

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

ORIGINAL APPLICATION NO. 175/2018

(EARLIER O.A. NO. 125/2017 (SZ))

with **EA NO 857 of 2018**

IN THE MATTER OF:

Jammula Chhoudaraiah

...Applicant

Versus

Union of India & Others

...Respondents

DISPOSED OF ON 02.12.2021

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Dated: 19.10.23

Filed by
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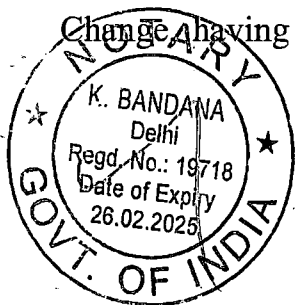
...Respondents

DISPOSED OF ON 02.12.2021

PARTIAL COMPLIANCE AFFIDAVIT ON BEHALF OF MINISTRY
OF ENVIRONMENT, FOREST AND CLIMATE CHANGE i.e.
RESPONDENT NO.1

MOST RESPECTFULLY SHOWETH:

I, Saurabh Upadhyay S/o Sh. R.K. Upadhyay aged about 38 years,
working as Scientist 'C' in the Ministry of Environment, Forest and Climate
Change, having an office located at 2nd Floor, Vayu Block, Indira Paryavaran



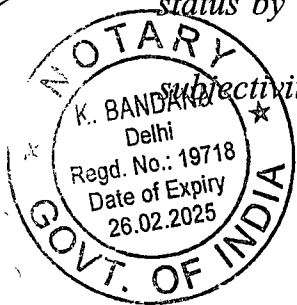
Bhawan, Jor Bagh Road, Aliganj, New Delhi-03, do hereby solemnly affirm on oath and state as under:

1. It is submitted that I am working as Scientist 'C' in the Ministry of Environment, Forest and Climate Change and as such am well acquainted with the facts and circumstances of the case on the basis of the records available in my office and am thus duly authorized to file this Affidavit on behalf of the Respondent No. 1 herein, i.e. the Ministry of Environment, Forest & Climate Change (hereinafter referred as 'MoEF&CC'). Specifically admitted hereunder:

2. That the present affidavit is filed in pursuance to the order of this Hon'ble Tribunal dated 02.12.2021, wherein the Hon'ble Tribunal directed to file a compliance report. The operative extract of the order is reproduced below:

"vi. ...MoEF&CC shall constitute a specialized Committee to determine appropriate methodology for assessment of Environmental Compensation for loss/damage/degradation to environment, considering all relevant aspects of the matter including observations made here in above and the principles suggested. The said methodology shall be given statutory status by taking appropriate action by MoEF&CC so that the element of

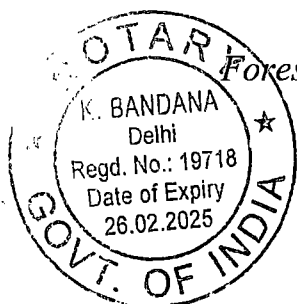
subjectivity in the matter of determination of Environmental



Compensation may be eliminated or at least negated and a uniform approach is observed by Statutory Regulators in discharge of their statutory duties...”

3. It is submitted that to ensure compliance of order dated 02.12.2021 passed by the Hon'ble Tribunal, the matter was taken up before the EAC (River Valley and Hydroelectric Projects) in its 32nd Meeting held on 12.08.2022 wherein action points for compliance were discussed and after a detailed deliberation, points for terms of reference were deduced. The view of the EAC is reproduced hereunder:

“The EAC after detailed deliberations was of the view that the aspects covered by the Hon'ble Tribunal are very exhaustive and self-explanatory. The EAC further opined that solely relying upon the data provided by the PP without having any physical verification of project site particularly in the case of river valley projects may encourage the project proponent to deviate from the environmental obligations with respect to Environmental Clearance. So, a line of authentication from the respective State Pollution Control Board may be obtained in a step-wise manner i.e., before submitting the proposal for grant of ToR/Environmental Clearance and at the time of submission of Stage-I Forest Clearance (if applicable) after recommendation of the EAC, that



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no activities have been started at site other than the activities permitted by the MoEF&CC to facilitate the EIA study. The verification report should not be older than 15 days. It is essential to have a robust mechanism to restrict the activities which are not permissible without prior Environmental Clearance under the provisions of the EIA Notification, 2006, as amended."

The copy of the Minutes of the meeting dated 12.08.2022 is annexed as **Annexure I.**

4. That in pursuance of the final order dated 02.12.2021 passed by this Hon'ble Tribunal in the present matter, the MoEF&CC, vide Office Order dated 22.11.2022 constituted the Expert Committee (hereinafter referred to as Committee) to determine the appropriate methodology for assessment of Environmental compensation for loss/damage/degradation to environment.

The copy of the Office Order dated 22.11.2022 is annexed as **Annexure II.**

5. It is submitted that so far five meetings of the Committee on Environment Damage Cost Assessment (EDCA), constituted in compliance of the final order dated 02.12.2021 passed by the Hon'ble Tribunal, have been held



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on 12.12.2022, 17.01.2023, 28.02.2023, 03.04.2023 and 25.07.2023 respectively.

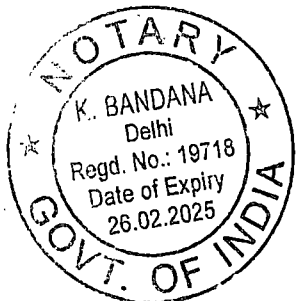
Copies of the minutes of the above-said meetings are annexed as **Annexure III, IV, V, VI and VII** respectively.

6. That there had been significant progress in the matter, however the need for inter-alia additional detailed technical deliberations for conclusion on various formulas, other related monetary values associated with various environmental parameters, etc. was felt for the finalization of draft EDCA report. Accordingly, approval of competent authority has been obtained for the extension of the tenure of the committee till 30th November, 2023 for submission of draft EDCA report and completion of tasks assigned as per ToR by 15th January, 2023.

7. That the MoEF&CC has taken necessary steps to implement the order passed by the Hon'ble Tribunal and the delay is due to reasons mentioned above and the same is neither intentional nor deliberate.

8. It is further submitted that the MoEF&CC shall adopt this same affidavit in other Original Applications (OAs) namely OA No. 350 of 2018, Review Application No. 46 of 2019 in OA No. 48/2019, and OA No. 857 of 2018.

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9. It is submitted that the present partial compliance affidavit may kindly be taken on record and into consideration and the Hon'ble Tribunal may pass appropriate Order(s), direction(s) as deemed fit and proper under the facts and circumstances of the present case.

DEPONENT
(Dr. SAURABH UPADHYAY)
वैज्ञानिक 'सी' /Scientist 'C'
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
Min. of Environment, Forest and Climate Change
भारत सरकार, नई दिल्ली
Govt. of India, New Delhi

K. Bandana
IDENTIFIED

VERIFICATION
NOTARY
K. BANDANA
Delhi
Regd. No.: 19718
Date of Expiry
26.02.2025
GOVT. OF INDIA

Verified at New Delhi on this 13th day of Oct 2023 that the contents of this affidavit based on official record(s) maintained and information available in the office are true and correct; no part of it is false and nothing has been concealed there from.

13/10/2023

DEPONENT

NOTARY
K. BANDANA
Delhi
Regd. No.: 19718
Date of Expiry
26.02.2025
GOVT. OF INDIA

(डा. सौरभ उपाध्याय)
(Dr. SAURABH UPADHYAY)
वैज्ञानिक 'सी' /Scientist 'C'
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
Min. of Environment, Forest and Climate Change
भारत सरकार, नई दिल्ली
Govt. of India, New Delhi

EMPOWERED TO ADMINISTER THE OATH
SECTION 139 OF CPC 1908
SECTION 297 OF CRPC 1973
DELHI HIGH COURT RULES 1967
PART-6, CHAPTER XVILL-227
EVIDENCE BY AFFIDAVIT BEFORE NOTAR
SUPREME COURT RULES, 2013
ORDER-X-7

ATTESTED
NOTARY PUBLIC DELHI
GOVT. OF INDIA
Mob.: 9654768498

MINUTES OF THE 32nd MEETING OF THE EXPERT APPRAISAL COMMITTEE (EAC) ON ENVIRONMENTAL IMPACT ASSESSMENT (EIA) OF RIVER VALLEY AND HYDROELECTRIC PROJECTS HELD ON 12th AUGUST, 2022

The 32nd Meeting of the EAC (River Valley and Hydroelectric Projects) organized by the Ministry of Environment, Forest & Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi was held on 12th August, 2022 through video conference under the Chairmanship of Dr. K. Gopakumar. The list of Members participated in the meeting is at **Annexure**.

Agenda Item No. 32.1:

Confirmation of the Minutes of the 31st EAC meeting

The Minutes of the 31st EAC (River Valley and Hydroelectric Projects) meeting held on 29th July, 2022 were confirmed.

Agenda Item No. 32.2:

Shongtong-Karcham (402 MW) Hydroelectric Power Project in District Kinnaur of Himachal Pradesh by M/s Shongtong Karcham Hydro Electric Project, HPPCL – Amendment in Environmental Clearance (EC) - reg.

[Proposal No. IA/HP/RIV/276332/2022; F. No. J-12011/58/2007-IA-I (R)]

32.2.1 The project proponent vide email dated 9th August, 2022 has informed that they will not attend the meeting due unavoidable circumstances and requested to reschedule their case in next EAC meeting.

The EAC therefore **deferred** the proposal.

Agenda Item No. 32.3:

Kurha Vadhoda Islampur Lift Irrigation Scheme UPSA Sinchan Yojna with CCA 32372 Ha at Village Rigaon, Tehsil Muktainagar District Jalgaon (Maharashtra) by M/s Tapi Irrigation Development Corporation, Jalgaon, Maharashtra - Site Visit Report - reg.

[IA/MH/RIV/255427/2022; F. No. J-12011/05/2021-IA. I(R)]

The EAC noted that the proposal has already considered by the EAC in its meeting held on 29th July, 2022. Wherein, the EAC recommended the proposal for grant of Standard ToR with public consultation (without public hearing) for conducting EIA study for conducting EIA study to the project for Kurha Vadhoda Islampur Lift Irrigation Scheme UPSA Sinchan Yojna with CCA 32372 Ha at Village Rigaon, Tehsil Muktainagar District Jalgaon (Maharashtra) by M/s Tapi Irrigation Development Corporation, Jalgaon, Maharashtra.

Agenda Item No. 32.4:

Teesta Low Dam – I & II (Combined) Hydro-Electric Project 71 MW (2x30+1x11MW) in an area of 170 ha in Triveni town, Tehsil Rangli Rangliot, District Darjeeling, West Bengal by M/s West Bengal State Electricity Distribution Company Limited – Reconsideration for grant of Terms of Reference - reg.

[Proposal No. IA/WB/RIV/219929/2021; F. No. J-12011/11/2021-IA.I (R)]

The EAC noted that the proposal was considered by the EAC in its meeting held on 29th July, 2022. Wherein the EAC after detailed deliberations on the sub-committee report found the project not suitable for implementation at the proposed site as far as ecological point of view and Environmental Cost Benefit of the project. Accordingly, the project was **not recommended** by the EAC for grant of ToR.

Agenda Item No. 32.5:

Basin Wise Reassessment of Hydroelectric Potential in the Country - Submission of draft report of West Flowing Rivers Basin – reg.

[E-Office No. 150110; F. No. J-12011/25/2018-IA.I(R)]

The Member Secretary informed the Committee that the Hydro Electric Potential Reassessment Division (HEPRD), CEA, MoP has forwarded the draft Report of Reassessment of Hydroelectric Potential of Brahmaputra River Basin for comments of the MoEF&CC.

Based on examination in the Ministry, it has been decided that it would be appropriate to discuss the draft report in the EAC meeting and then finalize the comments as per recommendation of the EAC.

The EAC during examination noted the following:

The first systematic hydroelectric potential Survey of India was undertaken by erstwhile Central Water & Power Commission (CW& PC) during 1953-59. According to this survey, Hydroelectric potential of the country was assessed as about 42 Million kW from a total of about 250 Projects. Subsequently, the studies for Reassessment of Hydroelectric Potential (1978-87) were undertaken by Central Electricity Authority (CEA). As per the Reassessment study completed by Central Electricity Authority (CEA) in 1987, the Hydroelectric Power Potential of the country was estimated as about 84 million KW at 60% load factor (with probable installed capacity of

1,48,701 MW) from a total of 845 nos. projects. The above comprised 592 Hydroelectric Projects (above 25 MW) aggregating to installed capacity of 145320 MW.

Brahmaputra Basin:

The Brahmaputra Basin lies between East Longitudes 82°-0' to 97°-50' and North Latitude 22°-10' to 31°-30' and is bounded on the North and West by high ranges of Himalayas, on the east by the Patkai range of Purvanchal hills running along Assam-Myanmar border and by the Khasi and Jaintia ranges of Assam hills on the south. The Brahmaputra Basin has been divided into Twelve (12) sub basins namely Lohit, Subansiri, Dibang, Dihang, Dikrong, Kameng, Upper Brahmaputra, Lower Brahmaputra, Kalang (Kopili), Teesta, Tawang and Barak.

Hydroelectric Projects in Brahmaputra Basin having Environmental/ Forest Issues:

In Brahmaputra River System, out of 246 nos. of projects, 26 nos. of projects are under Operation, 9 no. of project is under Construction, 25 no. of project is under Concurred stage. Remaining 185 nos. of projects are under various categories viz. DPR Returned for Re-submission, S&I, PFR and Balance Projects. Out of these 185 no. of projects, 16 nos. of projects are having Environmental & Forest issues, 1 nos. of project dropped due to MOEF&CC free stretch guidelines.

The EAC deliberated on the contents of Chapter 4 - Environmental Aspects in the report and observed following:

S. No.	Content of Chapter 4 - Environmental Aspects	Comments of the EAC
1.	The list of the protected areas in Brahmaputra River Basin and status of their Eco-Sensitive Zone given in Table-4.1	The status of ESZ Notification should be mentioned where it is not given.
2.	ASSESSMENT OF PROJECTS : Based on the proximity of the projects with respect to boundaries of ecologically sensitive areas, the project	The proposed project components (such as power house, dam/barrage , HRT, TRT etc.) distance from ESZ area/Protected areas to be mentioned in Remarks/Recommendation

	wise recommendations in Table 4.2, 4.3, 4.4,4.5, 4.7, 4.8, 4.9, 4.11, 4.15	column or add separate column for project components distance from ESZ/Protected areas.
3.	Details of Fish species in Brahmaputra river basin and its tributaries enlisted in Table-4.22	Details of fish species mentioned in the report are based on old literature review. The same may be re-examined and updated as per the data of CIFRI.

The EAC has also suggested that the said report may be finalized/accepted by CEA considering the aspects related to Cascade development/ longitudinal distance/E-Flow and also keeping in view of prevailing norms and guidelines on Environmental/Ecological Sensitive Zone, National Park/Wildlife Corridor/ landslide Vulnerable zone for planning of HEPs in the river basin.

Agenda Item No. 32.6:

Review meeting for proposal of Three Tier Monitoring Mechanism.

[E-Office No. 149523; F. No. J-11013/40/2020-IA.I(M) Pt.I]

The Member Secretary informed the EAC that Hon'ble National Green Tribunal while hearing the matter under OA No. 175/2018 titled as Jammula Chhoudaraiah vs. Union of India and others tagged along with other three matters on 2nd December, 2021, has directed to determine appropriate methodology for assessment of Environmental Compensation for loss/damage/degradation to environment.

Background:

In these matters, complaints raised by applicants are that, "lift irrigation schemes" have been launched, some are executed and even completed during pendency of matter, without complying mandatory provisions of environmental laws relating to Environmental Clearance, consent to establish and consent to operate. The schemes were commissioned without preparation of scheme for scientific treatment of various components of environment like soil, water, air etc. There was no assessment of impact on environment resulting in execution of these projects, not only illegally but causing serious degradation and damage to environment.

The current situation in the present matters is that two projects have already been completed i.e., Purushothapatnam LIS, Pattiseema LIS. The third project i.e., Chintalapudi LIS is more than half complete and still in progress. The last project i.e., KGPR Linking Project is in the process of proposal and yet to commence. All these projects apparently, since relate to irrigation besides other, one of the biggest losses suffered is destruction of huge fertile soil of a very high magnitude including topsoil. Also, there is huge extraction of sand from riverbed and river banks. Huge quantity of topsoil, sand and rocks excavated and due to unscientific management, has been dumped without taking any

requisite precautions, causing damage to environment. Secondly, there is flagrant violation of compliance of mandatory statutory laws with regard to EC by undergoing process provided in EIA 2006, and laws relating to consent from State PCB.

The matter got disposed of vide **order dated 02.12.2021** wherein the Hon'ble Tribunal imposed environmental compensation on all the concerned project authorities and directed to formulate an Oversight Committee comprising of MoEF&CC, CPCB and APPCB, the nodal agency shall be APPCB and CPCB. Further, the MoEF&CC was directed to constitute a specialized Committee to determine appropriate methodology for assessment of Environmental Compensation for loss/damage/degradation to environment. The operative extract is reproduced below:

“MoEF&CC shall constitute a specialized Committee to determine appropriate methodology for assessment of Environmental Compensation for loss/damage/degradation to environment, considering all relevant aspects of the matter including observations made here in above and the principles suggested. The said methodology shall be given statutory status by taking appropriate action by MoEF&CC so that the element of subjectivity in the matter of determination of Environmental Compensation may be eliminated or at least negated and a uniform approach is observed by Statutory Regulators in discharge of their statutory duties.”

Accordingly, the directions of Hon'ble Tribunal were processed in the Ministry and it was decided to include this issue in the agenda of the meeting held on 17.06.2021 to discuss the various methods adopted for calculation of Environmental damage & remediation due to violation of Environmental norms. The matter was discussed in the aforesaid meeting and it was inter-alia decided:

“..... vi. A specialized committee may be formed comprising NEERI, CPCB, an outside violation expert with a member secretary from MoEF&CC to develop appropriate methodology for assessment of Environmental Compensation for loss/damage/degradation to environment as per Hon'ble NGT (Principal Bench) at New Delhi direction dated 02.12.2021 in OA No. 175 Of 2018. The Committee shall work on transforming the methodology into national statutory policy so that the element of subjectivity in the matter of determination of Environmental Compensation/ EDCA may be eliminated or at least negated and a uniform approach is observed by Statutory Regulators as observed by NGT.

vii. Inflation index, Exchange rate, purchasing power parity, site specific conditions shall also be incorporated while developing the formula for environment damage cost assessment.

viii. CPCB shall share case studies regarding environment damage cost assessment with MoEF&CC for further deliberation as part of the new Committee to be constituted for the purpose..... ”

In view of above, following are the relevant aspects/observations suggested by the Hon'ble Tribunal to be considered by the Specialized Committee in order to determine appropriate

methodology for assessment of Environmental Compensation for loss/damage/degradation to environment:

- i. The **objective of environmental compensation** is that not only the loss and damage already caused, is made to recover and restore but also in future, the said violator may not repeat the kind of violation already committed and others also have a fear of not doing the same else similar liability may be enforced upon them. Unless amount of compensation is more than maximum permissible profit arising from violation, the purpose of environmental compensation would always stand defeated.
- ii. When environmental compensation is to be determined, it is not only the cost of material lost or illegally extracted which has to be determined but it is damage to the environment due to *excavation of huge quantity of material including top soil and damaging the area by removing and disposing unscientifically, and cost likely to be incurred in remediation*, which has to be determined. Further *pollution caused to water and air* also to the extent possible, must be remediated and its cost would also form part of environmental compensation. Some damage to environment is irreversible. Execution of projects illegally i.e., without having EC under EIA 2006, without consent to establish and to operate, without clearance from other authorities is another aspect to contribute its share in computation of compensation.
- iii. Determination of **nature of cases** involving violation of environmental laws
- iv. Another relevant aspect is whether damage to environment is *irreversible, permanent* or is capable of wholly or partially restoration/remediation.
- v. Assessment of environmental compensation must, not only conform the requirement of restoration/remediation but should also take care of damage caused to the environment, to the community, if any, and should also be preventive, deterrent and to some extent, must have an element of "being punitive". The end goal is not only to achieve restoration/remediation or to mitigate damage/loss to environment, but also to discourage people/proponents from indulging in the activities or carrying out their affairs in such a manner so as to cause damage/loss to environment.
- vi. To impose appropriate 'environmental compensation' for causing harm to environment, it is significant to understand the kind and nature of '**Harmness cost**'. This includes risk assessment. The concept of risk assessment will include human health risk assessment and ecological risk assessment.
 - I. For the purpose of *human-health risk assessment*, it comprised of three broad steps, namely, planning and problem formulation; effects and exposure assessment and risk categorization. The first part involves participation of stakeholders and others to get input; in the second aspect health effect of hazardous substances as well as likelihood and level of exposure to the pollutant are examined and the third step involves integration of effects and exposure assessment to determine risk.
 - II. Similarly, *ecological risk assessment* is an approach to determine risk of environmental harm by human activities. Here also we can find answer following three major steps, i.e., problem codification; analysis of exposure and risk characterization.
 - First part encompasses identification of risk and what needs to be protected.

- Second step insists upon crystallization of factors that are exposed, degree to exposure and whether exposure is likely or not to cause adverse ecological effects.
 - Third step is comprised of two components, i.e., risk assessment and risk description.
- vii. The **element of economic benefit to company** resulting from violation is also an important aspect to be considered, otherwise observations of Supreme Court that the amount of environmental compensation must be deterrent, will become obliterated.
- viii. Determination should be a **quantitative estimation**; the amount must be deterrent to polluter/violator and though there is some element of subjectivity but broadly assessment/computation must be founded on objective considerations. Appropriate compensation must be determined to cover not only the aspect of violation of law on the part of polluter/violator but also damage to the environment, its remediation/restoration, loss to the community at large and other relevant factors like deterrence, element of penalty etc.
- ix. **Recommendations by CPCB** have not been given in the form of a binding statutory provision. It is also stated that some crucial relevant aspects requiring application of 'Polluters Pay', have not been considered by the CPCB. The CPCB has failed to consider that the purpose of determination/computation/assessment of environmental compensation and levy thereof, involve various factors like
- cost of damage to environment,
 - cost needed for restoration/remediation of damage caused to environment,
 - element of deterrent/provincial,
 - Liability arising for violation of statutory mandatory law relating to environment namely requirement of consent, EC and NOC etc.
- x. Compensation regime must be a **deterrent to violators and incentivize eco-friendly proponents**. No one should get profited by violating environmental laws and community should also not suffer for violation of environmental norms by defaulting proponents.
- xi. Though Tribunal said that determination of environment compensation is a dynamic concept and depends on variables, and also directed **CPCB to issue statutory directions** to all States/UT so that they may evolve appropriate mechanism for assessment, but nothing has been done in this regard till date.
- xii. In the case, where violation is multifarious and multicorned, it is always better to provide a **simple approach** of making assessment for damages particularly, when damage to environment is writ large.

Accordingly, following TOR points have been extracted from the directions passed by the Hon'ble Tribunal in the matter of OA no. 125 of 2017 titled as Shri Jammula Chhoudaraiah vs Union of India and others along with other three tagged matters:

- i. To determine appropriate methodology for assessment of Environmental Compensation for loss/damage/degradation to environment, considering all relevant aspects of the matter including observations made and the principles suggested by Hon'ble National Green

Tribunal, Southern Zone, Chennai, vide order dated 02.12.2021 in the matter of OA no. 125 of 2017 titled as Shri Jammula Chhoudaraiah vs Union of India and others along with other three tagged matters.

- ii. The said methodology shall eliminate or at least negate the element of subjectivity in the matter of determination of Environmental Compensation so that a uniform approach is observed by Statutory Regulators in discharge of their statutory duties.”
- iii. To develop a mechanism that can ascertain that no construction activity has been done on site prior to the grant of EC.
- iv. To determine the nature of cases involving violation of environmental laws.
- v. To determine whether damage to environment is irreversible, permanent or is capable of wholly or partially restoration/remediation.
- vi. To discourage people/proponents from carrying out activities that causes damage/loss to environment by confirming the assessment of environmental compensation being punitive in nature that may be more than the maximum permissible profit arising from violation.
- vii. To impose ‘Harmness cost’ that includes risk assessment. The concept of risk assessment will include human health risk assessment and ecological risk assessment.
- viii. To develop compensation regime that acts as a deterrent to violators and incentivize eco-friendly proponents. No one should get profited by violating environmental laws and community should also not suffer for violation of environmental norms by defaulting proponents.
- ix. damage to environment is massive.
- x. The assessment of Environmental Compensation for loss/damage/degradation to environment shall be given statutory status by taking appropriate action.

The EAC after detailed deliberations was of the view that the aspects covered by the Hon’ble Tribunal are very exhaustive and self-explanatory. The EAC further opined that solely relying upon the data provided by the PP without having any physical verification of project site particularly in the case of river valley projects may encourage the project proponent to deviate from the environmental obligations with respect to Environmental Clearance. So, a line of authentication from the respective State Pollution Control Board may be obtained in a step-wise manner i.e., before submitting the proposal for grant of ToR/Environmental Clearance and at the time of submission of Stage-I Forest Clearance (if applicable) after recommendation of the EAC, that no activities have been started at site other than the activities permitted by the MoEF&CC to facilitate the EIA study. The verification report should not be older than 15 days. It is essential to have a robust mechanism to restrict the activities which are not permissible without prior Environmental Clearance under the provisions of the EIA Notification, 2006, as amended.

ANNEXURE

ATTENDANCE

Sr. No.	Name & Address	Role	Attendance
1.	Dr. K. Gopakumar	Chairman	P
2.	Dr. Uday Kumar R.Y.	Member	P
3.	Dr. Mukesh Sharma	Member	P
4.	Shri Rajeev Varshney	Member	P
5.	Shri Yogendra Pal Singh	Member Secretary	P

True copy

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16

APPROVAL OF THE CHAIRMAN

From: kgopa@iisc.ac.in

To: "Yogendra Pal Singh" <yogendra78@nic.in>

Cc: "Saurabh Upadhyay" <saurabh.upadhyay85@gov.in>, "Sourabh Kumar" <sourabh.9@govcontractor.in>

Sent: Tuesday, September 6, 2022 6:27:46 PM

Subject: Re: Draft MOM of the 32nd EAC meeting held on 12.08.2022 for perusal and comments-reg

Dear Yogendra

Yes I approve the MOM of the 32 nd EAC meeting.

With regards

Gopakumar

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File No. J-11013/40/2020.IA.I(M).Pt.1

Government of India
Ministry of Environment, Forest & Climate Change
Impact Assessment Division

Indira Paryavaran Bhavan,
 Jor Bagh Road, New Delhi-110 003

Dated: 22nd November, 2022**OFFICE ORDER**

Sub:- Constitution of the Committee on Environmental Damage Cost Assessment in compliance with Hon'ble NGT Order dated 02.12.2021 in the matter of OA No. 175 of 2018 titled as Jammula Chhoudaraiah Vs Union of India & Ors.-reg.

In pursuance to the Hon'ble National Green Tribunal (NGT), Principal Bench, New Delhi Order dated 02.12.2021 in the matter of OA No. 175 of 2018 titled as Jammula Chhoudaraiah Vs Union of India & Ors. tagged along with other three matters, the Government of India in the Ministry of Environment, Forest and Climate Change hereby constitutes the Expert Committee (hereinafter referred as the Committee) to determine appropriate methodology for assessment of Environmental Compensation for loss/damage/degradation to environment, with the following composition:

Sl. No.	Name & Organization	Position
1.	Shri K. Gowrappan, Expert in the Assessment of Violation & Compensation No. 6, Ganesh Avenue 2nd Street, Sakthi Nagar, Porur, Chennai, TN – 600 116	Chairman
2.	Nominee of NEERI, Expert in dealing with matter related to environmental damage cost assessment	Member
3.	Nominee of CPCB, Expert in dealing with matter related to Environmental Compensation	Member
4.	Dr Shruati Rai Bhardwaj, MoEF&CC	Member Secretary

2. The Terms of Reference (ToR) of the above committee shall be as follows:

Shruati

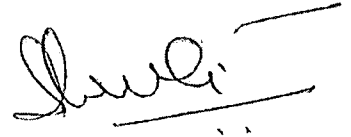
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- i. To determine appropriate methodology for assessment of Environmental Compensation for loss/damage/degradation to environment, considering all relevant aspects of the matter.
- ii. To ensure that the said methodology eliminates or at least negate the element of subjectivity in the matter of determination of Environmental Compensation.
- iii. Wherever possible an empirical formula shall be developed for damage cost assessment covering both the direct and indirect liabilities for scenarios including the following;
 - a. Violation/ Non-compliance of conditions of Environment Clearance/ Consent to Establish (CTE) and/or Consent to Operate (CTO) under Air and Water Act resulting into damage to Environment
 - b. Violation/ Non-compliance of conditions of Environment Clearance/ Consent to Establish (CTE) and/or Consent to Operate (CTO) under Air and Water Act not resulting into any damage to Environment
- iv. To evolve a mechanism which *inter-alia* is comprised of fixed penalty, assessment cost, environmental damage compensation cost and remediation/restoration cost for irreversible and reversible damages, in the overall Environmental/ecological Damage Cost Assessment.
- v. To determine the approach for identifying direct and indirect liabilities for environmental damage compensation cost for different case scenarios and associated compensation methodology.
- vi. Use of inflation index, exchange rate, purchasing power parity, site specific conditions while developing the formula for environment damage cost assessment.
- vii. To develop a methodology for assessing 'abatement cost' that may be more than the maximum profit arising from violation to discourage violation/non-compliance.
- viii. To utilize the concept of risk assessment which include risk to health and environment in setting remediation or restoration targets/levels.
- ix. To develop compensation regime that acts as a deterrent to violators and incentivize compliant proponents.
- x. To provide a simple approach of making assessment for damages particularly, when damage to environment is massive.
- xi. Approach/appropriate action for giving the statutory status to the assessment of Environmental Compensation for loss/ damage/ degradation to environment.



3. The committee may co-opt any expert as a member in a relevant field for particular meetings of the Committee with prior approval of the Ministry.
4. The Committee shall submit its report within four (4) months from the date of its constitution.
5. The tenure of the Committee shall be Six (6) months for finalization of the report.
6. **Reimbursement of TA/DA and Sitting fee-** Payment of TA/DA to the Chairman/members of the Committee/co-opted members for attending its meetings shall be governed as per the relevant government provisions under implementation in the Ministry.

This issues with the approval of the Competent Authority.



(Dr. Shruti Rai Bhardwaj)
Addl. Director/Scientist 'E'

Encl.: As above

To

- (i) Shri K. Gowrappan, No. 6, Ganesh Avenue 2nd Street, Sakthi Nagar, Porur, Chennai, TN – 600 116
- (ii) Director, National Environmental Engineering Research Institute, Nehru Marg, Nagpur 440020 (Maharashtra)
- (iii) Chairman, Central Pollution Control Board, Parivesh Bhawan, East Arjun Nagar, Delhi-110032

Copy for information to:

1. PS to Hon'ble Minister for Environment, Forest and Climate Change
2. PS to Hon'ble MoS. (EF&CC)
3. PPS to Secretary (EF&CC)
4. PPS to DGF&SS (EF&CC)
5. PPS to AS (TK)/PPS to JS(SKB)



PROCEEDINGS**First Meeting of the Committee on Environmental Damage Cost Assessment (EDCA) constituted in compliance with Hon'ble NGT Order dated 02.12.2021 in the matter of OA No. 175 of 2018 titled as Jammula Chhoudaraiah Vs Union of India & Ors.**

First meeting of the Committee on Environmental Damage Cost Assessment (EDCA) constituted in compliance with Hon'ble NGT Order dated 01.12.2021 in the matter of OA No. 175 of 2018 titled as Jammula Chhoudaraiah Vs Union of India & Ors. was held on **12.12.2022** at **11:30 hrs** in Teesta Hall, Indira Paryavaran Bhawan, MoEF&CC. The list of the participants is at **Annexure I**.

2. At the outset, **Dr. Shruti Rai Bhardwaj** extended warm welcome to the participants and shared a brief overview of the meeting. She informed that the objective of the meeting is to bring synergy amongst the existing guidelines/SoPs of CPCB, NEERI and violation sector of Ministry and develop a framework on EDCA which will be applicable nationwide. She further explained that the EDCA framework shall be a simplified exhaustive document that can be made implementable for all violation and non-compliance cases dealt by State as well as Central authority.
3. She informed about the meeting held under the chairmanship of **Shri Sujit Kumar Bajpayee, Joint Secretary** wherein, guidelines prepared by CPCB and NEERI were discussed in detail and certain direction were given.
4. This was followed by a presentation from NEERI and CPCB whose guidelines on EDCA are being referred for various non-compliance/violation cases.
5. The highlights of **NEERI's** presentation are as given below (**Annexure II**):
 - i. There are three basic considerations while calculating EDCA includes: Penalty, Impact assessment (to be verified on ground) and remediation cost (to be calculated once impact has been identified)
 - ii. NEERI has so far carried out studies for valuation of impacts occurred at different instances
 - iii. Pollutant Identification Methods/Impact valuation methods using LCA (Life Cycle Assessment) & EIA (Environmental Impact Assessment) along with other methods to analyse the impacts on physical, chemical and biological environments. Further economic methods are used to quantify the impacts in terms of monetary value.
 - iv. There have been identified 6 impact drivers as: GHGs, Solid Waste, Air Pollution, Biodiversity, Water & Wastewater pollution & Land Degradation which may lead to environmental pollution and shall be economically evaluated for environmental damage cost assessment.
 - v. Various valuation methods e.g. Hedonic Pricing method, Implicit Price method, Internal carbon Fee method, Contingent valuation method & Travel Cost Method etc. were advised for calculation of different impact drivers as given above.

- vi. Damage cost estimations carried out by European countries and UN have been referred and exchange rates/PPP have been applied to establish probable damage due to heavy metals release.
6. The highlights of **CPCB's** presentation are as given below (**Annexure III**) –
- i. CPCB presented standard formula evolved by them that is used for assessment of non-compliance by industrial units as:

EC=PI x N x R x S x LF

Where, EC - environmental compensation;
 PI - pollution index of an industry;
 N - number of days of violation took place;
 R - a factor (between 100 to 500) in Rupees for EC;
 S - the factor for scale of unit and
 LF - the location or receptor sensitivity factor
 - ii. Environmental compensation may contain two parts – one requires providing immediate relief and other long-term measures such as remediation.
 - iii. In all these cases, detailed investigations (field investigations and modelling parameters) are required from expert institutions/organizations based on which environmental compensation will be decided.
 - iv. The scope of this activity is to calculate EDCA based on investigations of environmental damages, industrial inspection, preparation of Detailed project reports, field investigations and modelling parameters.
7. Some of the major highlights of draft Guidelines for 'Environmental Damage Assessment Cost for Violation Cases submitted under The Ministry's Notification No. S.O 804 (E) Dated 14.03.2017' brought out by the Committee constituted by **IA (Violation)** were shared by the chairman of the committee who was instrumental in formalization of the guidelines.
8. Some of the major part of **deliberations** are as cited below:
- 1) The Committee deliberated the components and their values taken in the above formula and suggested that the same need to be revisited for EDCA.
 - 2) The committee also suggested for further detailed deliberation for inclusion of the following in EDCA:
 - i. Remediation Cost
 - ii. Compensation to curb ecological risk
 - iii. Cost to compensate soil and land degradation
 - iv. Cost to mitigate air and water pollution
 - 3) A simplified method for valuation of environmental compensation needs to be evolved with the help of software for example impact of air pollution can be identified by modelling air pollution from stack via AERMOD which will be

followed by identification of impacted zone and the population affected in the isopleth.

- 4) Parameters as Green House gases (GHG's) emission does not pose imminent danger to the environment. However, they result in long-term impacts on environment globally which can become one of the parameter while assessing environmental compensation. These should thus be included in the overall framework as some of the accidents and violations would lead to CO₂ and GHG release or reduced absorption.
9. **Chairman concluded** the meeting with following remarks:
- i. All scores including score for damage due to Air Pollution, score for damage caused due to water pollution and the score for hazardous waste generated shall be considered while calculating Pollution Index
 - ii. Formula prescribed by CPCB for non-compliance calculation and methodology suggested by NEERI shall be referred and further refined which can be used for EDCA.
 - iii. A defined matrix needs to be identified to evolve methodology for EDCA calculation that shall be inclusive of all the factors/parameters.
 - iv. All the background research papers, available data and the latest reports on damage assessment shall be shared amongst the committee members to delve into the available methodology.
 - v. A questionnaire shall be prepared by NEERI for all the sectors including all the parameters that need to be analysed for collection of data and calculation of damage cost. The data collected shall be compared with the available threshold values available with CPCB for simplification of cost assessment.
 - vi. Further deliberations are needed to decide whether the intangible parameters shall be included while assessing environmental damage or not.
 - vii. Detailed deliberation may be required on the mechanism for imposition of cost for remedial action and corrective measures.
 - viii. The timeline for the exercise shall be four months for formalization of the document and two months for its finalization.
 - ix. Next meeting of the committee shall be conducted on 17.01.2023, wherein progress done by the committee will be discussed. Meanwhile the committee member shall constantly engage in the discussion via different communication medium (email, whatsapp etc.).

The meeting ended with the vote of thanks to the Chair.

List of participants for the meeting of the committee on environmental damage cost assessment in compliance with Hon'ble NGT Order dated 01.12.2021

S. No.	Name	Designation
EDCA Committee Members		
1	Dr. Hemant Bherwani	Scientist NEERI
2	Mr. K. Gowrappan	
3	Mr. B. Vinod Babu	CPCB
4	Dr. Shruti Rai Bhardwaj	Additional Director
Officials of Monitoring Cell		
5	Mr. Ritin Raj	Research Assistant
6	Dr. Pinky Taneja	Consultant
7	Vinay Rana	ASO

*****End of Document*****



PROCEEDINGS

Second Meeting of the Committee on Environmental Damage Cost Assessment (EDCA) constituted in compliance with Hon'ble NGT Order dated 02.12.2021 in the matter of OA No. 175 of 2018 titled as Jammula Chhoudaraiah Vs Union of India & Ors.

Second meeting of the Committee on Environmental Damage Cost Assessment (EDCA) constituted in compliance with Hon'ble NGT Order dated 01.12.2021 in the matter of OA No. 175 of 2018 titled as Jammula Chhoudaraiah Vs Union of India & Ors. was held on **17.01.2023** at **15:00 hrs** in Teesta Hall, Indira Paryavaran Bhawan, MoEF&CC. The list of the participants is at **Annexure I**.

2. At the outset, **Chairman** extended welcome to the participants.

3. **Dr. Shruti Rai Bhardwaj** gave the brief overview of the discussion and recommendation of committee held in the last meeting on 12.12.2022. She emphasized that the committee shall prepare zero draft of the envisaged documents in the instant meeting.

4. This was followed by a presentation from Chairman of the Committee. The highlights of the presentation are as given below (**Annexure II**):
 - i. The conditions mentioned in CTE/CTO of Red and Orange category of industries as per the categorization of CPCB will be segregated with respect to their impact, if any, on environment. The conditions which has no impact on environment will not be considered for evaluation of EDCA.
 - ii. The conditions which has impact on Environment will be segregated into the following Major Categories: Air, Water, Soil, Solid Waste, Hazardous Waste, Biodiversity, Heavy Metal.
 - iii. The committee will utilise the Optimized conditions for EDCA that has already been compiled by NEERI.
 - iv. The committee will consider the various data available with NSSO, CPCB, SPCB and any recognised authority for estimation of Environmental Damage.
 - v. Available data will be integrated in various guidelines as USEPA, TEEB, EU 28 etc. for Indian context.

5. In reference to above, **Dr. Shruti Rai Bhardwaj** clarified that since the present exercise is to determine the environmental damage with respect to non-compliance/violation of EC conditions of project/activities which are listed under EIA Notification shall be taken into consideration as per schedule of the EIA Notification 2006, which enlist 39 items. This was agreed by the Chairman of the Committee.

6. Based on the deliberations held during the meeting following **recommendations** were made by the Chairman:

i. Meta-analysis of all the available studies shall be carried out by NEERI for calculation and assessment of the damage costs by using Purchasing Power Parity (PPP) index.

ii. Environmental Damage cost for different parameters shall be estimated as follows:

Air:

For calculation of environmental damage due to non-compliance of the conditions related to Air pollution, the data of all the available studies of Public health, Mortality, Morbidity may be taken into consideration by meta-analysis of all the available studies and cost arrived at for different parameters.

Water:

CPCB has already assessed environmental damages for specific case studies, already considering Avoidance method + externalities for calculation of environmental damage due to non-compliance of the conditions related to water, the same shall be modified along with check list of the parameters and their methodology.

Soil:

Meta-analysis of pollutants specific to general parameters of soil, metal analysis and pesticide leaching to the lower layer of the soil may be considered. Loss of nutrients quantified by a research from TERI and University of Delhi shall be utilized by Direct Transfer Method.

Solid waste management:

Avoidance cost method of CPCB Guidelines with suitable modifications + Externalities

Hazardous waste:

Avoidance cost + externalities of CPCB

Biodiversity:

Loss of ecology and biodiversity may be very difficult to assess as very limited studies are available world-wide. Therefore, only deterrent cost may be considered w.r.t to loss of ecology and biodiversity.

Externalities:

Externalities may include Damage cost for different parameters. In case of soil and groundwater contamination, externalities may include estimated cost of assessment and remediation arrived based on specific site assessment studies. Such estimates can be derived based on Direct transfer method for the studies already carried out in the country.

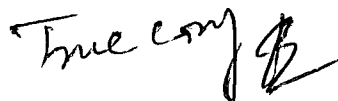
- iii. A checklist needs to be prepared by CPCB for secondary impacts of air, water etc.
- iv. Zero draft of the EDCA document (compiling all the information available with NEERI & CPCB) shall be discussed in the next meeting.
- v. Next meeting of the committee shall be conducted in fourth week of February, wherein progress done by the committee will be discussed. Meanwhile the committee members shall constantly engage in the discussion via different communication medium (email, whatsapp etc.).

The meeting ended with the vote of thanks to the Chair.

List of participants for the second meeting of the committee on environmental damage cost assessment in compliance with Hon'ble NGT Order dated 01.12.2021

S. No.	Name	Designation
EDCA Committee Members		
1	Dr. Hemant Bherwani	Scientist NEERI
2	Mr. K. Gowrappan	
3	Mr. B. Vinod Babu	CPCB
4	Dr. Shruti Rai Bhardwaj	Additional Director
5	Srishti Singh	Consultant, CPCB
Officials of Monitoring Cell		
5	Mr. Ritin Raj	Research Assistant
6	Dr. Pinky Taneja	Consultant
7	Vinay Rana	ASO

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PROCEEDINGS**Review Meeting of the Committee on Environmental Damage Cost Assessment (EDCA) constituted in compliance with Hon'ble NGT Order dated 02.12.2021 in the matter of OA No. 175 of 2018 titled as Jammula Chhoudaraiah Vs Union of India & Ors.**

Review meeting of the Committee on Environmental Damage Cost Assessment (EDCA) constituted in compliance with Hon'ble NGT Order dated 01.12.2021 in the matter of OA No. 175 of 2018 titled as Jammula Chhoudaraiah Vs Union of India & Ors. was held on **28.02.2023** at **15:00 hrs** under the Chairmanship of **Mr. K. Gowrappan, Chairman, EDCA Committee** in Teesta Hall, Indira Paryavaran Bhawan, MoEF&CC. The meeting was Co-chaired by **Sh. Sujit Kumar Bajpayee, Joint Secretary, MoEFCC** and was attended by other officials of IA Division. The list of the participants is at **Annexure I**.

2. At the outset, **Chairman** extended warm welcome to the participants.
3. **Dr. Shruti Rai Bhardwaj** presented the brief overview of the discussion and recommendations of committee held in the last meetings on 12.12.2022 and 17.01.2023. She elaborated on the agenda of the meeting and presented different scenarios based on which damage assessment shall be carried out (**Annexure II**).
4. This was followed by a presentation on meta-analysis undertaken by CSIR-NEERI. The highlights of the presentation are as given below (**Annexure III**):
 - i. There are different impact valuation methods as Life Cycle Assessment and Environmental Impact Assessment which can be used to analyse impacts on physical, chemical and biological environments along with economic methods to quantify the impacts.
 - ii. For identification of impacts on ecosystem services both The Economics of Ecosystem & Biodiversity (TEEB) and Millennium Ecosystem Assessment (MEA) has provided guidelines to account impacts on biodiversity.
 - iii. There have been different valuation strategies suggested by TEEB as market price method, productivity method, hedonic pricing method, travel cost method, damage cost avoided replacement cost and substitute cost method, contingent valuation method, contingent choice method and benefit transfer method.
 - iv. The environmental damage cost (EDC) has been divided into 3 components as: Penalty Cost (PC), Damage cost (DC) and Restoration cost (RC) providing, **EDC=PC+DC+RC**
 - v. The monetary burden associated with health risk was evaluated using the Value of Statistical Life approach.
 - vi. The damage cost from various research studies was analysed and the cost was converted in Indian Rupee per ton using **exchange rate, purchasing power parity** and **inflation rates**.

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vii. For different environmental parameters average cost per ton has been calculated using various international reports, as for example,

Air Pollution

Average Cost in Indian Rupee per ton for NH₃: 868858

Average Cost in Indian Rupee per ton for NO_x: 481336

Average Cost in Indian Rupee per Ton PM_{2.5}: 3001235

Average Cost in Indian Rupee per Ton PM₁₀: 1719693

Average Cost in Indian Rupee per Ton SO_x: 661769

Average Cost in Indian Rupee per Ton VOC: 100671

Water Pollution

Average Cost in Indian Rupee per ton for Biological Oxygen Demand (BOD): 1690

Average Cost in Indian Rupee per ton for Chemical Oxygen Demand (COD): 1902

Average Cost in Indian Rupee per ton for Total Suspended Solids (TSS): 192

Waste Water Pollution

Estimation of environmental damage cost for different wastewater treatment techniques as ASP, MBBR, SBR, UASB, MBR etc. has been done using Avoided and substitution cost method.

Solid and Hazardous Waste

Estimation of damage cost due to solid and hazardous waste has been carried out by using shadow price, value transfer and External cost of energy methods.

5. With reference to the presentation made by CSIR-NEERI, the content of **deliberations** during the meeting is as enumerated below:

- i. Penalty and compensation to be separately considered for the purpose of calculation of EDCA, wherein penalty is to be a fixed amount for specific major non-compliance/violation and has significance w.r.t minor non-compliance such as non-existence of some conditional documents or wherein the compensation is already being imposed by other agencies under different statute. These are the scenarios, wherein detailed calculations of compensation and remediation cost may be avoided to ensure time bound action for non-compliance.
- ii. Compensation/Penalty charged by state authorities in case of excess mining for mining projects by Department of Mines and Geology under Common cause judgement shall not be part of env. damage cost assessment.
- iii. Similarly, under the delegated power of EPA, compensation is being charged by CGWA for non-existence of NOC from CGWA approval. Any imposition of

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- compensation under EDCA for these cases will tantamount to duplication. The penalty imposed by CGWA for different scenarios and non-compliance of EC conditions pertaining to the amount of ground water abstraction, usage etc. shall be flagged to authorities providing permission i.e. Central Ground Water Authority (CGWA) which are empowered to initiate action under Environmental Protection Act, 1986.
- iv. Damage / Compensation cost for Non provision of Energy conservation measures as per (ECBC) for buildings shall be levied when non-compliance is observed for building construction projects.
 - v. Elements of subjectivity while providing value for environmental services shall be avoided.
 - vi. Heavy metal leaching shall be accountable (Damage cost) only for specific industries such as as pharma, metallurgical, electroplating etc. as the case may be that the effluents generated from such industries contain heavy metals requiring the installation of ZLD (Evaporator) and for the rest of the industries is only damages due to domestic sewage discharge shall be assessed by avoidance / substitution cost method
 - vii. Any discharge to surface water is more severe compared to discharge to ground water bodies hence it shall be adequately given preference while calculation of compensation cost.
 - viii. EC Conditions pertaining to quality of water for example any damage caused due to discharge into surface or ground water regime due to industrial activity amounting to water pollution shall be assessed for calculation of EDCA.
 - ix. Population density as one of the parameter for the calculation is not being used considering the subjectivity that is associated with it.
 - x. Common cause judgement pertaining to mines shall be referred for definition of compensation and restoration to get better understanding of scenarios where they are applicable.
 - xi. Penalty, Compensation cost and restoration cost shall be included as part of environmental damage cost.
 - xii. A social cost of carbon method for greenhouse gas emission to those industries who use fossil fuels may be considered while assessing environmental damage cost for GHGs.
 - xiii. The scenarios and project/activity w.r.t which the remediation/ restoration cost shall be levied need to be explicit.
 - xiv. As far as waste and effluent are concerned there shall be difference in methodology w.r.t Common Municipal Solid Waste Facility (CMSWMF), Common Hazardous Waste Treatment, Storage and Disposal Facility (TSDFs) and Common Effluent Treatment Facilities and individual facilities / Industries requiring treatment of waste under SWM rules 2016
 - xv. EDCA involving parameters such as ecology and biodiversity, occupational health safety will be worked out by the Chairman and shared amongst the committee members for further deliberation.

6. **Shri Sujit Kumar Bajpayee, JS** stated that the process of levying penalty cost shall be in sync with the proposed decriminalization of Environmental legislations which is underway. Further, he opined that it may be explored whether EDCA Statute

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which is being contemplated can be part of EPA Amendment Rules which is underway and being coordinated by IA-Policy.

The meeting ended with the vote of thanks to the Chair.

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ANNEXURE-I

List of participants for the review meeting of the committee on environmental damage cost assessment in compliance with Hon'ble NGT Order dated 01.12.2021

S. No.	Name	Designation
EDCA Committee Members		
1	Mr. K. Gowrappan	Chairman
2	Dr. Hemant Bherwani	Scientist NEERI, Member
3	Mr. B. Vinod Babu	Scientist F, CPCB
4	Dr. Shruti Rai Bhardwaj	Director, IA-Monitoring Cell
5	Ms. Srishiti Singh	Consultant, CPCB
MoEF&CC		
6	Dr. Sujit Kumar Bajpayee	Joint Secretary
7	Mr. J. D. Marcus Knight	Scientist-D, IA-Policy
8	Mr. Ramesh Motipalli	Scientist-E, IA-Ind III
9	Mr. Lalit Bokolia	Scientist-F, IA-Coal Mining
10	Mr. Pankaj Verma	Scientist, IA-Non-Coal Mining
11	Mr. Yogendra Pal Singh	Scientist, IA-River Valley & Thermal
12	Mr. Ashish Kumar	Scientist-E, IA-Infra II
13	Mr. Mahendra Phulwaria	Scientist-D, IA-Ind II
14	Mr. B S Sandeepan	Scientist, IA-Ind-I
15	Dr. Pinky Taneja	Consultant, IA-Monitoring Cell
16	Vinay Rana	ASO, IA-Monitoring Cell

*****End of Document*****




PROCEEDINGS

Meeting of the Committee on Environmental Damage Cost Assessment (EDCA) constituted in compliance with Hon'ble NGT Order dated 02.12.2021 in the matter of OA No. 175 of 2018 titled as Jammula Chhoudaraiah Vs Union of India & Ors.

A virtual meeting of the Committee on Environmental Damage Cost Assessment (EDCA) constituted in compliance with Hon'ble NGT Order dated 01.12.2021 in the matter of OA No. 175 of 2018 titled as Jammula Chhoudaraiah Vs Union of India & Ors. was held on **03.04.2023** at **11:00 hrs.** The list of the participants is at **Annexure I.**

2. At the outset, **Chairman** extended welcome to the participants. This meeting was held in continuation to last meetings held in the matter on 12th December 2022, 17th January 2023 and 28th February, 2023 to finalize the environmental damage cost to be attributed for different scenarios of non-compliance/violation of EC conditions.

3. The outcome of the **deliberations** is as given below:

- i. A standard formula to be devised for calculation of environmental damage wherein only a factor for inflation rate will change on yearly basis.
- ii. Irrespective of level of exceedance from the standard, the uniform methodology for calculation of EDCA shall be applicable.
- iii. Considering the lower per capita income and medical expenditure in India which works out to be 20-25% of European Union rate, estimated values for environmental damage cost appears to be on higher side and shall be reviewed on the basis of existing methodology and procedures.
- iv. Non-Compliance of conditions related to ground water abstraction above the prescribed level shall be referred to CGWA for levying cost as per their guidelines.
- v. **Penalty for violation cases** shall be levied as per the penalty provision for violation cases given vide Office Memorandum dated 07.07.2021.
- vi. The ambiguity arising out of the use of 'Penalty Cost' terminology in EDCA formula proposed by NEERI, which in actual sense is Environmental Compensation cost (ECC) of CPCB guideline, to be resolved by attributing **fixed amount wrt 'Penalty Cost'**. ECC involves detailed calculation using various environmental parameters and is thus not akin to penalty.
- vii. Environmental conditions across all the environmental approvals shall be divided into broad category of Minor and Major conditions, wherein major conditions are those which have potential to cause damage to the environment.

- viii. **CSIR-NEERI, which is already doing a project on rationalization of EC conditions for the Ministry, has to prepare broad categories of environmental conditions, which may be classified as major and minor conditions, which will be annexure of the EDCA statute.**
- ix. **Only fixed penalty cost** shall be levied for non-compliances of minor conditions and calculation of detailed EDCA shall be applicable in major non-compliance.
- x. CPCB has to deduce a new generalized formula for imposing a fixed penalty cost in cases of minor non-compliances related to non-submission of documents or advertisement of Environmental clearance in newspaper not within stipulated time etc.
- xi. **In case of non-compliance of major conditions, a fixed penalty cost along with Environmental Damage Cost shall be imposed.**
- xii. Restoration/Remediation cost will be applicable for the cases of non-compliance where extremely high damage to environment has occurred and it involve a site specific detailed study for concluding the cost, which is long drawn procedure and its inclusion in EDCA formula will delay the procedure of calculation and thus conclusion of the action. Further, remediation cost become applicable in some of the specific cases only. Accordingly, remediation cost at present need not be made part of EDCA formula. Restoration cost can be imposed separately in specific cases, over and above EDCA.
- xiii. **The list of such scenarios which may lead to the need for restoration/ remediation to be furnished by CPCB and it will be one of the annexure of the EDCA statute.**
- xiv. The EDCA cost shall be applicable for non-compliances to conditions across all the environmental approvals including CTE, CTO, Authorization etc.
- xv. **Assessment cost** for assessing the damage and restoration depends on site conditions and the extent of damage, therefore, it shall be levied on actual basis.
- xvi. The draft EDCA report circulated by the chairman, in line with discussion during third meeting published in MOM Point No-XV is to be perused by other members for suggestions / comments and shall be finalized by the committee in next meeting.

The meeting ended with the vote of thanks to the Chair.

ANNEXURE-I

List of participants for the review meeting of the committee on environmental damage cost assessment in compliance with Hon'ble NGT Order dated 01.12.2021

S. No.	Name	Designation
EDCA Committee Members		
1	Dr. Hemant Bherwani	Scientist NEERI
2	Mr. K. Gowrappan	Chairman
3	Mr. B. Vinod Babu	CPCB
4	Dr. Shruti Rai Bhardwaj	Director, IA-Monitoring Cell
5	Ms. Garima Sharma	CPCB
MoEF&CC		
6	Ritin Raj	RA, IA-Monitoring Cell
7	Dr. Pinky Taneja	Consultant, IA-Monitoring Cell
8	Vinay Rana	ASO, IA-Monitoring Cell

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Sawal

Taneja

PROCEEDINGS

Meeting of the Committee on Environmental Damage Cost Assessment (EDCA) constituted in compliance with Hon'ble NGT Order dated 02.12.2021 in the matter of OA No. 175 of 2018 titled as Jammula Chhoudaraiah Vs Union of India & Ors.

A meeting of the Committee on Environmental Damage Cost Assessment (EDCA) constituted in compliance with Hon'ble NGT Order dated 01.12.2021 in the matter of OA No. 175 of 2018 titled as Jammula Chhoudaraiah Vs Union of India & Ors. was held on **25th July, 2023** at **11:00 hrs.** in Teesta Hall, Indira Paryavaran Bhawan, MoEF&CC. The list of the participants is at **Annexure I.**

2. At the outset, **Chairman** extended welcome to the participants. The Member Secretary briefed the committee about the deliberations held till date on the issue and the agenda of the meeting which was confined to deliberation on the list of EC conditions to be categorized as Major and Minor by CSIR-NEERI, updation of Zero-draft of EDCA as per comments of the last meeting, calculation of fixed penalty cost by CPCB, and list of restoration/remediation scenarios to be identified by CPCB.

Agenda-wise details of deliberation are as given below:

Agenda 1: Categorisation of EC conditions for imposition of major or minor penalty-NEERI

3. Briefing by member secretary was followed by presentation by CSIR-NEERI on the representative set of conditions of distillery sector for categorization as major and minor conditions. The conditions presented were in terms of applicability for damage cost assessment and/or levying penalty only. The excel sheet presented during the meeting is at **Annexure II.** It was noted that there were many statutory conditions viz. NBWL clearance, FC clearance, CGWA clearance which were proposed for fixed penalty as there is no methodology to determine damage on the ground in the absence of the statutory document, though they are considered as major non-compliance by the Ministry. In reference to this ambiguity, it was proposed by the member secretary that the calculation may comprise of three sets of EDCA calculation structure for three group of conditions viz (i) major condition with feasibility of assessing direct damage on the ground, (ii) major conditions where on ground damage cannot be assessed, (iii) minor conditions. The EDCA calculation for these three (3) sets of scenario as proposed by member secretary are as given below:

- i. **Major condition with feasibility of assessing direct damage on the ground**

EDC= FPC+DC+AC wherein,

EDCA is Environmental Damage Cost

FPC is Fixed Penalty Cost

DC is Damage cost to be assessed on the basis of on ground analysis

AC is Assessment Cost on actual basis

Further, Restoration Cost (RC) will be levied, if applicable on case to case basis /

ii. **Major conditions wherein on ground damage cannot be assessed**

ECC= CC+FPC wherein,

ECC is Environmental Compensation Cost

CC is Compensation Cost (to be calculated as per CPCB ECC formula)

WHEREIN COST SAVED METHOD IS NOT POSSIBLE/cost saved method (As per CPCB) due to non-provision of the remediation activity with budget and period of compliance during the violation period.

FPC is Fixed Penalty Cost

iii. **Minor conditions**

Fixed Penalty Cost (FPC)

4. It was noted that the environmental compensation cost (ECC) as prescribed by CPCB is on the basis of air, water and hazardous waste parameters and not able to address the WL and FC issues. Member secretary pointed out the location factor used in the CPCB formula for ECC which also takes into account the ESZ. It was proposed that the formula prescribed by CPCB for ECC may be appropriately modified for its applicability in cases where only NBWL clearance, forest clearance etc. has not been taken by the Project Proponent. For this purpose, **CPCB shall dwell upon the modification of Location Factor in the formula to incorporate scenarios if the project has impacted the Forest Area or Protected Areas.**

5. As stated by the Chairman, Annexure B of EDCA document enumerate comprehensive set of conditions which represent environmental conditions of most of the EIA sectors and thus Annexure B is to be used by NEERI for categorization of conditions.

Agenda 2: Zero-draft of EDCA-NEERI

6. With reference to draft EDCA document, the Chairman referring to previous deliberations and noted that the proposed monetary values wrt DC

have not been revised by NEERI, as had been deliberated in the past. The chairman re-emphasized on the need for revising the monetary values proposed in the draft by NEERI wrt various impact drivers taking into consideration the Indian conditions and recent reports. It was pointed out by the Chairman that references used for meta-analysis in draft EDCA document such as CE Delft report, EEA Technical report are of the year 2005, whereas, latest reports of the year 2015, 2020, 2022 are already available and shall be used for proposing the monetary values. This is important considering significant change that has occurred in last 10-15 years wrt inflation rate and purchasing power parity. As has been noticed from past few years, with availability of improved technology, emission standards have been made stringent, and accordingly better performance in terms of environmental impact is visible. Accordingly, it is much more significant to use the latest reports which takes into account all these factors for EDCA calculation.

7. Further, was noted that it had been discussed and also recorded in the previous minutes of the meeting that the formula shall not incorporate Restoration/remediation cost (RC), as there will be limited cases wherein remediation will be applicable and the detailed time taking examination that is involved for remediation cost will delay the complete process of action against the PP on the basis of EDCA. RC can be added over and above the EDCA in those specific cases where remediation is applicable. The formula has not been revised accordingly by NEERI.

8. The Assessment Cost, which is to be added on actual basis is also missing from the formula.

9. Chairman opined that wrt noise and vibration as parameter, damage cost shall not be considered and only penalty as prescribed by CPCB shall be levied in such cases.

10. It was noted that Volatile Organic Carbon (VOC's) emission is an important parameter wrt Pharma industries, refineries etc posing significant health risk. Accordingly, it will be useful to review the need and mechanism of incorporating VOCs as a major impact driver for damage cost calculation. This shall take into consideration the fact that no standard value/norms is available for assessment of damage caused due to emission of VOC's except for Benzene and only long term cohort studies are available to correlate effect on humans.

Agenda 3- Calculation of fixed penalty cost by CPCB

11. Could not be presented as representative of Mr Vinod Babu, Director, CPCB informed that they are still working on it and it is expected to be completed within fortnight.

Agenda 4- List of restoration/remediation scenarios to be identified by CPCB

12. Could not be presented as representative of Mr Vinod Babu, Director, CPCB informed that they are still working on it and it is expected to be completed within fortnight.

13. Representative from CPCB presented a list of scenarios wherein Damage Cost assessment formula will be applicable. The presentation is at **Annexure III**. It was noted that CPCB is proposing for Environmental Compensation Claims as ECC, which was not agreed by the Committee considering that settlement of claims is long drawn process. For 1(a) scenario presented by CPCB, wherein project has expanded without EC/implemented changes without approval, penalty shall be imposed on the basis of Standard Operating Procedure issued by Ministry vide its OM dated 7th July, 2021 read with OM dated 28th January, 2022. For 2(g) scenario presented by CPCB, for illegal groundwater extraction the same shall be referred to CGWA for further action (including penalty imposition) as per their norms.

14. The meeting was concluded with following **decisions** by the Chairman:

- i. Three sets of EDCA calculation structure for three group of conditions viz (i) major condition with feasibility of assessing direct damage on the ground, (ii) major conditions where on ground damage cannot be assessed, (iii) minor conditions are to be considered for future deliberations.
- ii. CSIR-NEERI has to update Annexure **B** of EDCA document and categorize conditions for imposition of either damage cost or compensation cost or fixed penalty
- iii. Latest references shall be utilized for conducting meta-analysis and calculation of damage.
- iv. Formula shall incorporate Assessment Cost and not Restoration cost, which will be applicable on case to case basis.
- v. With respect to noise and vibration as parameter, damage cost shall not be considered and only penalty as prescribed by CPCB shall be levied in such cases.
- vi. Cost due to externalities shall not be added to the damage cost to avoid duplicity.
- vii. Review the need and mechanism of incorporating VOCs as a major impact driver for damage cost calculation.
- viii. CPCB shall dwell upon the modification of Location Factor in the their ECC formula to incorporate scenarios, if the project has impacted the Forest Area or Protected Areas or doesn't have related statutory clearances
- ix. EDCA document has to be summarized in not more than 8 pages by CSIR-NEERI
- x. Punitive/Fixed Penalty Cost formula or amount has to be finalized by CPCB within fortnight
- xi. Scenarios where Restoration Cost/remediation cost shall be applicable has to be identified within fortnight by CPCB

The meeting ended with the vote of thanks to the Chair.

ANNEXURE-I

List of participants for the review meeting of the committee on Environmental Damage Cost Assessment (EDCA) in compliance with Hon'ble NGT Order dated 01.12.2021

S. No.	Name	Designation
EDCA Committee Members		
1	Mr. K. Gowrappan	Chairman
3	Dr. Hemant Bherwani	Scientist NEERI
4	Dr. Shruti Rai Bhardwaj	Director, IA-CMD
MoEF&CC		
5	Munna Kumar Shah	Scientist E
6	Dr. Adiraju Bhardwaj	Scientist D
7	Dr. Pinky Taneja	Consultant, IA-CMD
CPCB		
8	Mrs. Garima Sharma	Sct 'E', CPCB

*****End of Document*****

Garima

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Kumar Rajesh Singh <adv.kumarrajeshsingh@gmail.com>

OA No. 125 of 2017 by Shri Jammula Chhoudaraiah & Ors versus Union of India & Ors before the Hon'ble NGT (PB), New Delhi -reg.

2 messages

Ishanvi Makhaik <ishanvimakhaik007@gmail.com>
To: Kumar Rajesh Singh <adv.kumarrajeshsingh@gmail.com>

Thu, Sep 21, 2023 at 4:11 PM

PFA, as discussed.

Regards

2 attachments **Affidavit and annexures merged and page numbered.pdf**
3165K **Order dated 02 12 2021.pdf**
2513K

Kumar Rajesh Singh <adv.kumarrajeshsingh@gmail.com>
To: sravan kumar <advsravan@gmail.com>

Wed, Oct 18, 2023 at 9:41 AM

----- Forwarded message -----

From: **Ishanvi Makhaik** <ishanvimakhaik007@gmail.com>

Date: Thu, Sep 21, 2023 at 4:06 PM

Subject: OA No. 125 of 2017 by Shri Jammula Chhoudaraiah & Ors versus Union of India & Ors before the Hon'ble NGT (PB), New Delhi -reg.

To: Kumar Rajesh Singh <adv.kumarrajeshsingh@gmail.com>

PFA, as discussed.

Regards

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Thanks & Regards :-**Kumar Rajesh Singh, Advocate****Off:- Chamber No. 529, 5th Floor,****Block - D (Chamber Block),****Additional Building, Supreme Court****New Delhi - 110001****Res :- Flat No.1003, 10th Floor, L Block,****Signature View Apartments,****Dr. Mukherjee Nagar Delhi - 110009****Mobile :- 9811013515, 7011734896**

2 attachments **Affidavit and annexures merged and page numbered.pdf**
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