Construction Pvt. Limited by excavating morrum/laterite stone from the aforesaid plots without obtaining Environmental Clearance from SEIAA, Consent to Establish and Consent to Operate from State Pollution Control Board.

So, the environmental compensation is calculated using the methodology for assessing Environmental compensation prepared by CPCB In- House Committee. As per methodology of CPCB the environmental compensation shall be based on the following formula:

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

Where,

EC= Environmental Compensation in

PI=Pollution Index of Industrial Sector.

N= Number of days of violation took place

R= A factor in Rupees (t) for EC

S- Factor for scale of operation

LF= Location factor

In the present context, the parameters of the above equations are as follows;

i. The methodology of CPCB 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. As per the office order No. 8333/Ind-I-Con-1505, dated 11.07.2018 of State Pollution Control Board, Odisha, the Mining activity is coming under red category industrial sector. So here $P1=80$.

ii. N, the 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.

From Touzi Misc case No. 18/ 2020-21 of Tangi-Choudwar Tahasil dtd. 26.05.2020, it is observed that M/s. Santi Construction started illegal excavation from that date only. So the number of days for which violation takes place till dtd. 08.09.2023 is 1201 days, So N may be taken as 1201 days.

iii. R is a factor in Rupees which suggested to consider R as 250 as the Environmental compensation in case of violation. So here $R=250$

iv. S is a factor representing the scale of operation of the industry (for micro or small scale=0.5, medium scale = 1.0 and large scale= 1.5). As per the report submitted by the Mining Officer the surface area of the pits from which morrum/ laterite have been excavated is given as follows:

<i>SL. No.</i>	<i>Plot No.</i>	<i>Surface area of the of morrum/ laterite extracted inside and outside the plot area (in m²)</i>	<i>Total surface area (in m²)</i>
<i>1</i>	<i>550</i>	<i>60,893.2 (Inside the plot) 68,899.7 (Outside the plot)</i>	<i>1,29,792.9 or 32.07 Acres or 12.97 hectare</i>
<i>2</i>	<i>1606</i>	<i>46,975.3 (Inside & outside the plot)</i>	<i>46,975.3 or 11.60 Acres or 4.69 hectare</i>
<i>3</i>	<i>48</i>	<i>8,397.5 (inside the plot)</i>	<i>8,397.5 or 2.07 acres or 0.837 hectare</i>

Based on the surface area of excavation the mining activities may be considered to small. So value of S=0.5

v. LF, could be based on population of the city/town and location of the industrial unit. LF is will be 1.0 in case unit is located >10 Km from the municipality boundary, LF is presumed as 1 for city/town having population less than One million.

vi. Considering the distance of the quarries >10 Km from the area of Choudwar municipality and population less than One million, the value of **LF= 1.0**

Putting the value of PI, N, R, S and LF the Environmental Compensation is calculated as follows:

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

$$= 80 \times 1201 \times 250 \times 0.5 \times 1.0$$

₹1,20,10,000/-

(B) Compensation to be paid/realized as per Odisha Minor Mineral Concession Rules, 2016 (Amendment up to 2023) and different notifications thereof

Morrum:

Total illegal excavation of Morrum = 702876.4CuM

Royalty = (702876.4CuM xRs.35 per Cum) = Rs.24600674.00

DMF= 10% of the Royalty = 10% of Rs.24600674.00 = Rs.2460067.40

EMF = 5% of the Royalty = 5% of Rs.24600674.00 = Rs.1230033.70

Additional Charge = (702876.4CuM xRs.323.754 per Cum) = Rs.227559046.00

Total (For Morrum) = Rs.255849821.00

(IV.B. Additional charge is fixed taking into consideration average price of the nearest five quarries)

Laterite:

Total illegal excavation of Laterite = 143519.90Cum

Royalty = (143519.90Cum xRs.180 per Cum) Rs.25833582.00

DMF = 10% of the Royalty = 10% of Rs.25833582.00 =Rs.2583358.20

EMF= 5% of the Royalty = 5% of Rs.25833582.00= Rs.1291679.10

Additional Charge = (143519.90CuM xRs.923.062 per Cum) = Rs.132477766.00

Total (For Laterite) = Rs.162186385.00

(N.B. Additional charge is fixed taking into consideration average price of the nearest five quarries)

Penalty against continuing contravention=Rs5000.00x1201days-
Rs.6005000.00 (From the period 26.05.2020 to 08.09.2023)

Total Penalty = Rs.500000.00+Rs.6005000.00 = Rs.6505000.00

Grand Total = Rs.424541206.00 (Rupees forty-two crore forty-five lakh, forty-one thousand two hundred and six only) Person/Agency is liable to pay the above amount."

8. The Respondent No.10, State Environment Impact Assessment Authority (SEIAA), Odisha, has filed affidavit dated 16.03.2024 wherein it is categorically stated that SEIAA, Odisha has not issued any Environmental Clearance in favour of the Respondent No.13, Shanti Construction Pvt. Ltd., for extraction of earth/morrum from various places of Tangi-Choudwar Tahasil of Cuttack District or any other District of Odisha for construction of 3rd line railway tract from Bhadrak to Nergundi. It is also stated that obtaining Environmental Clearance is mandatory for mining of minor minerals like morrum and earth material, sand, stone etc. as per EIA Notification, 2006 as amended from time to time.
9. The East Coast Railway has filed affidavit dated 13.03.2024 and it is stated that an Article of Agreement was executed on 25.10.2022 between the President of India through the Chief Engineer/Con/III/Bhubaneswar of East Coast Railway and M/s Shanti Construction Sambalpur Private Limited for **"Execution of balance earth work and minor bridges in fly over portion between Byree-Kapilas Road (Chainage 1500 to 6200 from CSB of Byree) in Bhadrak-Nergundi 3rd line project of East Coast Railway** at a cost of Rs.49,48,13,454.06/- vide Contract Agreement No.09/CE/Con/III/BBS/ECOR/2022 dated 25.10.2022 and letter of Acceptance (LOA) No.ECOR-CONST-HQ-ENGG/ETCPMIIBBS-2022020/01538960055334 dated 01.06.2022".
10. It is stated that as per condition of contract, the Respondent No.13 agency was required to execute earth work in filling embankment, guide bunds, around buried type abutments, bridges gaps, trolley

refuges, rain bunds, platforms etc. with earth suitable for embankment as per standard specifications, excavated from outside railway boundary entirely arranged by the contractor at his own cost including all leads, lifts, ascents, descents, crossing of nallahs or any other obstructions.

11. The Respondent No.11, Central Pollution Control Board, in its affidavit dated 16.02.2024 has stated that the Project Proponent is required to obtain Environmental Clearance from the SEIAA, Odisha in respect of projects falling under Category 'B' of Schedule of the EIA Notification, 2006 and thereafter, it is required to obtain Consent to Establish (CTE) and Consent to Operate (CTO) from the State Pollution Control Board, Odisha.
12. The Respondent No.6, Collector & District Magistrate, Cuttack, in his affidavit dated 06.05.2024 has stated that on 26.05.2020, the Revenue Inspector, Uchhapada reported that M/s Shanti Construction Sambalpur Pvt. Ltd., Respondent No.13 herein, has lifted 4300 cum of morrum/earth illegally from Plot No.550, Area-Ac.0.25 decimal, Kisam-Jungle-II under Khata No.532 of Village-Mania of this Tahasil and utilized the same in development of railway line from Salagaon to Budhapank project and based on this Report of the Revenue Inspector, one Touzi Misc. Case No.18/2020-21 was initiated against the Respondent No.13 and royalty amounting to Rs.1,50,500/- (@ Rs.35 per cum X 4300 cum) as well as penalty of Rs.49,500/- was realized from the Respondent No.13 for such illegal extraction of minor minerals vide Rent Receipt No.00773280 dated 27.05.2020. The English translation of the Rent Receipt has been filed at page no.188 of the paper book and is in the name of the Respondent No.13.

13. The documents filed along with the affidavit of the District Magistrate, Cuttack also show that royalty and penalty amounting to Rs.40,00,000/- was received from the Respondent No.13 towards royalty and penalty dated 10.04.2023. A further notice was issued to the Respondent No.13 vide letter No.4923 dated 17.08.2023 of the Tahasildar, Tangi-Choudwar requiring him to deposit of Rs.70,00,000/- and penalty of Rs.5,00,000/- total Rs.75,00,000/- and the letter mentions that out of the said above dues a sum of Rs.40,00,000/- has been deposited by Respondent No.13 on 10.04.2023 and, therefore, he has been directed to deposit the remaining amount of Rs.35,00,000/-. A further Touzi Misc. Case No.35/2023-24 has been initiated against the Respondent No.13 as would be seen from the proceedings of the case at page nos.198-200 of the paper book.
14. The Respondent No.13, Private Respondent, has filed affidavit dated 09.07.2024 denying the allegations in the Original Application and the affidavits of the State Respondents and it is stated that as per work order and the agreement entered into between Respondent No.13 and the East Coast Railway, the only work required of Respondent No.13 involved earth work in cutting and filling as mentioned in Item No.1 of the Schedule of the Agreement. Mr. Jaydeep Pal, learned Counsel for the Respondent No.13 referring to the affidavit submitted that Schedule-A of the Agreement also speaks of execution of earth work in cutting and filling and does not involve any requirement of morrum. In the affidavit, it is stated that though Respondent No.13 has been working since few years but no amount of earth/soil has been excavated illegally from the villages namely Mania Uchapada and other Villages or nearby

places. Learned Counsel has also referred to the Notification B-13 “APPENDIX-IX” to the MoEF&CC Notification dated 28.03.2020 and the learned Counsel for the Respondent No.13 submitted that under the Heading ‘Exemption of Certain Cases from requirement of Environmental Clearance’ at Item No.6, Extraction or sourcing or borrowing of ordinary earth for the linear projects such as roads, pipelines, etc. have been exempted from the requirement of obtaining Environmental Clearance. We may note here at this stage that the allegation against the Respondent No.13 is not principally one of not obtaining Environmental Clearance but of illegally extracting earth/morrum from the various villages in question.

15. The Respondent No.13 has also filed an objection dated 18.12.2024 and it is alleged that the Joint Committee Report has been prepared behind the back of the Respondent No.13 as he was not present during the enquiry. A further plea has been taken and also stressed by Mr. Jaydeep Pal, learned Counsel for the Respondent No.13 that there were may other contractors who were engaged by the Railway over a period of time to construct the same work namely Bhadra-Nergundi 3rd line Project and only the name of Respondent No.13 has been singled out. Learned Counsel submitted that the other contractors would be a necessary party to the present proceedings.
16. I.A. No.75/2024/EZ dated 24.09.2024 has been field by the Respondent No.13 praying that the Enquiry Report dated 05.07.2023 may be quashed.
17. I.A. No.129/2024/EZ has also been filed by the Respondent No.13 praying that the Original Application may be dismissed on grounds of mis-joinder and non-joinder of the necessary party.

18. With reference to the I.A. No.75/2024/EZ, Mr. Jaydeep Pal, learned Counsel submitted that the said Enquiry Report had been challenged by the Respondent No.13 before the Hon'ble High Court of Orissa at Cuttack vide *W.P. (C) No.16106 of 2024, Shanti Construction Pvt. Ltd. vs. State of Odisha & Ors.*, but the same was disposed of by the Hon'ble Division Bench of the High Court with liberty to the petitioner (Respondent No.13) to withdraw his writ petition and raise all grounds taken in the writ petition before the National Green Tribunal in the pending Original Application No.167/2023/EZ. Copy of the order of the Hon'ble High Court dated 11.09.2024 reads as under:-

“ORDER
11.09.2024

This matter is taken up through Hybrid mode.

2. *The petitioner has filed the writ petition seeking the following reliefs:-*

“In view of the aforesaid facts and circumstances, the Petitioner humbly prays that this Hon'ble Court may graciously please to admit this application.

And may be pleased to quash the said enquiry report under Annexure-3.

And may also quash the demand notices issued by the Opp. No.4 passed in Touze Misc. Case No.35/2023 dated 10.07.2023 and 16.08.2023 under Annexure-4 Series.

And may further be pleased to direct the Opp. No.4 to conduct another fresh enquiry involving the petitioner.”

3. *Learned counsel appearing on behalf of the petitioner after some argument submits that he may be allowed to withdraw this writ petition with a liberty to raise all the grounds taken*

in the present writ petition to question the demand of penalty by order dated 16.08.2023 passed in Touze Misc. case No.35 of 2023 based on an enquiry conducted behind his back, before the National Green Tribunal in Original Application No.167/2023/EZ.

4. This application is disposed of accordingly as withdrawn with the liberty aforesaid.”

19. Mr. Jaydeep Pal, learned Counsel vehemently submitted that the contract between the Respondent No.13 and the Respondent-Railway was for earth work and not for extraction of morrum and, therefore, the allegation of illegal extraction of morrum against the Respondent No.13 is absolutely without any foundation. Learned Counsel also submitted that there were other contractors engaged by the Railways for the same work at different stages and, therefore, the Respondent No.13 alone cannot be held responsible or alleged to have carried out illegal mining of morrum.
20. At the outset, we may refer to the Mining Plan submitted by the Respondent No.13 which has been filed at page no.89 (colly) Annexure-V to the affidavit of the State Pollution Control Board, Odisha. This Mining Plan is of Mania Morrum Quarry over 3.37 Ac./1.363 Ha. Village Mania under Uchapada Panchayat, Tangi Tahasil Choudwar, District Cuttack, Odisha. The certificate of RQP at page no.92 shows that the Mining Plan is in Respect of Mania Morrum & Ordinary Earth Quarry (Plot No.541, 545, 549, 551 & 552) over an area of 3.37 Ac./1.363 Ha. from Village Mania under Uchapada Panchayat, Tangi Choudwar Tahasil of Cuttack District. The certificate of the Revenue Inspector at page no.93 is also in respect of Mania Morrum & Ordinary Earth Quarry over the same plots and same area as shown in the Mining Plan. The document at

page no.95 of the paper book which is the introduction to the Mining Plan also mentions that the Mining Plan is for the winning of Morrum and Ordinary Earth under Mania Village, Tangi Choudwar Tahasil of Cuttack District for the plots in question. Form 'O' at page no.96 (colly) which gives the boundary description of the area which comprises 3.37 acres/1.363 Ha. also mentions Mining Plan: Mania Morrum & Ordinary Earth Quarry Plot No. 541, 545, 549, 551 & 552 Village Mania under Uchapada Panchayat, Tangi Choudwar Tahasil of Cuttack District.

21. Under the Heading **Reserve (Method of estimation of reserve) the basis of estimation of reserve and calculation of development thereof** at page no.99 of the paper book it mentions the thickness of top soil as 0.25 mtr., Soil (Ordinary Earth) is 0.5 mtr. just below top soil and Morrum is 2.25 mtr. Depth below Ordinary Earth as seen/observed. This thickness of soil and morrum has been taken into account for estimation of resource that the mode of occurrence in for the entire surface area. Item No.(i) states that the reserve of morrum and Ordinary earth in the leasehold has been calculated by Surface area method.
22. Item No.10 under the Heading **Mining** (page no.100 of the paper book) also mentions in para-(a) *in the applied quarry lease area, the Morrum & Ordinary Earth shall be excavated by Semi mechanized open cast mining methods. Handling of Morrum & Ordinary Earth will be done both manually and by machineries i.e. excavators. The excavated Morrum & Ordinary Earth will be loaded from quarry to the users/destination through trucks/tractors. The mining will be undertaken on single shift basis. The local man power shall be engaged in the mine.*

23. Para-10 (b) also mentions that excavation & loading of Morrum & Ordinary Earth into the trucks/tractors will be done by manual means and transportation from the morrum quarry site to respective users/destinations shall be achieved by trucks/tractors.
24. Mr. Jaydeep Pal, learned Counsel has referred to the Contract Agreement of Works entered into between the East Coast Railway and the Respondent No.13 and submitted that the agreement only speaks of "Earthwork", in the matter of the Bhadrak-Nergundi 3rd line project – Execution of balance Earthwork and minor bridges in flyover portion between Byree-Kapilas Road (Ch-1500 to Ch-6200 from CSB of Byree) of Bhadrak-Nergundi 3rd line of East Coast Railway and the agreement does not mention 'morrums' anywhere.
25. We may at the outset point out that the agreement between the East Coast Railway and the Respondent No.13 is with regard to earthwork in the Bhadrak-Nergundi 3rd line Project. Merely because the contract mentions 'earthwork' it does not imply that the Respondent No.13 would be only required to extract earth only. The term 'earthwork' is the nature of the work to be executed by the Respondent No.13. The mineral extracted and used by the Contractor, Respondent No.13 in the execution of the earthwork is covered by the Mining Plan submitted by the Respondent No.13 himself and which speaks in categorical terms of extraction of Morrum & Ordinary Earth, therefore, it cannot be said that the Respondent No.13 was not in any way involved in the extraction of morrum and that his work was only confined to extraction of earth.
26. So far as the next submission of the learned Counsel for the Respondent No.13 is concerned that the Respondent No.13 was not involved in illegal extraction of minor mineral morrum and that

there were other contractors who were also carrying out the work on the Bhadrak-Nergundi 3rd line Project, we may point out that the execution of work at the site is carried out over specific area of the entire project and a perusal of the contract agreement of the Respondent No.13 with that of the East Coast Railway would show that this contract was confined to execution of balance earthwork and minor bridges in flyover portion between Byree-Kapilas Road (Ch-1500 to Ch-6200 from CSB of Byree) of the Bhadrak-Nergundi 3rd line Project of the East Coast Railway. The Mining Plan submitted by the Respondent No.13 himself is with regard to extraction of Morrum & Ordinary Earth from the Mania Morrum & Ordinary Earth Quarry (Plot No.541, 545, 549, 551 & 552) area Ac.3.37 (1.363 Ha.) located in Vilalge Mania, under Tangi Choudwar Tahasil in District Cuttack.

27. A perusal of the Inspection Report would show that the Respondent No.13 was issued temporary permit by the Tahasildar Tangi-Choudwar vide office order No.7162 dated 10.12.2022 to lift and transport 200 cum of ordinary earth/morrum from the land schedule given in the Inspection Report which has already been extracted hereinabove. We also notice that the Enquiry Report, which is based on the site visit dated 18.12.2023, also noted that joint enquiry was conducted on 16.03.2023 by R.S., Tangi-Choudwar, Revenue Inspector Uchhapada and Amin of Tangi-Choudwar Tahasil and it was found that the Respondent No.13 had illegally lifted 1,00,000 cum of earth/morrum from the above scheduled plots, for which penalty as well as royalty amounting to Rs.40,00,000/- (Rupees Forty Lakhs only) had been imposed upon him for violation of the terms and conditions/illegal excavation vide

Touzi Misc. Case No.136/2022-23 and this amount was also paid and realized from the Respondent No.13 vide M.R. No.4073376 dated 10.04.2023 which document is on record of the present case.

28. Thereafter, there was again a public complaint regarding illegal lifting and transportation of minor minerals by the Respondent No.13 whereupon the Tahasildar Tangi-Choudwar and Range Officer, Byree, R.S. Tangi-Choudwar, Revenue Inspector Uchhapada and Amin of Tangi-Choudwar Tahasil conducted a joint enquiry on 05.07.2023, report of which is extracted in the Report of the Joint Committee constituted by this Tribunal. This Enquiry Report dated 05.07.2023 shows that the Respondent No.13 was allowed by the Tahasildar through temporary lease to lift 2000 cum ordinary earth from Plot No.541, Ac.0.93 dec., Plot No.545, Ac.0.56 dec, Plot No.549, Ac.64 dec., Plot No.551, Ac.0.42 dec., Plot No.552, Ac.0.82 dec, Kissam-Patita under Abada Jogya Anabadi Khata No.529 of Vilalge-Mania, PS-Tangi for use in the construction of work of Bhadrak-Nirgundi 3rd line project but the company has excavated ordinary earth/morrum from Plot No.1 (P) Ac.0.70 dec. of Village-Kadei and Plot No.550 (P) Ac.0.87 dec. of Village-Mania including his own leased out plots. On verification of Record of Rights of Village-Kadei and Mania, it is revealed that Plot No.1, area Ac.20.41 dec., Kissam-Jungle-II of Village-Kadei stands recorded under Rakhita Khata No.465 and Plot No.550 area Ac.16.37 dec. Kissam-Jungle-II of Village-Mania stands recorded under Rakhita Khata No.532. It is also stated that though the kissam of the land is Jungle-II, there is no forest growth as such over the plots except small bushes and laying as "Pathar Chatan". The Report also mentions that the Range Officer present at the site admitted the

field position. The Enquiry Report also mention that on measurement of the excavated area it is seen that the company has illegally excavated approximately 2,60,580 cum of ordinary earth/morrum from the above two jungle kissam plots for which Touzi Misc. Case No.35/2023-24 has been initiated and Tahasildar Tangi-Choudwar has imposed penalty and royalty, total amounting to Rs.1,60,71,320/- against the Respondent No.13 which amount has not been realized till date. The document to that effect has been filed and is part of the record of the present proceedings.

29. Thus, from the perusal of the Enquiry Report of the Joint Committee constituted by the Tribunal and the documents filed on record by the State Respondents it is seen that the Respondent No.13 is a habitual offender in the matter of illegal excavation of earth and morrum for purposes of utilizing the same in the construction of the Bhadrak-Nergundi 3rd line Railway Project. Environmental Compensation has been determined by the Joint Committee amounting to Rs.1,20,10,000/- and the monetary quantum of illegally mined morrum has been determined at Rs.25,58,49,821.00/-. For illegal laterite excavation the royalty and District Mineral Fund (DMF) and EMF has been determined at Rs.16,21,86,385/- and penalty against continuing contravention has been determined at Rs.65,05,000/-, the grand total determined against the Respondent No.13 amounts to Rs.42,45,41,206/-.
30. So far as the Environmental Compensation computed against the Respondent No.13 is concerned, we do not wish to express any opinion on the same as the Respondent No.13 has judicial remedies available to him which he may avail and any observations made by

us with regard to the quantum of Environmental Compensation may prejudice his rights therein.

31. So far as I.A. No.75/2024/EZ seeking quashing of the Enquiry Report dated 05.07.2023 with respect to Touzi Misc. Case No.35/2023 is concerned, the same is now the subject matter of proceedings under the Odisha Minor Mineral Concession Rules, 2016.
32. Therefore, in view of the statutory provisions of the Act, 2010, this Tribunal has no jurisdiction to examine that issue since the Minor Mineral Concession Rules, 2016 do not fall within the Acts mentioned in Schedule 1 to the National Green Tribunal Act, 2010 for exercise of jurisdiction.
33. Suffice it to say so far as environmental violations are concerned, this Tribunal has jurisdiction under Section 14 of the National Green Tribunal Act, 2010 to examine all issues relating to environment and it is for the State Respondents to take action against the Respondent No.13 for environmental violations. Section 14 of the National Green Tribunal Act, 2010 reads as under:-

“14. Tribunal to settle disputes. - (1) The Tribunal shall have the jurisdiction over all civil cases where a substantial question relating to environment (including enforcement of any legal right relating to environment), is involved and such question arises out of the implementation of the enactments specified in Schedule I.

(2) The Tribunal shall hear the disputes arising from the questions referred to in subsection (1) and settle such disputes and pass order thereon.

(3) No application for adjudication of dispute under this section shall be entertained by the Tribunal unless it is made

within a period of six months from the date on which the cause of action for such dispute first arose:

Provided that the Tribunal may, if it is satisfied that the applicant was prevented by sufficient cause from filing the application within the said period, allow it to be filed within a further period not exceeding sixty days.”

34. Schedule I to the Act 2010 reads as under:-

“Schedule I

[See sections 14(1), 15(1)(a), 17(1), 17(2), 19(4) (j) and 34(1)]

- 1. The Water (Prevention and Control of Pollution) Act, 1974;*
- 2. The Water (Prevention and Control of Pollution) Cess Act, 1977;*
- 3. The Forest (Conservation) Act, 1980;*
- 4. The Air (Prevention and Control of Pollution) Act, 1981;*
- 5. The Environment (Protection) Act, 1986;*
- 6. The Public Liability Insurance Act, 1991;*
- 7. The Biological Diversity Act, 2002.*

35. So far as I.A. No.129/2024/EZ and the prayer therein that the Original Application may be dismissed on grounds of mis-joinder and non-joinder of necessary party is concerned, the I.A. is rejected on the ground that the illegal extraction of ordinary earth and morrum has been determined against the Respondent No.13 not only from his own plots but also from Plot No.1 (P) of Village Kadei and Plot No.550 of Village Mania and the Enquiry Report has been arrived at after examining various complaints against the Respondent No.13 and we also find that he has also deposited Rs.40,00,000/- towards royalty and penalty for illegal extraction of ordinary earth and morrum and therefore, the question of examining other contractors in the matter of alleged illegal extraction of earth and morrum carried out by the Respondent No.13 does not arise.

36. For reasons aforesaid, we dispose of this Original Application with a direction to the State Respondents and State Pollution Control Board, Odisha to take action against the Respondent No.13 for recovery of Environmental Compensation from the Respondent No.13 in accordance with law after giving him full opportunity of hearing. As we have already noted above, we do not wish to express any opinion on the merits of the computation of the Environmental Compensation as any observation made by us, may prejudice his defense in challenge before the same Competent Forum while availing the judicial remedies available to him under law.
37. I.A. No.75/2024/EZ is accordingly disposed of.
38. I.A. No.129/2024/EZ is dismissed.
39. There shall be no order as to costs.

.....
B. Amit Sthalekar, JM

.....
Dr. Arun Kumar Verma, EM

May 02, 2025,
 Original Application No.167/2023/EZ
 (I.A. No.75/2024/EZ & I.A. No.129/2024/EZ)
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Proceedings of the personal hearing of M/s RJA Infratech Pvt. Ltd conducted on
dated:-03.11.2025 and 14.11.2025 as per order dated 10.01.2025 in O.A. No.
109/2025/EZ

As per the directions of the Hon'ble National Green Tribunal (NGT), Eastern Zone Bench, Kolkata, issued vide order dated 13.10.2023 in O.A. No. 109/2025/EZ (Satrughan Meher vs State of Odisha), a Joint Committee comprising the Senior Scientist, State Board for Conservation of Biodiversity (SBCB), Odisha; Senior Scientist, SEIAA, Odisha; a representative of the District Collector, Jharsuguda not below the rank of Additional District Magistrate (ADM); and the Divisional Forest Officer, Jharsuguda was constituted. The Committee was mandated to visit the site, ascertain any violations, and, if violations were established, recommend the quantum of environmental compensation/penalty and suggest remedial measures as required.

Subsequently, as per the NGT's further order dated 10.01.2025, the Committee was directed to recompute the environmental compensation for 4,55,000 cum of excavation carried out by the Project Proponent, after providing the Project Proponent an adequate opportunity of hearing. In pursuance of the said order, a Joint Committee Report was submitted to the Head Office, SPCB, Odisha, vide this office Letter No. 1427 dated 01.09.2025. However, the report was found to be incomplete, as the Project Proponent had not been provided an opportunity of personal hearing by the Joint Committee.

In the meantime, the Applicant approached the Hon'ble NGT, EZB, Kolkata in E.A. No. 5/2025/EZ, alleging non-compliance of the Tribunal's direction dated 10.01.2025 at Para-66 of the aforementioned Original Application.

In compliance with the directions of the Hon'ble Tribunal, the 1st personal hearing was conducted on 03.11.2025 at 04:00 PM in the Chamber of the Additional District Magistrate (General), Collectorate, Jharsuguda. During the said hearing, no conclusive decision could be made regarding the computation of Environmental Compensation.

Subsequently, the 2nd personal hearing was conducted on 14.11.2025 at 11:00 AM in the Chamber of the Additional District Magistrate (General), Collectorate, Jharsuguda, wherein the following decisions were taken:

Calculation and findings by the Committee: -**Approach 1: Calculation based on Severe category**

The earlier calculation had been made by the Committee based on the severe category taking the Risk Factor as 1 and with a Discounting Rate of 5% on the basis that the Project Proponent had excavated since 2019. The revised calculation based on 4,55,000 cum of excavation as per the directions of the NGT was deliberated by the Committee. The revised calculation based on severe category on 4,55,000 cum of morrum is as follows:

- As in the absence of any market value of morrum material at the district administration, Jharsuguda, the committee had earlier finalized the market value of morrum @ Rs. 62/-, i.e. the highest bidding amount of the Jharsuguda District.
- The environmental compensation is being calculated for 4,55,000/- cum.
- The market value of illegally mined out morrum (D) = 4,55,000 x Rs. 62=Rs. 2,82,10,000/-

Market value of illegally mined out material (D)	4,55,000 cum x Rs. 62	Rs. 2,82,10,000/-
Annual value of foregone ecological values (D x RF) i.e. RF taken as 1 for severe case	Rs. 2,82,10,000 x 1	Rs. 2,82,10,000/-

Risk Level, Risk Factor and Discount Rate may be considered as follows:-

Severity	Mild	Moderate	Significant	Severe
Risk Level	1	2	3	4
Risk Factor	0.25	0.50	0.75	1
Discount Rate	8%	7%	6%	5%

- Present value of Foregone Ecological Values (@ 5% discount rate and over 5 years) under

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$$PV = \sum_{t=1}^5 \frac{D*RF}{(1+r)^t}$$

$$= 2,82,10,000/ (1+0.05)^1 + 2,82,10,000/ (1+0.05)^2 + 2,82,10,000/ (1+0.05)^3 + 2,82,10,000/ (1+0.05)^4 + 2,82,10,000/ (1+0.05)^5$$

$$= \text{Rs. 12,21,34,537}$$

- Net Present Value (after netting out market value of illegally mined material) i.e. total compensation to be levied

$$NPV = PV - D$$

$$\text{i.e. Rs. 12,21,34,537} - \text{Rs. Rs. 2,82,10,000/-}$$

$$= \text{Rs. 9,39,24,537/-}$$

The above calculation was deliberated at length between the Committee members. Further, calculations under the Significant and Moderate categories were also duly considered by the Committee. However, the Committee members were of the considered view that it would be incorrect to calculate environmental compensation under severe, significant or moderate category since LOA was issued by the railways to the Project Proponent in November, 2022 and excavation was carried out for a period of approximately ten (10) months till filing of original application before Hon'ble NGT. The earlier assessment was made under severe category since it was believed that Project Proponent had been excavating since 2019. Further aspects considered by the Committee for Mild case were that the NGT had also directed that Project Proponent cannot be made liable for excavation for any prior duration.

Approach 2: Calculation based on mild category

- As in the absence of any market value of morrum material at the district administration, Jharsuguda, the committee had earlier finalized the market value of morrum @ Rs. 62/-, i.e. the highest bidding amount of the Jharsuguda District.
- The environmental compensation is being calculated for 4,55,000/- cum as per the directions of the NGT in the order dated 10.01.2025.
- The market value of illegally mined out morrum (D) = 4,55,000 x Rs. 62=Rs. 2,82,10,000/-

Market value of illegally mined out material (D)	4,55,000 cum x Rs. 62	Rs. 2,82,10,000/-
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Annual value of foregone ecological values (D x RF) i.e. RF taken as 0.25 for mild case	Rs. 2,82,10,000 x 0.25	Rs. 70,52,500/-
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Risk Level, Risk Factor and Discount Rate may be considered as follows:

Severity	Mild	Moderate	Significant	Severe
Risk Level	1	2	3	4
Risk Factor	0.25	0.50	0.75	1
Discount Rate	8%	7%	6%	5%

- Present value of Foregone Ecological Values (@ 8% discount rate and over 5 years); as that of a Mild Case in view of the limited duration of excavation and mild impact to the environment.

$$PV = \sum_{t=1}^5 \frac{D*RF}{(1+r)^t}$$

$$= 70,52,500 / (1+0.08)^1 + 70,52,500 / (1+0.08)^2 + 70,52,500 / (1+0.08)^3 + 70,52,500 / (1+0.08)^4 + 70,52,500 / (1+0.08)^5$$

$$= \text{Rs. 2,81,59,928.78}$$

- Net Present Value (after netting out market value of illegally mined material) i.e. total compensation to be levied

$$NPV = PV - D$$

$$\text{i.e. Rs. 2,81,59,928.78} - \text{Rs. Rs. 2,82,10,000/-}$$

$$(-) \text{50,071.22}$$

The Committee also considered and discussed the calculation of environmental compensation based on the Mild category which was giving a net present value of (-) Rs. 50,071.22. Also, the Project Proponent requested the committee to take the case in mild category since he has done excavation only for the period of 10 months and since the aforesaid Net Present Value is coming in the negative, no environmental compensation ought to be levied on it.

The Committee discussed the submission of the Project Proponent and concluded the view that since excavation by the Project Proponent has been undertaken without obtaining environmental clearance, there is an environmental violation committed.

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Accordingly, despite the fact that the aforesaid Net Present Value is coming in the negative, some environmental compensation should be levied on the Project Proponent.

Also, penalty amounting to Rs. 15,000/- was also levied by DFO, Jharsuguda for damaging the natural vegetation like Dhatuki, Kurei, Lantina by Project Proponent on the excavated site. The Committee members were accordingly not inclined to agree with the submission of the Project Proponent as well as the calculation submitted by it under the Mild category. The same was accordingly rejected due to the value coming in the negative.

Since adoption of Risk Factor and Discounting Rate of a mild case is giving Net Present Value in the negative as per the above formula, the Committee is of the view that an alternate formula is to be adopted for calculating environmental compensation.

As in the matter of Srikanta Kumar Pakal & Others vs State of Odisha & Others, Original Application No. 167/2023/EZ, before the Hon'ble National Green Tribunal, the Committee is of the considered view that in the facts and circumstances, it would be appropriate to calculate environmental compensation using the methodology prepared by CPCB in-House Committee.

Approach 3:-

In accordance with the said methodology, the environmental compensation shall be calculated based on the following formula.

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

EC= Environmental Compensation

N= Number of days of violation that took place.

R= A factor in Rupees (t) for EC

S= Factor for scale of Operation

LF= Location Factor

In the present context, the parameters of the above equation are as follows:

- (i) The methodology of CPCB 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. As per the office order No. 8333/Ind-I- Con-1505, dated 11.07.2018 of State Pollution Control Board, Odisha, the Mining activity is coming under red category industrial sector. So here P1=80.

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- (ii) N, the 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. As directed by the Hon'ble NGT it is ascertained that Project Proponent undertook illegal excavation for approx. one year. So, the number of days for which violation takes place is 365 days, So N may be taken as 365 days.
- (iii) R is a factor in Rupees which suggested to consider R as 250 as the Environmental compensation in case of violation. So here R=250.
- (iv) S is a factor representing the scale of operation of the industry (for micro or small scale=0.5, medium scale = 1.0 and large scale=1.5). As per the report submitted by the Mining Officer the surface area of the pits from which morrum/laterite have been excavated. Based on the surface area of excavation the mining activities may be considered to large. So, value of S=1.5.
- (v) LF, could be based on population of the city/town and location of the industrial unit. LF is will be 1.0 in case unit is located >10 Km from the municipality boundary, LF is presumed as 1 for city/town having population less than one million. Considering the distance of the quarries >10 Km from the area of municipality and population less than one million, the value of LF= 1.0

Putting the value of PI, N, R, S and LF the Environmental Compensation is calculated as follows:

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

$$EC=PI \times N \times R \times S \times LF = 80 \times 365 \times 250 \times 1 \times 1.5 = \text{Rs. } 1,09,50,000/-$$

However, the agency has deposited Rs.84,73,308 as royalty and Rs.13,17,854 as penalty amounting to total of Rs.97,91,162 /-. Apart from the above, the Project Proponent has also submitted his petition to the committee that it has gone into severe losses and a Company Petition has been filed against it in NCLT, Cuttack bearing no. CP (IB) No. 37/CB/2025. Based on the above two considerations it has been requested by the Project Proponent that no environmental compensation ought to be levied on it.

Since, the agency has deposited total of Rs.97,91,162 /- and request of the Project Proponent, Environmental compensation may be calculated as :-

= Rs. 1,09,50,000- Rs.97,91,162

1 8 5

= **Rs. 11,58,838/-**

Recommendation:

Therefore, in view of the above, Environmental Compensation of Rs. 11,58,838/- may be levied to the Project Proponent for the environmental damage caused due to illegal extraction of morrum at the alleged violation site.

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Proceedings of the personal hearing of M/s RSA Infratech Pvt. Ltd conducted on
dated: -03.11.2025 and 14.11.2025 as per order dated 10.01.2025 in O.A. No.
109/2025/EZ

As per the directions of the Hon'ble National Green Tribunal (NGT), Eastern Zone Bench, Kolkata, issued vide order dated 13.10.2023 in O.A. No. 109/2025/EZ (Satrughan Meher vs State of Odisha), a Joint Committee comprising the Senior Scientist, State Board for Conservation of Biodiversity (SBCB), Odisha; Senior Scientist, SEIAA, Odisha; a representative of the District Collector, Jharsuguda not below the rank of Additional District Magistrate (ADM); and the Divisional Forest Officer, Jharsuguda was constituted. The Committee was mandated to visit the site, ascertain any violations, and, if violations were established, recommend the quantum of environmental compensation/penalty and suggest remedial measures as required.

As per the direction of Hon'ble NGT, Principal Bench, New Delhi in OA No. 360/2015 in the matter of National Green Tribunal Bar Association Vrs Virendra Singh (State of Gujarat), the Central Pollution Control Board (CPCB) has recommended on scale of compensation to deal with cases of illegal sand mining and developed two formula i.e. **Approach-1** : Direct Compensation based on the market value of extraction, adjusted for ecological damages and **Approach-2** : Computing a Simplified Net Present Value (NPV) for ecological damages. The Hon'ble NGT accepted the Approach-2 formula and accordingly environmental compensation has been calculated for most of the NGT cases even in Odisha also. Further, the Revenue and Disaster management Department, Government of Odisha has also adopted the Approach-2 formula of CPCB for calculation of environmental compensation in illegal sand mining cases. In this case joint committee have observed that that total 4,55,000 cum of Morrurum has been extracted from the alleged site but as per report of Tahasildar, Jharsuguda, M/s. RSA Infra Project Pvt. Ltd has been penalized for extraction of 45,018 cum of morrum mixing with soil for un-authorized extraction. Accordingly, the environmental compensation amounting of Rs.92,92,955.58/- has been calculated based on Approach-2 formula of CPCB with considering the Risk Factor 1.0 and Discount Rate 5% and submitted the inspection before the Hon'ble NGT.

After final hearing on 10.01.2025, the Hon'ble NGT, EZ, Kolkata disposed of the matter with direction to the joint committee to recompute the environmental compensation for 4,55,000 cum of Morrum excavated by the Project Proponent, after providing the Project Proponent an adequate opportunity of hearing. In pursuance of the said order, a Joint Committee recomputed the environmental compensation and the Regional Office of SPCB, Jharsuguda (as a Nodal Office for this case) has submitted the committee report to the Head Office, SPCB, Odisha, vide Letter No. 1427 dated 01.09.2025 for filing. However, the report was found to be incomplete and returned to regional office of SPCB, Jharsuguda, as the Project Proponent had not been provided an opportunity of personal hearing by the Joint Committee and one of the committee members i.e. SEIAA, Odisha has not signed in the report.

In the meantime, the petitioner approached the Hon'ble NGT, EZB, Kolkata in E.A. No. 05/2025/EZ, alleging non-compliance of the Tribunal's direction dated 10.01.2025 at Para-66 of the aforementioned Original Application. Accordingly, Hon'ble Tribunal pass an order dated 10.10.2025 with direction that responses/compliance reports may be filed by the members of the Joint Committee, respondents no. 2,3,4 and 7 within one month.

In compliance with the directions of the Hon'ble Tribunal order dated 10.10.2025 in E.A. No. 05/2025/EZ, the 1st personal hearing was conducted on **03.11.2025 at 04:00 PM** in the Chamber of the Additional District Magistrate (General), Collectorate, Jharsuguda. In this hearing, the Additional District Magistrate (General), Collectorate, Jharsuguda,, Regional Office of SPCB, Jharsuguda,, DFO, Office, Jharsuguda, Environmental Scientist, SEIAA, Odisha and representative of M/s RSA Infratech Pvt. Ltd. were present. During the hearing, the representative of M/s. RSA Infratech Pvt. Ltd. has informed to committee member that the committee may considered the environmental compensation on basis of Mild Risk Factor (i.e. 0.25 for 8 % discount) instead of the considering the Risk Factor Severe (i.e.1.0 for 5 % discount), Significant (i.e. 0.75 for 7 % discount) & Moderate (i.e. 0.50 for 6 % discount) as they extracted Morrum since, 2019 and they do not aware about the requirement of Environmental Clearance

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(EC), Consent to Operate (CTO) and other statutory clearance/approval for mining/extraction of any minor mineral which is not proper justification and acceptable. The committee also calculated the environmental compensation taking the mild Risk Factor (i.e. 0.25 for 8 % discount) and found that (–) **Rs.50,072.22/-** (i.e. negative factor) is coming which is not acceptable in respect of environmental compensation. In other case matter in OA. No. 167/2023/EZ in the matter of Srikanta Kumar Pakal & Ors. Vrs. State of Odisha & Ors. the Hon'ble NGT vide order dated 23.11.2023 have given direction to form a joint committee comprising the member of Senior Scientist, SPCB, Odisha, District Mining Officer, Cuttack, District Collector, Cuttack or his representative Officer not below the rank of Additional District Magistrate (A.D.M.); and Divisional Forest Officer, Cuttack and the Committee shall visit the site and submit its report before Hon'ble NGT by the SPCB, Odisha as Nodal Body. In this case (OA. No. 167/2023/EZ), the environmental compensation has been calculated based on the formula i.e. $EC = PI \times N \times R \times S \times LF$ prescribed by CPCB for industrial unit cases in light of industrial pollution control where number of days of violation being considered. In the instant case, the Project proponent has submitted that this formula will be applicable and some committee members are agreed with the submission of Project Proponent and other is/are not agreed. With this ambiguity among the committee member no conclusive decision could be made regarding the computation of Environmental Compensation. The Project Proponent also requested for next hearing with reason that he will submit some additional example case matter which has been disposed in respect of environmental compensation calculation based on using this formula (i.e. $EC = PI \times N \times R \times S \times LF$).

Subsequently, the 2nd personal hearing was conducted on **14.11.2025 at 11:00 AM** in the Chamber of the Additional District Magistrate (General), Collectorate, Jharsuguda, wherein the following decisions were taken: (copy of the attendance sheet is attached for the reference)

Calculation and findings by the Committee: -**Approach 2: Computation of Net Present Value (NPV) for ecological damages based on Risk Factor-1(Discount Rate 5%).**

Earlier, this committee has calculated the environmental compensation amounting of Rs.92,92,955.58/- for 45,018 cum of Morrum has been extracted from the alleged site by the project proponent as per report of Tahasildar, Jharsuguda based on the CPCB Approach-2 formula taking the Risk Factor as 01(severe) with a Discounting Rate of 5%. The Hon'ble NGT in their order dated 10.01.2025, at Para-65, it is mentioned that *"We may also observe that on the own admission of the Respondent No.9 in para 'xxvii' of the affidavit dated 17.07.2024 that soil/morrum extracted was 4,55,000 cum by the Project Proponent, therefore, environmental compensation would be computed on this figure"*. Accordingly, the revised environmental calculation based on the extraction quantity of Morrum/soil i.e.4,55,000 cum is as follows:

- As in the absence of any market value of morrum material at the district administration, Jharsuguda, the committee had earlier finalized the market value of morrum @ Rs. 62/-, i.e. the highest bidding amount of the Jharsuguda District.
- The environmental compensation is being calculated for 4,55,000/- cum.
- The market value of illegally mined out morrum (D) = 4,55,000 x Rs. 62 =Rs. 2,82,10,000/-

Market value of illegally mined out material (D)	4,55,000 cum x Rs. 62	Rs. 2,82,10,000/-
Annual value of foregone ecological values (D x RF) i.e. RF taken as 1 for severe case	Rs. 2,82,10,000 x 1	Rs. 2,82,10,000/-

Risk Level, Risk Factor and Discount Rate may be considered as follows: -

Severity	Mild	Moderate	Significant	Severe
Risk Level	1	2	3	4
Risk Factor	0.25	0.50	0.75	1

Discount Rate	8%	7%	6%	5%
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- Present value of Foregone Ecological Values (@ 5% discount rate and over 5 years) under

$$PV = \sum_{t=1}^5 \frac{D*RF}{(1+r)^t}$$

$$= 2,82,10,000/ (1+0.05)^1 + 2,82,10,000/ (1+0.05)^2 + 2,82,10,000/ (1+0.05)^3 + 2,82,10,000/ (1+0.05)^4 + 2,82,10,000/ (1+0.05)^5$$

$$= \text{Rs. } 12,21,34,537$$

- Net Present Value (after netting out market value of illegally mined material) i.e. total compensation to be levied

$$NPV = PV - D$$

$$\text{i.e. Rs. } 12,21,34,537 - \text{Rs. Rs. } 2,82,10,000/-$$

$$= \text{Rs. } 9,39,24,537/-$$

Approach 2: Computation of Net Present Value (NPV) for ecological damages based on Risk Factor-0.75 (Discount Rate 6%):

Market value of illegally mined out material (D)	4,55,000 cum x Rs. 62	Rs. 2,82,10,000/-
Annual value of foregone ecological values (D x RF) i.e. RF taken as 0.75 for Significant case	Rs. 2,82,10,000 x 0.75	Rs. 2,11,57,500/-

- Present value of Foregone Ecological Values (@ 6% discount rate and over 5 years);

$$PV = \sum_{t=1}^5 \frac{D*RF}{(1+r)^t}$$

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$$= 2,11,57,500/(1+0.06)^1 + 2,11,57,500/(1+0.06)^2 + 2,11,57,500/(1+0.06)^3 + 2,11,57,500/(1+0.06)^4 + 2,11,57,500/(1+0.06)^5$$

$$= \text{Rs. } 8,91,23,086.77$$

- Net Present Value (after netting out market value of illegally mined material)
i.e. total compensation to be levied

$$\text{NPV} = \text{PV} - \text{D}$$

$$\text{i.e. Rs. } 8,91,23,086.77 - \text{Rs. Rs. } 2,82,10,000/-$$

$$\text{Rs. } 6,09,13,086.77/-$$

Approach 2: Computation of Net Present Value (NPV) for ecological damages based on Risk Factor-0.50 (Discount Rate 7%):

Market value of illegally mined out material (D)	4,55,000 cum x Rs. 62	Rs. 2,82,10,000/-
Annual value of foregone ecological values (D x RF) i.e. RF taken as 0.50 for Moderate case	Rs. 2,82,10,000 x 0.50	Rs. 1,41,05,000/-

- Present value of Foregone Ecological Values (@ 7% discount rate and over 5 years);

$$\text{PV} = \sum_{t=1}^5 \frac{\text{D} \cdot \text{RF}}{(1+r)^t}$$

$$= 1,41,05,000/(1+0.07)^1 + 1,41,05,000/(1+0.07)^2 + 1,41,05,000/(1+0.07)^3 + 1,41,05,000/(1+0.07)^4 + 1,41,05,000/(1+0.07)^5$$

$$= \text{Rs. } 5,78,33,284.82$$

- Net Present Value (after netting out market value of illegally mined material)
i.e. total compensation to be levied

$$NPV = PV - D$$

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i.e. Rs. 5,78,33,284.82 – Rs. 2,82,10,000/-

Rs.2,96,23,284.82/-

Approach 2: Computation of Net Present Value (NPV) for ecological damages based on Risk Factor-0.25 (Discount Rate 8%):

Market value of illegally mined out material (D)	4,55,000 cum x Rs. 62	Rs. 2,82,10,000/-
Annual value of foregone ecological values (D x RF) i.e. RF taken as 0.25 for mild case	Rs. 2,82,10,000 x 0.25	Rs. 70,52,500/-

Risk Level, Risk Factor and Discount Rate may be considered as follows:

Severity	Mild	Moderate	Significant	Severe
Risk Level	1	2	3	4
Risk Factor	0.25	0.50	0.75	1
Discount Rate	8%	7%	6%	5%

- Present value of Foregone Ecological Values (@ 8% discount rate and over 5 years).

$$PV = \sum_{t=1}^5 \frac{D*RF}{(1+r)^t}$$

$$= 70,52,500/ (1+0.08)^1 + 70,52,500/ (1+0.08)^2 + 70,52,500/ (1+0.08)^3 + 70,52,500/ (1+0.08)^4 + 70,52,500/ (1+0.08)^5$$

$$= \text{Rs. 2,81,59,928.78}$$

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- Net Present Value (after netting out market value of illegally mined material)
i.e. total compensation to be levied

$$\text{NPV} = \text{PV} - \text{D}$$

i.e. Rs. 2,81,59,928.78 – Rs. Rs. 2,82,10,000/-

Rs. (-) 50,071.22

In the above calculation, the committee has observed that the environmental compensation is coming amounting of **Rs. 9,39,24,537/-** when RF taken as 1 for severe case with the 5% discount rate and over 5 years, **Rs. 6,09,13,086.77/-** when RF taken as 0.75 for significant case with the 6% discount rate and over 5 years, **Rs. 2,96,23,284.82/-** when RF taken as 0.50 for moderate case with the 7% discount rate and over 5 years and **Rs. (-) 50,072.22/-**(negative) when RF taken as 0.25 for mild case with the 8% discount rate and over 5 years as per Approach-2 formula of CPCB. The Project Proponent has requested the committee to consider this case in mild category since he has done excavation only for the period of 10 months and since the aforesaid Net Present Value is coming in the negative, no environmental compensation ought to be levied on it. The Committee members were accordingly not inclined to agree with the submission of the Project Proponent as well as the calculation submitted by it under the Mild category. The same was accordingly rejected due to the value coming in the negative.

Also, the Project Proponent has submitted that the environmental compensation is coming negative if Risk Factor taken as Mild category. Hence, the committee may consider their case using the methodology developed by the CPCB in-House Committee i.e. **EC= PI x N x R x S x LF** which has been adopted by another committee in the matter of Srikanta Kumar Pakal & Others vs State of Odisha & Others, Original Application No. 167/2023/EZ, before the Hon'ble National Green Tribunal. In accordance with the said methodology, the environmental compensation is calculated as follows:

$$\text{EC} = \text{PI} \times \text{N} \times \text{R} \times \text{S} \times \text{LF}$$

EC= Environmental Compensation

N= Number of days of violation that took place.

R= A factor in Rupees (t) for EC

S= Factor for scale of Operation

1 ~~4~~ 4

LF= Location Factor

In the present context, the parameters of the above equation are as follows:

- (i) The methodology of CPCB 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. As per the office order No. 8333/Ind-I- Con-1505, dated 11.07.2018 of State Pollution Control Board, Odisha, the Mining activity is coming under red category industrial sector. So here $P1=80$.
- (ii) N, the 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. As directed by the Hon'ble NGT it is ascertained that Project Proponent undertook illegal excavation for approx. one year. So, the number of days for which violation takes place is 365 days, So N may be taken as 365 days.
- (iii) R is a factor in Rupees which suggested to consider R as 250 as the Environmental compensation in case of violation. So here $R=250$.
- (iv) S is a factor representing the scale of operation of the industry (for micro or small scale=0.5, medium scale = 1.0 and large scale=1.5). As per the report submitted by the Mining Officer the surface area of the pits from which morrum/laterite have been excavated. Based on the surface area of excavation the mining activities may be considered to large. So, value of $S=1.5$.
- (v) LF, could be based on population of the city/town and location of the industrial unit. LF is will be 1.0 in case unit is located >10 Km from the municipality boundary, LF is presumed as 1 for city/town having population less than one million. Considering the distance of the quarries >10 Km from the area of municipality and population less than one million, the value of $LF= 1.0$

Putting the value of PI, N, R, S and LF the Environmental Compensation

is calculated as follows:

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$EC = PI \times N \times R \times S \times LF = 80 \times 365 \times 250 \times 1 \times 1.5 = \text{Rs. } 1,09,50,000/-$

Also, penalty amounting to Rs. 15,000/- was also levied by DFO, Jharsuguda for damaging the natural vegetation like Dhatuki, Kurei, Lantina by Project Proponent on the excavated site.

The Project Proponent has further submitted before the committee that it is currently undergoing severe financial distress and that a Company Petition has been instituted against it before the Hon'ble National Company Law Tribunal, Cuttack, bearing No. CP (IB) 37/CB/2025. On this premise, the Project Proponent has requested that no Environmental Compensation be levied upon it. This submission is rejected.

It is placed on record that the Project Proponent has already deposited a sum of Rs. 84,73,308/- (Rupees Eighty-Four Lakhs Seventy-Three Thousand Three Hundred and Eight only) towards royalty and Rs. 13,17,854/- (Rupees Thirteen Lakhs Seventeen Thousand Eight Hundred and Fifty-Four only) towards penalty, aggregating to a total amount of Rs. 97,91,162/- (Rupees Ninety-Seven Lakhs Ninety-One Thousand One Hundred and Sixty-Two only).

Conclusion & Recommendation:

As per the Supreme Court direction, in the case matter of *Deepak Kumar v. State of Haryana* (2012), that Environmental Clearance (EC) is mandatory for all mining of minor minerals, regardless of the lease area and in this the extraction taken place without EC and CTO. After details discussion in the matter the committee opinion on the submission of project proponent that the environmental compensation amounting of **Rs. (-) 50,072.22/-** as per Risk Factor (RF) 0.25 for mild case with the 8% discount rate and over 5 years is not applicable in this case. Also, the environmental compensation amounting of **Rs.1,09,50,000/-** as per the different formula (i.e. $EC = PI \times N \times R \times S \times LF$) adopted by another joint committee in other case matter in OA. No. 167/2023/EZ is also not applicable for this because this formula developed specifically industrial pollution where number of days taken place/considered as a

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violation period. But in this case, it is a different matter where a particular quantity of Morrum material extracted without approval from concerned Authorities and the Hon'ble NGT given direction to joint committee that environmental compensation would be computed on 4,55,000 cum of morrum/soil material.

The committee heard the Project Proponent stating that the Project Proponent has extracted 4,55,000 cum of morrum material unauthorizedly without obtaining EC, CTO and other approval from respective authority. The Project Proponent also submitted that they are not aware about the requirement of EC, CTO and other permission before mining of any minor or major minerals which is not acceptable. Also, submitted that the committee either consider the environmental compensation in light of the Risk Factor (RF) 0.25 for mild case with the 8% discount rate and over 5 years or the committee may consider CPCB polluter pay fee formula i.e. $EC = PI \times N \times R \times S \times LF$ for calculation of environmental compensation adopted by the other joint committee in Original Application No. 167/2023/EZ in the matter of Srikanta Kumar Pakal & Others vs State of Odisha & Others and submitted their before the Hon'ble National Green Tribunal at this stage is not applicable.

This is totally illegal/unauthorized mining involved different area of Jharsuguda District including forest area. No prior clearance has been taken from appropriate Authorities before mining. No Environmental Clearance (EC) and Forest Clearance has been taken by the Project Proponent/Respondent no.11 for mining of Morrum. It can be treated as severe case and environmental compensation should be imposed on the Risk Level-04 sign factor 01.

There is ambiguity among the committee member in respect of which formula will be applicable for the instant case. Hence, no conclusive decision could be made regarding the computation of Environmental Compensation. After detailed discussion in the matter the committee decided that, the PP is required to submit the Environmental Compensation either amounting of **Rs. 9,39,24,537/-** based on RF 1 for severe case or **Rs. 6,09,13,086.77/-** based on RF 0.75 for significant case or **Rs. 2,96,23,284.82/-** based RF 0.50 for moderate case or **Rs. 1,09,50,000/-** based on the methodology developed by the CPCB in-House Committee i.e. $EC = PI \times N \times R \times S \times LF$ that may decide by the Hon'ble NGT, EZ. The direction of Hon'ble NGT will carry out by the joint committee for this case and other cases also as an example. In

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addition to environmental compensation, the project proponent is required to submit the Royalty and Penalty amount for 4,55,000 cum of Morrur material as a revenue loss after deduction of the amount has already deposited by project proponent of Rs. 97,91,162/- to concerned District Authority.



STATE ENVIRONMENT IMPACT ASSESSMENT AUTHORITY, ODISHA
5RF-2/1, Unit-IX, Bhubaneswar-751022, Tel: 0674-3512840, Email:
seiaaodisha@gmail.com
(A statutory body constituted by Ministry of Environment, Forest & Climate Change
under Environment (Protection) Act, 1986)

Letter No. 6892/SEIAA

Dated 02.12.2025

To

M/s. Aditya Construction
Represented by Managing Director
Plot No.496/3799, Unit No.02, Hariom Bihar,
Ward No.17, Brajrajnagar, Jharsuguda
Pin No.768126, Odisha

**DIRECTIONS FOR SUBMISSION OF ENVIRONMENTAL COMPENSATION IN
PURSUANCE TO ORDER DATED 09.01.2025 OF HON'BLE NGT, EZ, KOLKATA
- SHOW CAUSE NOTICE THEREOF**

Ref: Hon'ble NGT order dt. 09.01.2025 in O.A. No.26/2024/EZ and M.A. No. 26/2025/EZ
in the matter of Jitendra Kumar Pradhan Vrs State of Odisha & Ors.

Sir/Madam,

With reference to the above cited subject, I am to inform you that in pursuance to order dated 09.01.2025 in O.A. No.26/2024/EZ and M.A. No. 26/2025/EZ in the matter of Jitendra Kumar Pradhan Vrs State of Odisha & Ors, the Hon'ble court has directed as follows: "*The SEIAA, Odisha, Respondent No.4, to determine environmental compensation against the Respondent No.11, Aditya Construction, for violation of environmental norms, after giving him an opportunity of being heard, and pass appropriate orders strictly in accordance with law within a period of two months*". Accordingly, the environmental compensation amount of **Rs. 1,15,80,585.73/-** has been calculated based on the Approach-2 formula of Central Pollution Control Board (CPCB). The Respondent No. 11, M/s. Aditya Construction has extracted 56,100 cum of Morrum material in Jharsuguda District which is reflected in the Joint Inspection report dated 01.03.2024 and as mentioned in the final order dated 09.01.2025 of Hon'ble NGT.

NOW THEREFORE, in view of the above observation and as per the direction of Hon'ble NGT order dated 09.01.2025 to SEIAAA, Odisha, the Project Proponent/Respondent No.11, M/s. Aditya Construction is directed to reply to this Show Cause Notice of SEIAA, Odisha by letter/email or to appear/present in person or through authorized person in SEIAA, Odisha office chamber **within 15 days from the date of receipt of this show cause notice**, why the environmental compensation amounting of **Rs.1,15,80,585.73/-** shall not collected for extraction of Morrum Material unauthorizedly and as per direction of Hon'ble NGT.

In the event of failure to comply with the above directions within the stipulated time frame, action as deemed appropriate shall be initiated against the Project Proponent in accordance with the provisions of the law.

Encl: As above

By order and Authority of SEIAA, Odisha


Member Secretary, SEIAA

Copy to

1. Additional Chief Secretary, Forest, Environment & Climate Change Dept., Government of Odisha for information.
2. Member Secretary, State Pollution Control Board, Odisha, Paribesh Bhawan, A/118, Nilakantha Nagar, Unit-8, Bhubaneswar for information.
3. Member Secretary, SEAC, Paribesh Bhawan, A/118, Nilakantha Nagar, Unit-VIII, Bhubaneswar for information.
4. Deputy D.G.Forest., Integrated Regional Office (IRO), Ministry of Environment & Forests, A-31, Chandrasekharpur, Bhubaneswar for information.
5. The Director of Mines, Steel & Mines Dept, Govt. of Odisha Bhubaneswar for information.
6. Collector & DM, Jharsuguda, Sub-Collector, Jharsuguda, DFO, Jharsuguda, DDM, Sambalpur Circle, RO, SPCB, Jharsuguda, Tahasildar, Jharsuguda /Mining Officer, Jharsuguda for Information and necessary action.
7. Guard file for record/Website/Parivesh Portal.


Member Secretary, SEIAA

Report on Environmental Compensation against M/s. Aditya Construction based on the order dt. 09.01.2025 of Hon'ble NGT in O.A. No.26/2024/EZ in the matter of Jitendra Kumar Pradhan Vrs State of Odisha & Ors.

1.0 Background:

As per the direction of Hon'ble NGT in order dated 09.01.2025 in the on O.A. No. 26 of 2024 (EZ) in the matter of Jitendra Kumar Pradhan Vrs State of Odisha & Ors., it was directed in Para-25 of the final order dated 09.01.2025 that *"the SEIAA, Odisha, Respondent No.4, to determine environmental compensation against the Respondent No.11, Aditya Construction, for violation of environmental norms, after giving him an opportunity of being heard, and pass appropriate orders strictly in accordance with law within a period of two months"* accordingly, the environmental compensations has been calculated.

The Hon'ble Supreme Court of India in the case matter of *Deepak Kumar v. State of Haryana* (2012) has given direction that Environmental Clearance (EC) is mandatory for all mining of minor minerals, regardless of the lease area and in this case the extraction of Morrur material has been taken place by the M/s. Aditya Construction, the Project Proponent(PP)/Respondent no.11 without obtaining any environmental clearance (EC) that has been confirmed by SEIAA, Odisha in the counter affidavit dated 16.03.2024 submitted to Hon'ble NGT, EZ.

In the para-21 of Hon'ble NGT final order dated 09.01.2025 has mentioned that *"the allegation of the Applicant is that the Respondent No.11 is extracting earth/morrur from various places, already mentioned hereinabove, and has illegally lifted/extracted **56,100 cum** of morrur in Jharsuguda District. The Tahasildar, Jharsuguda, has also confirmed that the Respondent No.11 has illegally excavated morrur and Miscellaneous Sairat Case No.37/2022-23 has also been instituted against him and royalty/penalty has been imposed; the details of the land from which excavation has been made has been disclosed in the affidavit of the Tahasildar. It is also stated that royalty,*

penalty and interest has been assessed at total Rs.27,44,000/- (Rupees Twenty Seven Lakhs Forty Four Thousand only), out of which the Respondent No.11 has paid Rs.13,78,000/- (Rupees Thirteen Lakhs Seventy-Eight Thousand only) and the remaining balance amount is Rs.14,44,000/- (Rupees Fourteen Lakhs Forty-Four Thousand only)".

As per the direction of Hon'ble NGT, Principal Bench, New Delhi in OA No. 360/2015 in the matter of National Green Tribunal Bar Association Vrs Virendra Singh (State of Gujarat), the Central Pollution Control Board (CPCB) has recommended on scale of compensation to deal with cases of illegal sand mining and developed two formula i.e. **Approach-1** : Direct Compensation based on the market value of extraction, adjusted for ecological damages and **Approach-2** : Computing a Simplified Net Present Value (NPV) for ecological damages. The Hon'ble NGT accepted the Approach-2 formula and accordingly environmental compensation has been calculated for most of the NGT cases even in Odisha also. Further, the Revenue and Disaster management Department, Government of Odisha has also adopted the Approach-2 formula of CPCB for calculation of environmental compensation in illegal sand mining cases.

This is totally illegal/unauthorized mining involved different area of Jharsuguda District including forest area. No prior clearance has been taken from appropriate Authorities before mining. No Environmental Clearance (EC) and Forest Clearance has been taken by the Project Proponent/Respondent no.11 for mining of Morrum. This is totally illegal and unauthorized mining. It can be treated as sever case and environmental compensation should be imposed on the Risk Level-04 sign factor 01.

During calculation of environmental compensation, it is observed that the Market Value of Morrum material of Jharsuguda District, Odisha is an important factor for calculation of environmental compensation against the excess/illegal mining which is not known and in this regard a letter was issued by SEIAA, Odisha vide letter no. 6750/SEIAA dated 19.09.20225 to

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the Deputy Director of Mines, Sambalpur Circle and copy given to the Collector & District Magistrate, Jharsuguda and Mining Officer, Jharsuguda for information and necessary action. The Deputy Director of Mines, Sambalpur Circle has submitted their reply vide letter no. 3458 dt. 17.10.2025 stating that the highest bedding price for Morrurum in Jharsuguda District is of **Rs. 62/- per cum of Morrurum** (Royalty@35/- + Addl. Charge of Rs.27/-per Cum). Here, in absence of any market value for these cases, the highest bidding amount has taken as a market value and accordingly, environmental compensation has been calculated.

1. Calculation for environmental compensation of 56100 cum of Morrurum material was extracted unauthorized by the project proponent M/s. Aditya Construction based on Hon'ble NGT order dt. 09.01.2025 in O.A. No.26/2024/EZ in the matter of Jitendra Kumar Pradhan Vrs State of Odisha & Ors. based on Approach-2 formula prescribed by CPCB:

Market value of Morrurum material is Rs. 62/- per cum as submitted by the Deputy Director of Mines, Sambalpur Circle in their letter vide letter no. 3458 dt. 17.10.2025.

Market value of illegally mined out Morrurum material (D) = 56100 Cum × Rs.62/-per cum = Rs.34,78,200/-

Market Value of Illegally mined out material (D)	56100 cum × Rs. 62/- per cum	= Rs.34,78,200/-
Annual value of Foregone Ecological Values (D × RF) i.e. Risk factor taken as '1 for severe case as EC and other permission obtained before mining.	Rs.34,78,200/- × 1	= Rs.34,78,200/-

Discount Rate may be considered as below:

Severity	Mild	Moderate	Significant	Severe
Risk Level	1	2	3	4
Risk Factor	0.25	0.50	0.75	1.0
Discount	8%	7%	6%	5%

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Rate				
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- **Present value of Foregone Ecological values (@ 5% discount rate and over 5 years)**

$$PV = \sum_{t=1}^5 (D \cdot RF) / (1+r)^t$$

$$= \sum 34,78,200 / (1+0.05)^1 + 34,78,200 / (1+0.05)^2 + 34,78,200 / (1+0.05)^3 + 34,78,200 / (1+0.05)^4 + 34,78,200 / (1+0.05)^5$$

$$= \text{Rs.} 33,12,571.42/- + \text{Rs.} 31,54,829.93/- + \text{Rs.} 30,04,599.93/- + \text{Rs.} 28,61,523.74/- + \text{Rs.} 27,25,260.71/- = \text{Rs.} 1,50,58,785.73/-$$

- Net present value (after netting out market value of illegally/un-authorized mined out material) – i.e., Total Compensation to be levied

$$= NPV = PV - D$$

$$= \text{Rs.} 1,50,58,785.73/- - \text{Rs.} 34,78,200/- = \text{Rs.} 1,15,80,585.73/-$$

Compensation Charge in above case for unauthorized extraction morrum:
Rs. 1,15,80,585.73/-

Recommendations

In view of the above and as per Hon'ble NGT vide order dated 09.01.2025, the Respondent No. 11. M/s. Aditya Construction, is required to deposit the environmental compensation amounting of **Rs. 1,15,80,585.73/-** for un-authorized extraction of Morrum. The District Administration may recover the same from M/s. Aditya Construction, Project Proponent and deposit it in the account of Govt. of Odisha bearing Account No. 06640110075074, IFSC Code No-UCBA0000664, MICR Code-751028004, Forest, Environment & Climate Change, Government of Odisha-751001 as per the Notification no. RDM-MMS-POLICY-0008-2021-5157/R & DM dated 17.02.2022 of Revenue and Disaster management Department, Government of Odisha and acknowledged the same to SEIAA, Odisha.

Pradeept Kumar Nayak
29/11/2025

Dr. Pradeept Kumar Nayak
Environmental Scientist, SEIAA, Odisha

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GOVERNMENT OF ODISHA
REVENUE AND DISASTER MANAGEMENT DEPARTMENT

NOTIFICATION



Bhubaneswar, Dated 17 FEB 2022

No RDM-MMS-POLICY-0008-2021- 5157 / R&DM,

Sub: Fixation of scale of compensation regime towards environmental and ecological damage for illegal mining of sand.

Whereas, Hon'ble National Green Tribunal, Principal Bench, New Delhi by order on dated 26.02.2021 in OA No. 360/2015- in the matter of 'National Green Tribunal Bar Association Vrs. Virender Singh (State of Gujarat) and 18 other OAs" have considered the issue relating enforcement and monitoring mechanism to control and regulate illegal sand mining (including riverbed sand mining) activities.

And whereas, with direction to strictly follow the "Sustainable Sand Mining and Management Guidelines-2016 (SSMG-2016) and "Enforcement of Monitoring Guidelines of Sand Mining-2020" (EMGSM-2020) the Hon'ble NGT, by the said order has accepted the report of the Central Pollution Control Board (CPCB) and has directed that the scale of compensation calculated with reference to Approach-2 be adopted by all the States and/UTs.

And whereas, in the said order the Hon'ble Tribunal has analyzed the report of the Expert Committee constituted by CPCB and has discussed two approaches viz. Approach-1- Direct Compensation based on the market value of extraction adjusted for ecological damages and Approach-2 – Computing a simplified NPV: Net Present Value (after netting out market value of illegally mined material i.e. Total Compensation to be levied) for ecological damages as per the mathematical presentation of Approach-2 , $NPV = PV - D$ where 'PV' is being Present Value of Foregone Ecological Values and 'D' is being Market Value of Illegally Mined Material.

Now, therefore the State Government do hereby order as follows:

- i. Adoption of the Approach-2 for fixation of the scale of compensation regime for illegal mining of sand towards environmental and ecological damages as per CPCB. Compensation amount on illegally mined sand is to be fixed at 3.33 times of the market value.



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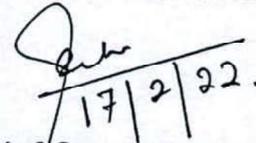
- ii. In order to facilitate such determination of compensation charge the market value of sand is to be fixed by a District Level Committee constituted under the Chairmanship of District Collector as below ..

Collector	... Chairman
ADM (Revenue)	... Member Convener
District Forest Officer	... Member
Suptd. Engineer/Executive Engineer, PWD	... Member
Suptd. Engineer/Executive Engineer, Irrigation	...Member
Suptd. Engineer/Executive Engineer, RD	...Member
Mining Officer/ Deputy Director (Mines)	...Member

The Committee shall decide market value of sand per cubic metre for the district on annual basis. While fixing the market value the Committee shall take into account the royalty and additional charge from sand in respect of different sources.

- iii. Compensation amount so collected from the illegal sand mining shall be deposited in 'Interest' bearing bank account opened separately by Forest, Environment and Climate Change Department named 'Environment Compensation' bearing Account No. 06640110075074, IFSC-UCBA0000664, MICR Code-751028004, Forest, Environment & Climate Change, Government of Odisha-751001 to utilize the amount for restoration of environment by preparing action.

By order of the Governor,


17/2/22.

Additional Chief Secretary to Government

Memo No. 5158

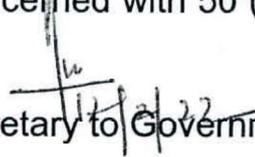
/RDM Dated

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17 FEB 2022

Copy along with soft copy forwarded to Odisha Gazette Cell-in-Charge, Odisha Gazette Cell, Commerce & Transport (Commerce) Department for information and necessary action.

They are requested to publish the Notification in the next Extra-ordinary issue of the Odisha Gazette and supply copies to all concerned with 50 (fifty) spare copies to this Department.


Joint Secretary to Government

Memo No. 5159

/RDM Dated

17 FEB 2022

Copy forwarded to Principal Secretary to Chief Minister, Odisha/ P.S to Minister, Revenue and DM for kind information of Hon'ble Chief Minister and Hon'ble Minister, Revenue and DM respectively.

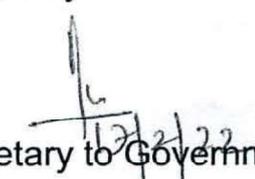

Joint Secretary to Government

Memo No. 5160

/RDM Dated

17 FEB 2022

Copy forwarded to OSD-cum-Special Secretary to Chief Secretary, Odisha/ P.S to Addl. Chief Secretary, Revenue and DM Department for kind information Chief Secretary/ Addl. Chief Secretary respectively.

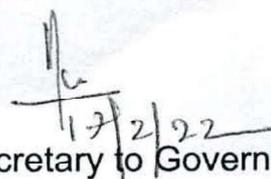

Joint Secretary to Government

Memo No. 5161

/RDM Dated

17 FEB 2022

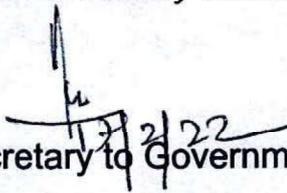
Copy forwarded to Forest, Environment & Climate Change Department/ Steel & Mines Department / Member, Board of Revenue, Odisha, Cuttack/ Revenue Divisional Commissioner (CD), Cuttack/ Revenue Divisional Commissioner (SD), Berhampur/ Revenue Divisional Commissioner (ND), Sambalpur/ Director of Mines, Odisha/ Director of Geology, Odisha/ Director of Minor Minerals, Odisha/ Chairman, SEIAA/ Member Secretary, State Pollution Control Board, Odisha / all Collectors & District Magistrates for information and necessary action.


Joint Secretary to Government

Memo No. 5162

/RDM Dated 18th FEB 2022

Copy forwarded to Officer on Special Duty (in charge of e- Governance Cell) of Revenue and DM Department for information and necessary action.


Joint Secretary to Government

Dr. B. M.